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for WHAT IS THE SOUL ?

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In what I have to say this evening on the soul, I wish it distinctly understood that I am not discussing the question from a theological standpoint. Doctors usually dabble very little in theology, you know. But I confess I have less and less faith in theology and creeds the older I grow and the more experience I have, and the more faith I have in the Bible. I am sure you will say before I get through, that I am decidedly unorthodox in reference to the nature of the soul; but I state at the outset, that I am not discussing this subject from a theological standpoint.

Now, as I have just stated, I do not propose to discuss this question from a theological standpoint. Yet it is a question which theology has made interesting. If it were not for theology (orthodox theology), it would probably not be necessary to discuss this question. But I think the orthodox doctrine of the soul,-- if there is a clearly defined orthodox view, and I am not quite certain that there is, -- involves, I think I may say, absurdities and certain *cruelties* which it would be impossible for the mind to receive with any sort of complacency, if it were not for what seems to be the case-hardening influence of heredity and dogmatic teaching. Nothing else, it seems to me would have ever made it possible for ^{an} audience during the last century to sit and listen with solemn decorum to the teaching of an eminent divine who stated with entire complacency that hell was lined with ~~little~~ infants "not a span long," and picture before a Christian audience the eternal tort-

of innocent little ones, infants who had known no sin or guilt—except that of their ancestors :

The proprietor of a great iron foundry in Germany was at one time talking with a workman who was shoveling coal into ~~the~~ furnace. He accidentally stepped backward, and in doing so, fell headlong into a crucible of molten iron. He was immediately ~~scorched~~ ^{consumed}, and, for him, the torture in the furnace was only two or three seconds, but prolong that torture, if you please, for one year: you can hardly imagine what the misery and the suffering of that year would be. But what would it be, when prolonged to an endless eternity! As the great theologian, Jonathan Edwards said, "Multiply all the sands of the seashore by all the drops of water in the ocean; multiply this product by all the stars in heaven, and you have only just the beginning of the period of the suffering of a man who is damned,—condemned to eternal torment! Now this, I say, is one of the cruelties resulting from the orthodox theory in reference to the nature of the soul. I do not hesitate to assail it, because I think it is cruel, unnatural; because I think it is entirely unlike the God of the Bible and the God of nature to inflict an endless amount of torment upon a human being, for, one might say, an infinitesimal amount of sinning, in comparison.

But I am not going to discuss theology, nor to condemn theology, but I am going to discuss, from a scientific standpoint, the ~~origin, nature, and destiny~~ ^{this} of the soul. These questions have ^{been} ^{of} ^{perennial} ^{interest} from the ^{earliest} ages to the present time. They ^{have} ^{been} ^{the} ^{subjects} of speculations the most curious, and, in some instances, the most absurd. The theological theory of the soul seems to have had its origin in the belief in a future life. The real purpose of the soul ^{in Theology} seems to connect this life with the fu-

ture life. Wherever there has been a belief in a future life, there has been a belief in the soul; and if you will give the matter a moment's thought, you will see that the real purpose of a soul in a theological theory, is to connect this life with the future life. I am willing that from my standpoint (the scientific standpoint), that this ^{theory} purpose of the soul shall be kept constantly in mind. Is there any identity in the soul,--is there anything in the soul by which to connect the former life of the individual with the future life? This idea of a soul seems to have been so dominant, even among the most savage people; ~~and so~~ they have made provision, after the death of individuals, that the soul may escape from the body. The natives of our own country, and of our own State, the aboriginal inhabitants of Northern Michigan who live around the great copper mines near Lake Superior, and their descendants in other parts of the country, in Arizona and New Mexico for example, have a custom, the evidence of which may be found in some of their skulls, an aperture having been made at the top of the skull head so that the soul might escape from the body. Large numbers of these skulls have been discovered, with about an inch in diameter holes, which have been bored in the top of the head, so that the soul could get out. It seems to have been the impression among those savage tribes that the head was the abiding place of the soul, and that it must have a place to get out, after death. The idea of many other savage tribes is, that the soul escapes through the nostrils, through the ears or other outlets of the body, but these natives supposed it was necessary to make holes in the tops of their heads, out of which the soul could escape. Some of the South Sea Islanders have the same theory, it seems, for their dead bodies are found to have holes in their skulls, as were the dead bodies of Indians who used to inhabit Northern Michigan.

Many theories have existed in relation to the nature of the soul. Perhaps the most ancient theory is, that the soul is a part of the Deity; that every human being has in him a portion of the Deity; that the Deity is being constantly divided up into different portions, and that these portions of Deity ^{are} ~~were~~ incarnated in human bodies and constitute their souls, and that at the death of the body, the soul goes back to the Deity again; that they are again absorbed into the Creator. This doctrine is what was known as Pantheism. This doctrine ~~was~~ held by the ancient Brahmins and Buddhists. They held the idea that when a man died, he was absorbed back into the Deity again, and that the height of happiness consisted in losing one's identity and being absorbed ^{back} into the great Creator. I am not going to discuss this theory at any great length, because there is no evidence of the truth of it. We do not need to discuss hypothetical questions. I want to discuss something which has a basis, a scientific basis; and I want to convince you before I get through, that man has a soul,-- a real, genuine soul; that there is no mistake about this idea; that there is abundance of scientific evidence to prove it.

There is also a very ancient theory (almost as ancient as the one which I have mentioned to you), and that is, that the soul existed before the man did. This is simply a modification of the theory that the soul is a part of the Deity. This theory involved the doctrine of ^{or Transmigration of souls} metempsychosis. It was supposed that all souls existed before the individual was born; that it existed in some form, and was introduced in some way into the man's body at his birth. There were various forms of this theory, one of which was held by the Talmudists. They believed that all souls were created at the creation of the world, and that as individuals were born, souls were put into them,--they were "infused", so to

speak by a special act of the Creator; that these souls were kept in Heaven or Hades, and at the birth of each individual, a soul was called from its abode to take possession of that body. The Talmudists believed that when God created Adam, he created in him the souls of the whole human race; that he then drew his hand down Adam's back and drew out the souls of all the generations that were to follow Adam, in the same way that he drew the rib out of which Eve was formed, out of Adam's side. that these souls acknowledged their submission to the Almighty and their dependence upon him, and that they were then allowed to creep back into Adam's body again, and that since that time, they have been gradually coming out, through the process of procreation and heredity from Adam down to the present time. The Koran teaches that Adam and Eve were created as angels at the beginning; that they were sent out on a visit to the different planets; that they came to the earth, and here they found Lucifer; that he deceived them and incarcerated them in human bodies. This seems to agree somewhat with the idea to which Shakspeare gives utterance in the play of Romeo and Juliet, where he says (in substance) "Oh no! What had'st thou to do in Hell, when thou didst borrow from Paradise such sweet flesh!" This is what Romeo says of Juliet. Shakspeare was a learned man and he may have read the Koran and borrowed this idea from that. This ancient doctrine, as I have remarked, involved the doctrine of metempsychosis, which is most interesting, because it is very widely believed, even at the present time. This doctrine taught that the body was a sort of missionary station or Botany Bay of souls, a stopping-place for departed spirits; that the body was inhabited by spirits or souls temporarily, to undergo penance, perhaps, for sins which they had committed in another body, and from there they were destined to go downward or upward

in the scale of being, according to his character; for example, when a man was a very bad man, he was sent down to the very bottom of the scale--perhaps a mould upon the wall, or a lichen growing upon a log--and then gradually ascended to his former station. If he was not very bad, when in the body of a man, and had a second chance, ~~he only went part way down~~ ^{did not go so low as} the scale of being, perhaps to a horse or a dog, and from this condition he gradually ascended to that of a man again. So this theory supposes, as I have stated that the human body is a sort of Botany Bay, or missionary station in which the soul is put through a series of lessons, ^{higher state of being} ~~to purify the~~

These theories, as I have said, are nothing but hypotheses; but they are all interesting, because they are so widely believed. The doctrine of metempsychosis or transmigration of souls was believed by Pythagoras, one of the most eminent of the ancient Grecian philosophers, and who ^{lived} flourished about 500 years before Christ. He was so wise a philosopher that without any modern mathematics or telescopes, he discovered the whole philosophy of the Solar System, and he taught, in opposition to all the other philosophers of his time, and all the philosophers who had lived before him, and he taught a theory which was the most profound heresy in his day, and also so late as the time of Galileo was as unorthodox as what I shall say to you to-night about the soul; he taught the doctrine that the earth goes around the sun, and that the sun and the stars do not go around the earth, as was generally believed. This doctrine was explained by Pythagoras five centuries before Christ. Well, Pythagoras believed this theory of the transmigration of souls so profoundly, that as he was going along one day and heard the outcry of a dog on the opposite side of the road and, dropping upon his knees before the man who was

beating the dog, begged of him to desist, because he recognized in the wails of the dog the voice of his dead friend. The idea was that the soul passed from the body into some lower animal, and from thence, higher or lower, according as the functions of each animal were fulfilled; if they were well fulfilled, the soul ascended in the scale; otherwise, it descended. So that the soul which once occupied the body (here insert quotation ending with "Invades where serpents hiss and glare," etc.) So they put the soul through all the different forms of life. Now that theory is believed to-day by more people than there are who believe in the orthodox idea of the soul. Vastly more people believe this doctrine of metempsychosis or transmigration of souls,--vastly more people who live upon the earth to-day believe this theory than there are people who believe in any other theory of the soul. All the millions of Buddhists and Brahmins of India and China,--all who believe in a soul at all--believe this theory of the transmigration of souls.

There are many other theories in relation to the soul. One theory is, that the soul of each individual is created at his birth independently of his body, by a special act of the Creator. But you see, this theory makes God the servant of sin. It is not consistent with the wisdom or virtue of God to make a soul whenever certain sensual and sinful acts are committed. It is impossible that such a theory can be true.

But there is another theory concerning the existence of the soul, and that is, that the soul is born with the man ^{that when the man is born} is born with him; that when a man is born, everything about that man is born with him, just as much as his hands, his arms or his legs are born with him; that when a man is born, everything about that man is born with him and is developed with him. The idea that the

soul is a conscious thing, that consciousness is one of the essential elements of the soul--is the thing that creates all the difficulties in relation to it . If we did not believe that the soul is a conscious, independent thinking entity, we should have no difficulty in relation to the question as to what the soul is . It is the fact that we attribute to the soul special properties which do not belong to it, that involves all our difficulties in relation to it. The idea that generally prevails in reference to the soul, is, that it is independent of the body; that it is glad to get rid of the body. How often we read in good books (books that are in other respects good, at any rate), about the efforts of the soul to get away from the body, about the soul's trying to free itself from the fetters of the body, trying to shake off the body, etc. This theory is illustrated by an epitaph which I read sometime ago upon a Kansas tombstone, and which ran something like this :

"Under this sod, and under these trees,
Lieth the body of Solomon Peas.
He left not his soul, but only the pod;
He shelled out his soul and went up to God."

This represents the idea very well. The body is nothing but the "pod," and the soul is the "pea." The body is but the poor shell or pod which is to be cast out and trodden under foot . Now this idea that the soul is all important and that the body is of no account, has given rise to very serious heresy in relation to the body. It was this idea that led the ~~early~~ Christians (I hardly dare call them Christians, I will say theologians) of the third and fourth centuries to destroy all the great baths in Rome. When I was in Rome a few years ago, I saw there the ruins

of the wide, magnificent public structures where baths were provided by the Roman Emperors, where there were opportunities for 20 000 people to bathe in one day . Fifteen hundred years ago, there were many of these baths in Rome, among which were the great baths of Nero. And these magnificent structures, as I said, were all destroyed, except a few crumbling walls and Mosaic pavements, and portions of the swimming baths. The Christians had torn these all down ! Even so late as three centuries ago, the Archbishop of Paris absolutely prohibited the people from visiting public baths. Wherever the pagan Romans went, they erected buildings for bathing purposes; they believed in a religion of the body; they believed that the body was of some value, so, wherever they went, they built magnificent structures with facilities for bathing. And wherever the conquering Roman armies went, they built baths. But the theologians of the third and fourth centuries taught that baths were bad, because they called attention to the body; and it is an actual fact (and you will find it so recorded) that in those days, men were eulogized for being dirty. One man who was so great a saint that he was canonized, and the evidence of his piety was exhibited to those who came to his shrine, - it was a pair of pants with three hundred patches on them. One ^{man} ~~of the reasons why he~~ was considered a great saint, ~~was the fact~~ ^{because} that he hadn't combed his hair for fourteen years ! (Laughter.) I am not overstating this matter at all . There was a sort of "odor of sanctity" in those days that required disinfection . (Laughter.) During these times, the body, as I said, was totally disregarded. Now the modern idea of the soul originated in those days - times when men's bodies were abused, persecuted , beaten with thorns made to tread upon stones, etc., in order that their souls might be purified. But the soul is not to be purified in that way; the body is to be purified. The Greeks wrote over the portals of

their temples the motto, "A sound Mind in a Sound Body," but the theologians got it, "Make the Mind (or Soul) Sound by Abusing the Body." A correct idea of the soul is, that it is a part of the individual, as I will try to show. I will not, however, go into any lengthy explanations while speaking upon this subject. Just let me call your attention to some of the important features of what I consider the essence of my theory upon this question,-- I hardly wish to call it my theory, because it did not originate entirely with me; I find that other men have been thinking along the same line, and I am glad to find that this is so.

Some twenty years ago, I began to think upon this question quite intensely. I said to myself: "How can I connect this life with a future life?" It is very important for me that I should have a soul, for if I have no soul I have no surety of being resurrected when I die and become mingled in the great mass of matter found me. How will I be resurrected, if I have no soul, and know that it is I,--MYSELF? Some one says that the Almighty can raise the identical particles of matter which composed the body when alive. In reply to this suggestion, I admitted that the Creator ~~could~~ ^{can} raise the same particles of matter which composed the body at death, but ~~that~~ ^{don't} I ~~didn't~~ believe he ~~would~~ ^{will} do it, because it assumes all sorts of forms after death. As the poet says,

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"Imperial Caesar turned to senseless clay,

Might stop a hole to keep the wind away."

More than that; he might become a potato or a kernel of corn, or a part of another animal. The body of a man may be incorporated into a hundred other men's bodies and thus lose its identity. Therefore we must have something to identify us as individuals in the future life.

The thing that is essential in the soul is, that it is that which identifies us. It connects this life with the future life. If it were not for that fact, nobody would care for a soul. The idea of a soul grows out of a belief in a future life. The hope of and the belief in a future life is what gives rise to the doctrine of the existence of a soul, and the different ideas which have prevailed in reference to a future life have more or less modified the ideas which have existed in reference to the soul. Without a soul we could not have a future life. This is generally understood, even by the lowest savage. ~~We~~ ^{one} must have something that goes from this life into the future life, to secure to him that future life, otherwise he would not know that HE was there. There must be something in him and a part of him to-day which must go right on into the future life without any break of any sort, otherwise that future life is not HIS life.

We now come to this point, that whatever the soul is, it is the identifying element of the human body; that the human soul is the thing which constitutes the human identity. I think no one will dispute that proposition; I think everybody will agree that the thing which constitutes the soul is the thing which constitutes human identity; that ~~it is~~ the identifying element of the ~~human~~ individual, is the soul, whatever that may be; that the thing which is capable of identifying the individual under all circumstances and under all conditions, the real identifying principle, the real identifying element, the essence of the man, is the soul. I think that everybody will admit that that is true. I will put it to vote and see how many will agree with that proposition. All who agree to this proposition without considering any other

proposition, raise your hands. (Hands raised.) About two thirds of the hands are up. Some of you want to see what comes next, before you vote. But the more you think of this proposition, the more you will see that it is true; that the thing essential about the soul is, that it is the thing which is capable of identifying the man. That is the reason you want a soul; you want it to identify you in the future life, so that you will be certain there is no mistake about it; so that you will know that you are YOURSELF in the future life, and not another man who has got into your body and left you out. It is the identifying element that you want.

Now let us consider what is essential to this identifying principle. What is essential to the identifying principle? The answer to that question will tell us what is essential to the soul itself, so we will consider this question first. There are other things which are not essential to the soul, but, as we have seen, the identifying principle is essential to the soul. Now let us see what is essential to the identifying principle. In the first place, the identifying principle must be natural to the thing which it identifies. Why natural to it? Because, if it is not natural, it is artificial and can be put on and taken off. If it is not natural to a thing, then it is not an intrinsic part of that thing, but is artificial, it can be put on, taken off, and changed so that it is not the same thing. So you see the identifying principle of a thing must be natural to that thing; it must be an intrinsic part of it. I think you will all agree to that. There is another reason why an artificial thing will not do, as a means of identification is, that artificial means are means of our own creation, or of some other man's creation. Such a thing would not answer, because it would make our ability to identify it

depend upon our knowledge of the thing, and not upon the thing itself . To illustrate : I go out on the street and see a Chinaman. I notice the "pigtail upon his head, his strange looking eyes with the corners turned up, etc. The next day I see another Chinaman of about the same size and appearance as the one that I saw the day before. Then I tell my children that I saw a Chinaman upon the street yesterday, and I saw the same Chinaman today. When they ask me how I know it is the same Chinaman, I say, "He was a man about the same size, he had a pigtail upon his ~~his~~ head and the corners of his eyes turned up, just the same as the man had whom I saw yesterday." Well, perhaps I saw the same man whom I saw yesterday, and perhaps I didn't. My means of identifying the man are artificial, and might answer for some other man, hence you see they are insufficient; my means of identification are of my own creation, and they won't do. Or, suppose again, that I go out into a field where sheep are kept, and the shepherd calls my attention to a certain sheep. I notice that he has wool, and that his wool is white, and I notice his size; but there are some peculiar features about him that I do not notice. The next day I go into the same field and see another sheep, and I say, "That is the same sheep that I saw here yesterday; he has white wool, and is about the same size." But this is not a sufficient identification, because I only noticed the general appearance of the sheep, and did not take pains to observe the peculiar and natural points of difference between the sheep, as the shepherd does. The shepherd says, at once, "That is not the same sheep that you were looking at yesterday." The shepherd has the ~~the~~ natural means of identifying the sheep, and those means extend to the whole sheep, inside as well as outside. The real identifying

principle must be something which is natural to the thing itself; it must not be an artificial thing .

2. **2.** The identifying principle must be an essential part of the thing which it identifies; it must be essential to it and inseparable from it. If this is not true, then an object might lose its identifying principle; it might still exist, but without identity, which could not be true, for when a thing loses its identity, it ceases to exist. I say the identifying principle must be essential to the thing which it identifies, and an **essential** part of it, otherwise, you see that thing might lose its identity, and it would cease to exist, and still exist without identity. But this is absurd; I think you can all see that . *might change*

3. The identifying principle must represent the whole of the thing identified. I think you will readily see that . If this identifying principle does not represent the whole of the ^{*object*} identified,--if it does not represent every part of it--then there must be some part of a thing which the identifying principle does not identify; and if there be any part which it does not identify, there may be another part which it does not identify, and if there is any essential part of a thing which the identifying principle does not identify, then the thing itself is not identified, and the identifying principle is no identifying principle at all, because there is some essential part of a thing which it will not identify.

4. The identifying principle must be coexistent with the thing which it identifies. That is, it must begin with the object, and exist just so long as that object exists; it must be coexistent with it . Why? Because, if the identifying principle did not begin its existence with that of the object to be identi-

fied, then the object existed when there was no means of identifying it, and there is a period in the existence of the object to which the identifying principle cannot apply; it cannot connect the object with a period of time in which there was nothing to identify it. (Illustrating by diagram.) Suppose this line represents the existence of a thing; suppose its existence begins here and ends here. You see the identifying principle must begin back here, and it must end here, or it will not connect these two points. But suppose it begins here: then it is not an identifying principle, for the reason that it will only identify the object from this point onward, but will not connect it with the period of its existence here. It cannot connect this part with this; so it is not an identifying principle, for an identifying principle must be able to identify the thing which it represents; it must connect the object with every period of its existence; it must connect one point with every other point.

5. The identifying principle must have absolute continuity of existence. It must exist right along; it cannot go out of existence for awhile, and then reappear again, otherwise the identifying principle would be lost, and you would never have any surety that you had it again, if it should reappear; you would not know that you had the same thing. In order for the identifying principle to do its proper work, it must always exist so as to be always ready to identify the thing which it does identify, and it must do this in all places and in all times. If this identifying principle can be interrupted or changed, then there will be no means of connecting the former periods with the subsequent period, as we could not tell whether we had the same identifying principle if it should come into existence again. We would have

to have another identifying principle to identify this identifying principle, you see. (Referring to diagram.) If our identifying principle should cease to exist for a moment, we would have to have another identifying principle, in order to make this line reach from here to here and hitch on to this. So the identifying principle must have absolute ^{continuous} continuity, existence, and must be coexistent ^{with} the thing which it identifies, from its earliest existence to its conclusion. Now, if the identifying principle of an object were lost, and we could by any means establish ^{the} a relationship of the object in all the different periods of its existence, --if we had another identifying principle which would connect the former and the latter states of existence of the object, then that thing which accomplished this, would be the real identifying principle of the thing identified, because the thing by which we identify an object is the identifying principle of that object.

This difficulty in relation to the identification of the body in a future life was recognized by the old teachers. Aristotle recognized it in his treatise on the soul. Thomas Aquinas in his work entitled "De Anima" shows that he understood this difficulty. He said that man must have something about ^{him} that will identify him; so he said that it is the "animus" that identifies the man, and he applied this term "animus" to the identifying principle of all things, and ^{said} that it was the animus in everything that moved it. He said that when a tree grows, it is not the tree that grows, but it is the animus of the tree that grows it; and when a stone rolls, it is not the stone that rolls; it is its animus that rolls it; that when a dog barks, it is not the dog that barks, but it is the animus of the dog that barks him. So, with man; when he thinks, it is not the man that thinks; it is the animus within him that thinks him; ^{he said} that it acts upon his brain

just as the organist or pianist acts upon the piano or organ. But there is another difficulty which arises here : What is it that animates the animus? If a man requires an animus to animate or move him to thought or action, what is it that moves or animates the animus to move or animate him? What is it that animates the animus of a dog which enables him to bark and makes him bark, if he cannot bark with his barking apparatus? But how can a dog bark without a barking apparatus? But it is claimed that we must have an animus to work the apparatus and bark the dog. But if we must have an animus to bark the dog, then we must certainly have an animus to make the animus in the dog bark him, because the principle applies in one case as well as the other. How can an animus act without an animus to move it? We need an animus to act in one case as much as in the other. If we need an animus for the dog, we need another animus for the animus of the dog. And if we must have another animus for the animus of the dog, then we must, by the same rule, have another animus for that animus, and another animus for that animus; that is, we must have an animus for the animus of the animus of the animus of the animus of the dog; and so we may go back to the beginning. Now the whole secret of this difficulty is, and a satisfactory solution of it is this: the dog does not need an animus to make him bark; he is able to bark without any animus. And this "animus"^{theory} does not help us a particle in understanding how a dog^{barks}. It is only simply saying we don't know. We suppose that the dog is not able to bark, and that it is his animus that makes him bark. We simply blind our eyes to the fact that a dog can bark just as well without an animus as an animus can make him bark; that if a dog cannot bark without having an animus, then that animus cannot make the dog bark, unless it also has an animus to make it make the dog bark. (ec)

Besides, it would be much easier for the dog to bark without an animus than with one; for without an animus, the dog has only himself to move, if he wishes to bark, while in the other case, the animus would have to move the dog, and if he did not wish to bark, the ^{animus} would have to move the dog against himself, you see. So that the animus might have a much bigger job on hand than the dog would have without an animus. And then there must be another animus, ^{and so on,} as I have said. Now this is one of the difficulties which we are talking about .

The idea that I am trying to present to you here, is, that there is an identifying principle in man, and that this identifying principle possesses certain properties. We have already found,

1. That it must be natural to the thing it identifies.
2. It must be essential to the thing it identifies.
3. It must represent the whole of the thing identified.
4. It must be coexistent with the thing it identifies.
5. It must have absolute continuity of existence; it must have no interruption, so long as it identifies the individual or object.

Now the hope of a future life depends entirely upon the ability of something about us to identify the future life with this life. Because death makes a break of some sort, and so there is a great chasm which we must bridge over, ^{which is death} and to bridge the chasm of death is the purpose of the theory of the soul. I do not propose to cast ridicule upon the idea of a soul, for we must have a soul, if we would have a future life. Now I want to show you that we have a soul; that there cannot be any mistake about it; that it is a sort of soul which is a real genuine thing, and I propose to show this, not by means of any theory which any one can easily controvert and upset, but upon principles which every

scientific man,--and I think, every theologian also--must accept. We have found out what qualities the identifying principle must possess. Now we want to find out what the identifying principle in man is; in other words, we want to find out what is the soul. I have already spoken to you of the nature of the identifying principle, what properties it must possess and what particular functions it must perform. I will start in by investigating the identifying principle in nature, not by any theoretical propositions, or by simple mental cogitations, but, upon an inductive basis, ^{and} by actual observation, let us see if we can find out what the identifying principle in nature is .

Suppose we go out into the woods and find a great rock and examine it. We afterwards go there again, and by some means the rock has been all smashed to pieces. We examine the different materials, and find that they are the same as those which composed the rock before it was broken. It was a conglomerate rock, made up of a various mixture,- flint, onyx, granite, mica, etc, all conglomerated and cemented together, and having been hardened, in the course of time, it became a hard, conglomerate rock. In the place of that rock, we find the same materials as before, and we say it is the same rock. Now suppose we found, instead of that conglomerate rock, a clear sandstone rock: how many would think that was the same rock? Hands up! No, it is not the same rock; it has not the materials of which that rock was composed, and which were essential to the identity of the rock.

Again: Suppose we go out into the forest and find a river flowing there. The next summer, we go there, and find no river; it has dried ^{up}. We find the river-bed there, but no river. We find the same trees growing upon the banks; we find the same old stump on the opposite side; we see the same moss-grown rock that we saw ^{etc}

across the river when the river was flowing, and we see the same little rock in the middle of the river bed which we saw in the middle of the stream. We see where the river was, but there is no river there now. By and by the fall rains come, and we find the river flowing as before, and we say it is the same river. But is it the same water? (A voice: "No.") No, it is not the same water, but it is the same river. The principle of identity which applied to the rock does not apply to the river. In the case of the rock, the natural law of identification demands that we should find the same materials of which the rock was composed; but in the case of the river, we don't care anything about the matter. In this case it is not the matter that identifies the object; there is something else that identifies the river. What is it? It is the relationship of the water to the land through which it flows. What is a river? It is a stream of water flowing through the land. The river is a stream FLOWING THROUGH the land. It has banks; it has an origin, and it has a mouth. We come to the place where the river was; we find the same banks, the same bed, and the same surrounding objects, the same region in which it arose and emptied, but the river is not there. But there is something left there by which to identify the river; the identifying element of the river still survives. We find, when we come to study it, that every object consists of two things,--matter and form--the matter of which it is made, and the manner in which it is put together. That is all you can find in anything which you can suggest. You see a tree in a forest, and you have it made into lumber and put into your house. It is the same tree. All the difference between the tree in the forest and the tree in your house is simply a difference in its form, the matter is the same.

We find, in the case of the rock, that we require, for identification, permanence of matter. As I have said, there are two classes of objects in nature, one of which requires permanence of matter to identify it, while the other class requires simply permanence of form. In the former class, the thing that is permanent is the identifying element. Now you take this rock in the forest and grind it up into powder, and it has perished as a rock. You have the same matter, but it is important that the rock should have not only the same form, but absolute permanence of matter. Now look upon a cloud in the sky which is opposite to the sun when the sun is shining and the rain is falling. You see a rainbow. Look at it for a moment, and then glance away for a minute or two. Then glance back again, and you see the same rainbow. What makes the rainbow? Rays of sunlight falling upon the drops of water as they fall from from a cloud. Now you do not see the same rays of light falling upon the same drops of water which form the rainbow. Certainly not, but it is the same rainbow, because here you have permanence of form, but it is not the nature of the rainbow that there should be the same material. Some of you, I presume, have been to Niagara Falls. You have seen the cloudy mist which hangs over the falls. The same cloud is always there, and has been there, nobody knows how long. It is always the same cloud, but its materials are continually changing.

Now several questions may perhaps arise in your minds; for example, here is a question which set me to thinking on this subject. I heard some one tell the story of Prof. Finney of Oberlin College, showing how he was involved in a serious difficulty in regard to this question. He was talking upon the subject of identity (and it is astonishing how little this subject has been discussed in works on metaphysics), --he was talking upon this ~~sub-~~

question of identity in connection with the resurrection of the body. One of the students put this question: "Professor, suppose I lose the blade out of my jack-knife, and should get a new blade and put it into the same handle, would it be the same jack-knife?" "Certainly," replied the Professor. "Suppose I lost the handle, and then got a new handle for the blade, would it be the same jack-knife?" "Certainly it would," said the Professor. "Now," queried the student, "suppose some other fellow should find the old blade and the old handle and put them together; which of the two jack-knives would be the original jack-knife?" Well the Professor wasn't prepared to say; he could not decide that question of identity. But, when I lose the blade out of my jack-knife and put in another blade, why is it not the same jack-knife as before? Because, as the student clearly showed, it is possible to get the old pieces which composed the jack-knife together again and restore the original jack-knife. Well, if it isn't the same jack-knife, what is it? It is the old handle with a new blade. And if the old handle is lost, and a new handle got for the new blade, then we haven't the old ^{jack-}knife, but a new ~~handle~~ ^{handle} and a new blade. Those different handles and blades were made by different persons; the new blade is not the one that I lost, and the new handle is not the one that I lost, and, as I have said, some one ^{may} find the old blade and handle, put them together, and have the original jack-knife. But I will speak upon this point more fully farther on.

Here is the rainbow: it has changed its matter completely, and yet it is the same rainbow. Why is it the same rainbow? ^{Because it is natural} the cloud ^{to} change the matter of the rainbow constantly. The cloud that hangs over Niagara Falls changes its matter continually, and

it is natural for it to do so. Hence the cloud and the rainbow are identified by their form. The identifying principle of any object must be something that is natural to it; it cannot be an artificial thing. So the jack-knife, ceases to be the same jack-knife as soon as you renew the blade or handle, or both. Why? Because it is not natural for the jack-knife to change in that way. No artificially constructed thing can undergo such a change as that and retain its identity; it is not natural for it to change in that way. The rock requires no change of matter; it undergoes no change naturally. The river requires change of matter, because it is the nature of a river to be always changing as to its matter. The same thing is true of the water of a lake. But their form remains the same, and by this we identify them.

As I have said, identity resides in the nature of the thing; it is something natural, not artificial. We find two classes in nature: one of these classes, such as rocks, mountains, etc., cannot retain their identity, if they lose their matter, although they may retain their identity after their form has been changed considerably; but if they lose their matter, they cannot retain their identity, because they do not naturally undergo any material change of matter. The other class of natural objects, particularly organized objects like trees, plants and animals, and such inanimate objects as clouds ~~and~~ rainbows rivers and lakes retain their identity while changing their matter, because it is natural for them to change their matter. . . All that is necessary, then, in order for us to find the identifying principle of an object, is simply to inquire which of these classes the object belongs to. We must find out to which class an object belongs, before we can tell how to identify it.

I might bring up another illustration of this principle:

Here is this city. I rode by the cemetery the other day, and I saw that a considerable portion of what had once been a part of the city was buried there; and yet, it is the same city. The same is true of this country. To-day there is not a person alive in this country who was alive 200 years ago. There are probably but few alive to-day who were living in 1776, but there is not a person alive to-day who signed the Declaration of Independence, and yet it is the same country. We may organize a society, a philanthropic society, if you please, and that society may last until it is 500 years old, and yet it may be the same society. It has been changing its members all the while, and yet the society is the same. It is the same society although the membership has been changed, because societies naturally change their membership, you see.

Now let us see where man belongs; let us see to which of these classes of objects he belongs. An eminent physiologist has said that an animal (including man) is a form through which a stream of matter flows. Now you know there is an enormous stream of matter flowing through the human form, coming into the stomach and flowing out through the skin, lungs, and various other excretory organs,--a wonderful stream of matter in the form of air, water, and solid food. The average laboring man takes seven pounds of liquid and solid food daily. We take in several ^{hogsheads} ~~barrels~~ of air daily,--about 3/4ths of a pint at every breath, making several hogsheads of air in the course of the day. All this matter goes through our bodies. The average human being consumes about three quarters of a ton of solid food,--about ten times his own weight every year--the average human being eats himself up about ten times every year. Now that is a stream of matter flowing through the man; the materials of which his body ^{is} ~~are~~ composed are

changing all the time . They are changing like a cloud, a rainbow , or a river. Man is not a rock; he is a stream, and he is identified as such. So we see that the identifying principle in man is that man's organization; it is his form--his organization. What do we mean by a man's organization ? We don't mean the color of his hair, or of his eyes; we don't mean the shape of his face or of his head ; we don't mean his height or weight . We don't mean these things when we speak of a man's organization. We don't mean that, but we mean an exact representation of the man's body; the way in which the molecules composing that man's body are put together; everything in that man that makes him different from other men in the way in which the matter composing his body is put together. If we take one man of a certain weight and put him into a crucible and reduce him to his original elements, and put another man of the same weight into the crucible and treat his body in the same way, ~~and~~ the chemist could not tell the difference between the two bodies; they would be made up of the same atoms of matter, and the same sort of material--phosphorus, potash, soda, etc. If reduced to that condition, the chemist could not tell which was Eld. Wakeham, and which was Dr. Kellogg,--except by the greater quantity of matter in one case. Nevertheless I am entirely different from any man that ever lived, or ever will live . There is no human being who ever lived who is just like you or like me. We are each of us entirely different in some particulars from every other human being that ever lived. These points of difference constitute the peculiarities of our organization; the difference is in the manner in which the matter is put together. The same matter put together in different ways, makes us different individuals.

We come down then, to this simple fact, that the organization, or the way in which the matter composing our bodies is put together is the identifying principle of the individual. The thing that makes me different from every other person, is simply the way in which the matter of my body is organized. Take a tree from the forest, convert it into boards, and you can put it into a palace, a hovel, or a church, or a barn,--the thing which you have made depends upon how the boards are put together. The same principle applies to our food. Out of the same beef steak you can make a clergyman or a criminal. It depends on the way in which the material composing the food is put together in the body. Two men are eating at the same table; the food of one is making clergyman, and that of the other is making thief, all the time. (Laughter.) It is simply the difference in the way in which the material is put together; it is a matter of organization. Organization, then, is really the identifying principle. Plato recognized that idea, I think, because he said, "The soul is pure form." The soul is "pure form;" and that is what it is. Form is the only thing essential to the rainbow; the form (that is, the organization) in which the materials entering into the structure of a thing, is the only thing necessary for the identification of the river. During the dry season, there may be no water in the river bed, but when the rains come again, we have a river in that bed, and it is the same river; it is not a new river, but it is the same river, because the identifying principle survived the river.

In the same way, we have an organization; in like manner, every animal and plant have an organization. A poet once expressed the same idea in this way. But the thought may occur to you that this principle gives to everything a soul. So it does. The poet says that every clod feels a sort of mind,--

"An instinct within it that reaches and towers
Grasping blindly above it for life,
Climbs to a soul in the grass and the flowers."

The grass and the plants and the flowers and the rivers have a soul; everything has a soul, but it is a different kind of a soul from what you and I have. The identifying principle is the man's soul, and the only soul that can do him any good; that is the soul, which is capable of linking the man in this life with the man in the future life; it is the only thing that can connect a man with his beginning. This is the soul that can go ~~clear~~ clear back to where it commenced life, and it can go clear onward as far as the man goes. That is the only thing about the man which is possible to be coexistent with him.

But there ^{are} many who will say that my idea of a soul is entirely different from the usual one. It is generally believed that not the body, but that which lives in the body, is the real man; that the body is only the house which the soul lives in; that man has an animus that dwells within him, and which is independent of him. Now tell me what evidence you have that a man is not a dog, and that a dog is not a man? The only evidence that you have that a man is the same man whom you have seen before, is the man himself and so of plants and trees. But you say, such things can't think. It is not necessary for them to think; it is not necessary for them to think. It requires brains to think; nothing but nerves can feel. Of course the soul of a river cannot think or feel; it cannot be conscious. It is not necessary for it to be conscious. The river does not feel, but it flows. It is the organization of a thing which is essential to its identification, although it is not the thing itself; it is the embodiment of the real thing, which is the essential principle of identity.

This idea may be controverted by some, because they say, "This kind of a soul cannot think, hence it cannot identify the man." But the thinking part can represent only a part of the man; the mind represents only the brain, hence it falls very far short of representing the whole individual. Now my whole body is essential to me as an individual man. A man without a leg is not a complete man. Here is a man who has had his leg cut off; that man has not only a crippled body, but a crippled brain and a crippled soul. If you don't believe that, examine that man's brain after he is dead, and you will find that the part of the brain which had for its duty the control and management of that leg, is wilted; that that part of his brain is dwarfed, crippled and withered away; there is nothing about that part of the brain that has developed, because it has had nothing to do. When a man has been born blind, there is something lacking in that man's brain; there is no perception of color there, and hence that faculty is not developed. He does not get any ideas of form; there are many ideas which he does not get. He must educate himself through his other senses. There are certain parts of that man's brain which are deformed; he grows up with a deformed brain, because these parts which connect with the eyes are inactive. The whole body is essential to the man. Now the identifying principle, or the soul is capable of representing the whole man. The mind may represent the brain, but, as I have said, it cannot represent the rest of the body. And the mind represents only a small part of the brain.

But man does not depend upon his brain for identity. A man may have no mind at all without losing his identity. If he depended upon his mind for identity, he might lose his mind and ~~be~~

thus lose his identity, and yet retain his individuality. But if he has individuality, he must have identity. But if one may lose his mind, then that cannot be the identifying principle, for it cannot identify the man under all circumstances, as the soul or the identifying principle can do. So the mind cannot be the soul because it is not capable of identifying the man under all circumstances. If the man has no mind, of course he cannot be identified, if the mind is the identifying principle, and if he cannot be identified at all, then he is not a man at all. But that is not true; he is a man, and he has something which can identify him. But this, the soul can do. So his mind cannot be a soul,--at any rate it cannot be his soul. .

It is evident also, that a man may change his mind without changing his identity,--I am not now speaking of changing the mind in a fickle, whimsical way, but as the man grows, his mind changes. Perhaps to-day he is a criminal; but to-morrow he is converted and is trying to be a saint--although I don't think he will get to be a very great saint in one day's experience, although he gets started in the right direction; but his mind is entirely changed. And yet that man has not lost his identity. So a man may lose his mind without losing his identity. He has not lost his soul, if he becomes insane. A man may be born an idiot, but has he not identity,--has he not a soul?

The old idea of the soul is, that it is the reasoning part--the intelligent part of an individual. But, upon this theory, animals certainly have souls. Here is a dog; he is intelligent, hence he has a soul, if having a soul means to be intelligent. And upon this principle, if the soul be immortal, why cannot immortality be attributed to brutes as well as ^{To} human beings. The

Rev. G. G. Wood, an eminent naturalist and theologian, has written a book in which he proves that there is a cat and dog heaven, (Laughter.) that these animals have souls, as do other animals. He says that every Biblical argument that will prove that man has a soul, proves the same fact in regard to lower animals; that the same original Greek and Hebrew terms which are used in speaking of the human soul are used in speaking of the souls of lower animals. He claims that the lower animals have immortal souls, a future life and a heaven, just the same as human beings have. That is one of the difficulties in which we are involved, in taking this view of the human soul.

Now if we reject this idea that the soul must necessarily be a conscious entity independent of the body, we shall not be involved in this absurdity. We have already seen that consciousness is not necessary for this identifying principle; consciousness is not necessary for a soul. The theory that it is so, is based upon an old pagan doctrine which came down from Aristotle, and was elaborated by Thomas Aquinas in his "De Animi," viz., that man must have a conscious soul to survive and bridge over the chasm of death and the grave. The old Greeks were fond of tracing their ancestry back to their deities. Ancient kings considered it necessary to trace their ancestry back to their deities. Alexander the Great allowed himself to be worshipped as a deity. His subject became so infatuated with his prowess, that some of them seem to have come to the belief that he was a genuine scion of the old gods, and so they worshipped him as such. Now that idea still prevails among some of us. We want to be considered scions of the Deity; that we in some way ~~connect with~~ *came directly from* the Deity. Now I admit

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all that; that is all true. I believe that the soul came from the Deity. And there is a very beautiful thing connected with this theory that our souls came from the Deity and are not of our own making. But I will refer to this ^{thought} again, in a moment.

I will now notice an argument of Rev. Joseph Cook in which he endeavors to prove that the soul is a conscious entity. His argument is as follows: Can one atom of matter think? No, he answers. Then can two atoms think? No. Well then, can any number of atoms think? No. Then the brain cannot think. Well, I agree with Joseph Cook; that is all so, in one sense. Now I would like to ask Joseph Cook a question: Can one atom feel? No, he would answer. Can two atoms feel? No. Can any number of atoms feel? No. (Concussion of magnet with iron bar.) Then how did this magnet know that that piece of iron was over there? Just the moment that I turned the button, this magnet took possession of this piece of iron and drew it ^{right up} to itself. Now see how strongly this magnet can feel. I would like to have a couple of strong men take hold of this end of the magnet, and a couple more strong men take hold of the iron, and see if they can pull them apart. (Several men make the attempt, and fail.) Now get a better hold. Now it is about a quarter of an inch away. Now pull hard. (Another failure.) Now let anybody who wishes to try and pull this magnet off, come and do so. (Several try, and finally tumble off the platform.) This is quite a heavy mass of iron, but the magnet holds it right up to it. I now simply turn a little button over here, and the ^{influence of the} magnet ceases. Now ~~it~~ ^{the iron} has no attraction for it at all. So you see Mr. Cook's theory is not satisfactory.

Still I am willing to admit that matter cannot think. A single atom cannot think. Two atoms cannot think. Any number of

atoms cannot think, in the sense in which Jos. Cook propounds the idea of thinking. It is impossible for matter, of itself, to do anything. Now Mr. Cook brings matter up on one side, and God on the other, and he says, "Can matter manifest intelligence? Can matter act in opposition to God? No." But, you see matter cannot operate, of itself. What is matter? Matter is nothing but an expression of God. All the things we see around us are simply the expressions of God's thought. All these wonderful forces which we see at work are simply expressions of God. These forces are simply God at work. We plant a little seed in the earth; it grows up into a magnificent tree. All its different parts have been developed from this little seed, against the law of gravitation, producing leaves, nutritious fruits and seeds. It is God at work doing that. It is not nature working in opposition to God; it is not nature working independently of God. It is God himself at work. Now we have evidence of this in the Bible. In the 119th Psalm, we read, "The heavens declare the glory of God, and the firmament showeth his handiwork." This is a wonderful text. You go out, on any clear starry night; you cannot say they those stars made themselves. Some scientists, however, who are so blinded by the glare of modern ^{scientific} discoveries that they try to find some way in which the worlds could have made themselves; some means by which inanimate nature could have wrought these things out. They cannot admit that God can make an animal or a plant, or a solar system. They must evolve everything from chaos. But they must admit the existence of a God back at the starting point, or they cannot explain the existence of matter. Their theory is that a great nebulae was first evolved; that it then got hot, for some reason. It got to revolving, they can't tell how, or what set it going, and as it revolved, some of the chunks flew off,

that there was a great heat center left, the center of some smaller masses revolving around it; ^{as satellites} that there were other centers and satellites, and all revolving the same way,--the way in which they were first projected into space. This seems a reasonable hypothesis. But the Almighty has put something in the sky to show, as it would seem, that this theory is all nonsense. Away out on the bounds of the Solar system, there is a planet with four moons, which are ^{all} going the other way: It seems to me that the Almighty put them there just on purpose to say to these scientists, "I am the God that made the heavens and the earth." It is God who has set these things going, and who made all things grow. But they do not think. It is not the atom that thinks. It is God that thinks. It is God that grows the plant; it does not grow itself; it is the divine power, which is in all things and in all matter.

Now it is the same divine power working in my body that makes me what I am, and that makes you what you are. Our characters are the result of the reaction of ourselves against our environment. You see it is our surroundings which make us what we are. It is the education of our surroundings, and the surroundings that we create for ourselves, that make our characters. So you see we can make our characters very largely by the way in which we react upon our surroundings, by the way we think and act in response to these surroundings. One plant is different from another plant of the same species, because it grows in a different place; the conditions supplied by water, air and sunshine are different, and that makes one plant differ from the other. You never see two leaves of a tree exactly alike, because they are not grown under the same conditions. You never see two beings exactly alike, for the same reason; each of us has a different ancestry

and different surroundings. As Dr. Oliver Wendell Holmes says, "Each one of us is the summing up of a long row of figures reaching clear back to Adam." Each one of us is a different column of figures, and these figures we are putting into our daily lives. In this way we are making our own souls, if you please. We are building our own characters, and these characters are our souls, and it is these characters that are to identify us in the future world.

What is character? It is the organization that makes the character. It is the character of the river that constitutes the identity of the river. It is the form of the river which makes its character. Now we find that the same principle applies to physiological laws. Every one's hands and feet and limbs are all conformed to each other and to the brain. A lady came into my office one day, and said, "Doctor, I wish you would fix my face." I said I didn't see anything the matter with her face. Putting her finger to her nose, she said, "My nose sticks up; I want you to make a different kind of a nose for me." "What kind of nose would you like?" "I want a Grecian nose." "But a Grecian nose would not fit your face." "Why not?" "Because it would be out of harmony with the rest of your face. If I should lay down on this table a Grecian nose, and a Roman nose, and a half dozen other noses of different nationalities, there would not be one of them which would fit your face so well as your present nose does. That nose which you have, fits your face exactly. If I should make you a different nose, it wouldn't fit your face at all." Well, I had some difficulty in making her understand it, and in reconciling her to the fact,--and really, I don't think she was reconciled to it. She seemed to think that somehow that nose had gotten on to the wrong face, and she may

yet come back and see if I won't make a new nose for her .

Now, every part of our bodies conforms to every other part; every bit of it matches and forms the organization or soul. The soul pervades the whole body; it extends even to the finger tips; it is not simply in the brain, in the eye or the face, but the whole body. A lady said to me the other day , "Oh, how I wish I could get rid of these wrinkles!" They were vertical wrinkles. Said she, "They are growing rapidly, and I wish I could get rid of them." "Well," said I, "I can tell you how to get rid of them." "Can you indeed : Oh, doctor, I am so delighted to know that I can get rid of them,--but how can it be done ?" "Simply by making this kind of wrinkles". (Horizontal wrinkles.) "Why," said she, "I can't keep my face in that condition all the time." She would probably find it difficult to do so, for the reason that the muscles which had made the vertical wrinkles had been exercised so much that they were stronger than the other muscles, and so I told her. You will see this principle illustrated while noticing mechanics,--carpenters, shoemakers, etc., of farmers. The muscles which are used the most are strongest and draw the limbs, as the muscles drew the skin of that lady's face and made the vertical wrinkles. Said she, "I can't hold my face in that way all the time ?" "Oh, yes you can!" "Well, how?" "Just think happy thoughts; be good natured all the while, and the first thing you know, you will have wrinkles coming up here. And there is nothing in those wrinkles to be ashamed of. It is this sort of wrinkles that you should be ashamed of ." (Scowling.) Well she appreciated the idea, and thus I gave her a moral lesson on the spot, from the appearance of her face, because that was an index of the whole thing. Every part of the body is fitted to every

other part of the body. Every one who thinks bad thoughts will find that they react upon his whole being; that his whole character is deformed by them. It is impossible that it should be otherwise. Notice a man who is an habitual sneak : doesn't he go cringing about? Doesn't his very walk show it? Doesn't he show his character by his appearance? Take a man who is a craven coward: does not his whole manner show it? When you notice him particularly, you say, "That man is not honest." Why? Because he can't look you squarely in the eye. His eye is in a continual waver, and, because he is not honest, he has no confidence in himself, and when he sees you looking him in the eye, he thinks you are looking right through him, and that you are reading and recognizing his thoughts. He won't even look into a baby's eyes, for a baby's eyes look deep.

When I think of the soul, then, I think of it as a thing that is all pervading in a man; it does not simply include the thinking part, but, as I have said, it includes the whole man. When I used to think of the soul as an ideal thing, I was not satisfied with that view of it, but now I think it is a very strong one. For an idea cannot decay. And you cannot destroy an idea by anything which you can bring to bear upon it. Matter can disappear; it cannot absolutely go out of existence, but it can be scattered and disseminated, so that it is of no account as to its original form, but the idea that remains, is imperishable. Now the identifying thing,--the soul that I am talking about--represents the whole man. It is coexistent with the man; it begins with his beginning, --it goes clear back to the earliest period of his existence. There is something then, that survives the death

of the man. What is that? It is the record of a man's daily life that goes up into the future world. The record of his daily deeds is a photograph of his character,--an almost absolute photograph of the man,--not only of his brain, but of his face and of his body, of his legs, of his arms, of his entire Physical structure. Now, as I have said, that kind of a soul didn't use to be a very satisfying thing to go, because it was nothing but an idea; but now it has come to be the most satisfying kind of a soul to me, because, as I said, it is a thing that is imperishable; it is competent to represent a man at any time, and all the time. This is the kind of soul that every man is developing; all his physical, mental and moral acts help to develop that kind of soul.

~~Now~~ There is another reason in favor of this idea of the soul, and that is, that it requires the restoration of the whole body,--of the whole man. One great divine has said that some souls are so sublimated that ten thousand of them could dance upon the point of a cambric needle. Now I cannot comprehend, or conceive of such a soul as that. I can conceive of an abstract soul, but that abstract soul is of no use to me, unless I have a concrete existence at some future time. All the value of this identifying principle consists in the fact that it can restore ME at some future time. It satisfies me, only because it restores me, so that I am the same man, having the same identical body,--not the same matter, as we do not have the same matter in the river, the rainbow or the cloud--but because I have the same ^{of matter} form, and the matter flowing through the same stream. That is the kind of soul that I want.

I didn't use to have much anxiety in reference to a future

life, or in Heaven. When I was a boy eight or nine years old, I went to church, because I thought it was necessary to go, but I really got tired of church. An ancient saint, (the founder of the sect of the Manicheans) supposed that the souls of ~~men~~ human beings were angels who had become tired of the never-ending sweetness and happiness of Heaven and had come to taste the edge and spice of earth. And I felt a little the same way, when I read of Heaven in the good story-books. It consisted of one continual round of psalm-singing and hallelujahs. I thought that would be a pretty hard kind of heaven for me, and that kind of an eternity would be unendurable. When I get into Heaven, I hope to find just such a place as this world,--only a world without an evil in it. If you could leave ~~out~~ all the sin, and all the guilt, and all the unpleasant things out of it, would not this world be good enough to live in forever? (A voice: "Yes.") That is the kind of heaven that I look forward to; a heaven in which the identifying principle of my body will restore me a material body in which I can live a material life; in which I can taste material fruit; in which I can do material things, and gain knowledge continually. I mean to be a naturalist and study nature in the next world, if I ever get there. I have always loved that study. What a boundless realm of joy that would be, where we could forever be looking into the glories of nature. It seems to me the revelations of such a life would bring out continual hallelujahs to God. Why there would be some new discovery all the time. And then we shall have eyes that will not need the aid of telescopes; eyes that can look afar off; and physical powers that will carry one through space on visits to distant planets. One wouldn't have to be prompted to sing hallelujahs or have psalm\$

read to us and be told that it is time to sing . He would have joy enough in the employments of that world, to praise God without any prompting. I look for a real material life in the future world, so I am satisfied with an abstract soul, for it will secure to me this real, tangible existence hereafter. (Applause.)

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W. K. Kellogg
Review for article
in M. M., 1894.

Stereopticon Lecture on
MEXICO. Jan. 18, 1893.
J. H. Kellogg, M. D.

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Good evening, Ladies and Gentlemen : I have not prepared a lecture; I am only going to talk to you a little while about Mexico. My own duties do not permit me to formulate lectures; I simply have to talk. Sometimes I wish I had time to prepare a lecture, as others do, but it is quite impossible. I presume, if I should prepare a lecture and undertake to deliver it, as prepared, I should succeed about the same as when I was a boy, and a member of a debating club. I prepared a nice speech, but when I got up to deliver it, I had forgotten it, and had to start out on another track and make a new speech, which proved to be better than the one I had prepared.

Mexico is unquestionably one of the most interesting countries in the world. We don't hear much about it here in the United States, but one can hardly imagine why. It seems singular that so remarkable a country, lying so near to us, and full of many interesting relics of past civilization should be utterly neglected. People travel across the continent to visit Egypt, but we have an Egypt near us. Mexico is one of the oldest countries of the world, and has much that is closely allied to Egypt, as I will show you upon the screen to-night, so that you will have an idea how close an affinity there is between Egypt and Mexico. Mexico is 4000 miles long, and 500 miles wide. It has one of the most remarkable climates in the world. Although going down into the tropics beyond the 50th degree, we find here a climate which is very similar to that of the United States.

Mexico is not a hot country, as I supposed, before I went there. The city of Mexico, situated in the central portion of the republic, we found located upon a high table land some thousands feet above the level of the sea, between two branches of the Andes, one chain passing near the Atlantic coast, and the other chain lying near the Pacific coast. The city of Mexico is located on one of these series of table lands, ⁱⁿ a valley 7000 feet above the level of the sea, with three ranges of mountains extending clear around it, so it is considerably depressed below the territory lying about it, lying in a valley about 60 miles long and 30 miles wide. And right here in this country, under a tropical sun, there is a climate cooler in summer, and warmer in winter than it is in the United States. They never have a day in which the weather is so hot as to be uncomfortable; and they never have any frost or snow, except on the tops of the distant mountains. Here is a country where the temperature is always uniform. ^{From} August ~~and~~ to December are the coldest months; it would be surprising to us if that were the case here. When it is cold in Mexico, it is not because of cold winds, or because of snow and sleet, but simply because of rains, and ^{the} evaporation of moisture which cools the air, so that it is cooler from August to December than it is in other months. But the difference in temperature is very small in the different months. ~~But~~ The amount of rain which falls in Mexico, is very small. There is scarcely one day in the year in which the whole sky is covered with clouds; the sun shines almost all the time, -- a tropical ^{one} with a temperate atmosphere! I am satisfied that there is no more delightful climate in the world than in Mexico. I was very much astonished to find so equable and delightful a climate and such pure air; dry but not too dry; ^{always} cool, but ^{never} not too cool. The nights, however, are

always cool; even in the hottest portions of the country the nights are cool.

I said, a little while ago, that Mexico is ^{very} old; how old, nobody knows. At the time it was discovered by the Spaniards, Mexico was found to be quite advanced in civilization. It was then, in fact, the center of American civilization. When the ancient Spaniards discovered Mexico, they found there, huge buildings of stone and brick. They found large structures--temples made of ~~hewn~~ stone hewn with implements of copper and other implements which were harder than copper. They had no iron, but they had copper mines, and silver and gold in abundance. Gold was so abundant, in fact, that when the Emperor Montezuma found that Cortez had landed his troops and was coming towards the capital, he offered him as a bribe, if he would not come, five man-loads (they had no beasts of burden then) of gold for himself five for his King, and one for each of his soldiers. And even then the Emperor or President (he was elected by the people) would not have been impoverished by such a gift. The state of civilization in Mexico, at the time of its discovery by the Spaniards was far in advance of that of Spain when discovered by the Phoenicians, and was also superior to the civilization of the Franks in Gaul, when discovered by the Greeks before the Christian Era, or ^{the people of} that of Great Britain when discovered by the Romans. These people were barbarians. Our fore-fathers, when discovered by the Romans were clothed in war paint, and were addicted to cannibalism. It is not very flattering to us, but it is nevertheless a fact that our ancestors in Great Britain were cannibals. Perhaps that is the reason the British of the present day are so fond of rare roast beef (the "roast-beef of Old England"); it may be the result

of the voracious appetite cultivated two thousand years ago. Certain it is that (the Mexicans, when discovered, were not very carnivorous in their appetites, although they did eat some meat. Their diet at that time consisted almost wholly of corn,--as it does at the present day. They lived upon corn prepared in two ways. It was made into cakes with a little salt added. The other way, in which it was used, was in the form of gruel, after having been ground and boiled a long time. Besides, they would eat cheese which they made of insects which they found upon the surface of some of the lakes. I was offered some of this cheese and it didn't taste bad; it is still used there. Mexico, as I remarked, when discovered, was in an advanced state of civilization, so far advanced in civilization that they had a regular, organized system of laws. Not only this, but in every large city they had courts for the enforcement of these laws. In some respects, Mexico was advanced far beyond our own country. It was far beyond the present state of civilization there.. There were great highways laid throughout the country. Along these highways at convenient intervals was found inns at which people were allowed to stop without charge. Free taverns were found at convenient distances all along these highways . . . They had bridges also across the rivers in many places, and where there were no bridges they had ferry boats. These were also free. The ancient Mexicans also had some very interesting and stringent laws for the punishment of crimes; for example, slander was punished by cutting off the lips of the culprit so that he could slander no more. The man who told falsehoods had a slit cut in his lip so that everybody would know that his word was not to be trusted. . . You will see at their stores at the present time great

bundles of rods which are sold for domestic purposes. I supposed they were fuel, but the woman in charge of the store smiled in a very peculiar and knowing way, and she then instructed me in a very practical manner what they were for. (Laughter.) I didn't understand the language sufficiently, without her practical practical explanation. By the laws of ancient Mexico, the punishment of treason was death. The man who was ^{was put to death,} guilty of treason, with his family to the third and fourth generations, ~~was put to death,~~ He had "bad blood", and it was considered necessary to exterminate all who had it. Drunkards were also punished with death. It would seem as though drunkenness was regarded at that time in Mexico in quite a different light from what it is at the present time. In this respect, Mexico has not at all improved. Many other crimes were punished in an equally practical manner. Little boys and girls were brought up very strictly. Deference to older persons was strictly required. The child who was rebellious and would not obey his parents was put to death; he was not considered as being fit to live. There was probably very little disrespect among the children in Mexico at that time. They had great seminaries adapted to the education of both sexes. Boys and girls did not play together; modesty was required of the girls. The time fixed for the completion of their education in these seminaries was, the age of eighteen for the girls, and twenty for the boys. In addition to their other studies, the little boys were taught the use of tools, and the little girls were taught how to make embroidery. I remember of reading in an account of one of the expeditions of Cortez, that some of the Mexicans brought to the Emperor the picture of a ship which they had found upon the shore. He had always kept the shore guard

watching for a priest to come in with their god who was called "The plumed Serpent." When the Spaniards landed, these runners thought their priest had come, and they ran and carried the painting to their King. These runners were able to travel ^{at the rate of} 300 miles _A a day. That is a good deal faster than our long distance runners travel at the present day. That is as fast as some of our "ocean greyhounds" travel; some of these can travel faster than that, but 300 miles a day is not bad for a steamer. Where these runners made the distance of three hundred miles a day, there were towers located six miles apart, and proclamation was made at each one of these, until it finally reached the Emperor. A runner was stationed at each one of these towers, and one runner would run to the first tower, and make proclamation, and the runner at that tower would run to the next, and so on, from tower to tower, until at the end of 24 hours they had made about 300 miles, which would be about ~~twelve~~ miles an hour, a pretty good rate of speed.

There was considerable more civilization among the ancient Mexicans than I have described to you. We will now have some of it thrown upon the screen. They had some knowledge of astronomy (calling attention to screen.) You see upon the screen here, a photograph of the great "Calendar Stone". This calendar stone you see is covered all over with symbols which are not fully understood by moderns, although they have been studied and figured out, so that they are now somewhat understood. By means of this great stone, they were able to predict eclipses. They understood, to some extent, the changes of the moon, and the seasons. The Mexican year consisted of 18 months, each month having 20 days, making 360 days in all, which is the same as the

Egyptian year, and the same as ours, within five or six days. They had intercalary days, so they were able to keep up with the precession of the equinoxes, and keep their year in joint. To construct a stone of this kind, astronomers tell us must require a profound knowledge of astronomy. Some of their kings, it is said, gave themselves up wholly to the study of astronomy.

One of the most characteristic features of the ancient Mexicans, was their religion. They were idolaters; at least in the later period of their history, you will find the very interesting fact that they ^{not only worshipped idols, but} had a pyramid erected to "The Unknown God of Causes". In this temple they had two great metal plates, and a great bell in this building ^{the pyramid being} which was nine stories high. Whenever this bell was struck, the King and all his subjects all went down on their knees together and prayed to this "unknown God of Causes". They seemed to have a knowledge that there was something beyond those dumb idols that they worshipped, and they worshipped the invisible God. However, in the later stages of the history of Mexico, we find that they were among the grossest of idolaters. The story of their idolatry is something like this: It is claimed that the Aztecs ~~who~~ were the prominent ~~dynasty~~ ^{race} in Mexico at the time of its discovery by Cortez; that they all migrated from Southern California ^{to Mexico}. While they were on the road, their leader died, and four of their number constituted themselves priests, manufactured an idol out of wood and carried it all the way to Mexico,--the name Mexico was derived from these Aztecs. These priests manufactured this god, which was their god of war, and they manufactured a "sacrificial stone" upon which they worshipped the god of war. (Screen). This represents the "sacrificial stone", upon which their god of war ^{was} worshipped.

The stone has a furrow running down the side where the blood of the ~~man~~ sacrifices pours off. The stone is about three feet in thickness and nine or ten feet wide, being made out of one solid block. It was moved ^{from} to a considerable distance ~~from~~ ^{to} the temple where the worship was conducted, and was carried to the very top of this high temple, where the sacrifices were made. Those were human sacrifices. All the prisoners of war were kept to be offered on this stone as sacrifices to the god of war. They were sometimes kept for months or years to celebrate some great victory, or something of that sort. This is all covered with pictures, you see. If you can see the picture with sufficient distinctness, you will discover that it contains two classes of figures. Here you see one of the class of prisoners. Here is his keeper who has hold of him by the hair (you will see the same thing repeated all around the "calendar stone"-prisoners held by the hair.) They had another stone which they used in connection with this sacrificial stone. It was called the Gladiatorial Stone. There was a ring in the center of that stone by which the prisoner was tied by one foot, and in this way, armed only with a wooden sword, he was compelled to fight with a soldier. ^{Armed with a regular sword} If he succeeded in killing the soldier, he was given his freedom. ^{But} many times, the prisoners would not take their freedom. They preferred to be offered to the gods. They had such faith in their divinities that they thought it a greater pleasure to be offered to the gods than to accept of their freedom. A man would on no account accept of his freedom except when he had won it in one of these gladiatorial contests. It is recorded of one of these prisoners who was a great chief, and who had shown so much bravery that Montezuma offered him his liberty, but he would

not take it unless by victory in gladiatorial fight. He killed eight men and wounded twenty more with his wooden sword, his antagonists being armed with keen two edged swords. He then received a blow which stunned him. He was then taken to the sacrificial stone, his heart torn out and thrown at the feet of their god.

Some of the largest pyramids on the continent are found here. (Screen.) Here is one, 150 feet in diameter, built of adobe brick, with a sacrificial stone at the top. (There was a pyramid built in honor of the sun, and one in honor of the moon, and these were covered with burnished gold, but the gold was torn off and the images destroyed by the soldiers of Cortez.) Still, at the base of these pyramids there are found great numbers of these image heads. Here is the head of one of them (screen.) I will hold it so you can see it on the screen. You see the nose is broken off, yet it is really a very pretty figure. (The chiseling was done with copper and obsidian, which is almost as good as steel.) This wide avenue which leads down from the pyramid is known as the "Path of the Dead". (The history of this very interesting people was written out in a picture language very similar to the hieroglyphics of Egypt,) as I will show you, later.

Here is a representation of the pyramid of Cholula (screen). This pyramid is situated a few miles from Puebla and near the city of Mexico, and it contains images also. Many of these little images are for sale; the little boys pick them up in the fields and sell them. They are worked out with great ingenuity. This pyramid is 1440 feet square, and covers more than 40 acres. It covers more territory than the three pyramids of Egypt; It is much larger than the pyramid of Cheops. Its height is some 200 feet; it is ascended by terraces. It has a number of subterranean

passages in it, and has a wall in which a great amount of treasure is supposed to be buried, ^{although they have not been recovered.} These subterranean passages are supposed to have been used as hiding-places. All about here is growing pulque, which is commonly known as the century plant.

(Screen.). Here you may see how a native of Mexico is dressed at the present day; in the cheapest kind of pot-rack cloth, and a very cheap straw hat. This is the only clothing commonly worn by the lower classes of Mexico. The amount of wages received by these paofis ⁿ as they are called, is too small to allow them to wear ^{any more} costly clothing. They receive only about 18 of our cents a day. In the country, you can hire any number of persons to work for a shilling a day and board themselves, and take their pay in trade in a majority of cases, and pay an enormous price for their food.

(Screen.) This church ^{one} on the top of this pyramid is a Catholic church which is devoted to the "Virgin of Healing", or the *de los Remedios* "Virgin ~~Revelius~~" ⁽²⁾. All over this church, on the walls, I found pictures of parts of persons who had been healed of some disease. Here is a picture of a family sitting around the bedside of a little child who had been cured. These were votive offerings of those who were thought to have been healed by the virgin. A priest showed me a large number of ^{models} ~~representations~~ of hands, arms, legs, etc., of people who had been cured. I offered to buy one model, a wax leg, and he asked 25 cents for it. I asked him if the leg wouldn't get sore again, if the model was sold and carried off. He said that didn't make any difference, the virgin could heal it again.

(Screen.). Here is a representation of the pyramids of Egypt; you will see that they resemble the pyramids of Mexico.

are free from vegetable growth
The pyramids of Egypt have been kept clean, while those of Mexico are covered with verdure. The pyramids of Egypt were made of solid stone, while those of Mexico were made of adobe or mud.

(Screen.). Here are some representations of ancient Mexican pottery. The Mexicans had some very interesting traits. It is stated that at the time of the discovery of Mexico by Cortez, their books were filled with picture-writing, and that there were enough of such books to make an enormous library. At the present day, you will see great masses of rocks covered with this picture-writing,— pictures engraved in rocks, and somewhat similar to what you saw on the "calendar stone". (Screen). Here is some picture-writing here. Here you see some more of it. Please notice the form of this vase. Here you will see a collection of vases from the Boulak temples of the Egyptians; there is a close resemblance between the vases of Egypt and those of Mexico. Here is an Egyptian vase; over here is one that is found in Mexico; they are in frames of paper. Here is another form of vase which is met with in Mexico at the present day. This form is used everywhere. Here is one which has been used for hundreds of years,— no one knows how long.

(Screen.). This represents the interior of an Egyptian temple. Notice these images; you will see how much they resemble those of the ancient Mexicans; notice the position of the arms and the poise of the head. These are gigantic images you see, by comparing them with ^{this} man in the picture; they are more than twice the height of an ordinary man. (Screen.). Here is an Assyrian image. You can see a very close resemblance between this and the images of ancient Mexico. These images are supposed to have been made 3000 years ago,—perhaps a longer time than that ..

Here are some of the hieroglyphics. Here is another of the ancient Egyptian images,--this is not an image, however. It is rather a representation of one of the old Egyptian kings--one of the Pharaohs. Here are ^{Catirah} some curios. You will see them in the museums; you can buy them in the curiosity stores.

(Screen.). Here is a bird's eye view of the city of Mexico, looking down upon the city from the great cathedral. You can see even the roofs of the houses. You see the houses are oriental. They are just as they are found at the present day in Palestine and Syria. There are no windows; the places for windows are simply small openings, except in the better class of houses, where there are a few panes of glass. The window of the Mexican house is usually simply a hole in the wall. The windows open from the inside. Here is the great cathedral of Mexico. It was formerly owned by the Catholics, but now it is owned by the government, as the Mexican government has confiscated all the church property. The government simply loans the cathedral to the church for use.

(Screen.). Here you see the interior of the crater of the great volcano Popocatepetl some 17000 feet high. It is still somewhat active, though not violently so, and travelers can go about the mouth of it. There is a regular industry carried on there in carrying people up to the rim of the crater, and then down the mountain.

(Screen.). Here we have another view of the city of Mexico. This will give you an idea of the style of architecture used there. Here is a view of the National Palace, formerly occupied by the Emperors but now by the President of Mexico. Mexico, as you all know, has been through a great number of revolutions.

I suppose it would astonish some of you, if I were to recall the fact, that Mexico, as a republic, is almost as old as the United States. At any rate their efforts for independence began very soon after those of this country, although they did not become permanently independent until some years later. This is the National Palace, where I had the pleasure of seeing President Diaz inaugurated for the fourth time.

(Screen.). Here is another view of the cathedral, one of the finest structures on the American continent; large than any similar building in this country. Here is a view of the cathedral at Guadalupe which is the Jerusalem of Mexico. This is their most sacred cathedral, dedicated to the "Virgin of Guadalupe." This virgin is a young woman who is said to have appeared to a certain priest on the top of a mountain, and to have impressed her picture upon his blanket, and this picture is suspended in this church. Once a year in the month of December, the devoted Mexicans (Catholics), come from all parts of the republic to worship at this church, --and to gamble in the gambling saloons, etc. This church is all surrounded by gambling houses which are licensed by the government, and the people spend the greater part of their time at these gambling houses.

(Screen.). This is the interior of the old palace Iturbide. It is now a hotel. It was formerly occupied by the dictator Iturbide.

(Screen.). Here is the room where Mrs. Kellogg and myself stopped in the city of Mexico a short time ago. It has a gallery all around it, and the palace or "hacienda" is built with a court which is called the Public Plaza.^(a) The haciendas are all built like this; there is nothing outside the house with the exception of these huge iron bars which make every house look as

though it were barricaded. I was quite interested in going along the streets one day, at seeing a little tete à tete taking place between a young lady and a young gentleman friend of hers. She was up in the second story, and had her ^{head} out between two wooden blinds, and her face pressed between two iron bars, while the young man was down below pleading his case. I was told that he had been coming there several months, and that he made visits there several times a week for a whole year before being allowed to go inside. As a rule the opposite sex were not ^{allowed} to visit the young ladies indoors; their visiting must be done through the bars. I am sure they were quite safe in ^{trying to keep} ~~keeping~~ the young man out of doors in this way, in that country, --although it seems difficult to tell from the appearance of the houses whether they were arranged with bars for the purpose of keeping the young men out, or for keeping the young ladies in.

(Screen.) This is a representation of market day in Mexico. It is market day all day there .. Sunday is the great market day. Sunday is not observed so strictly in Mexico as it is in this country. It is a great day for parades. People go to church in the morning--if they go at all, and the rest of the day they have a good time .. Everything that you can imagine is for sale on their market days. Here is a great heap of bananas. Here is a cage containing eggs. You ^{will} ~~can~~ see men marching in with cages of eggs--or, it may be of birds. At another time I ^{will} show you more views representing street scenes in the city of Mexico in which you will get a much better idea of what is on the streets. Here is a banana seller. Everything offered on the street in the city of Mexico ^{has} ~~is of~~ the most gaudy colors--red, green, yellow, blue, etc., but one does not see the soft tints there which they see in this country.

(Screen.) Here is another scene on market day. Here are some stoves. Here is a little stove tipping over. Everything is for sale,--even a glass bottle; you have to pay a dime for an empty bottle. .It is not uncommon to see as much as 50 cents or over paid for a bottle which could be bought for 5 cents here.

(Screen.) Here is what is known as the ^{Viga} "Baby Canal" running out a few miles from the city of Mexico. No one knows how old it is. It was found by the Spaniards when they captured the city some 400 years ago, about the time of the discovery of America,--it was only about 26 years after Mexico was conquered by Cortez, when America was discovered. This canal was discovered when the Spaniards captured the city of Mexico.. Here you can see the boats in which they bring their vegetables. They look something like the gondolas of Venice, only they are not so gracefully constructed.; they are very much like the boats which you will meet with in Cuba. In Havana you must use such a little boat as that. In the same way, transportation is brought down this canal. Here is a boat-load that is being unloaded. Some of the boats are very much smaller. It is not uncommon to see a little boat coming along the canal with the proprietor in one end and his wife in the other end, and a heap of vegetables in the center so great that the man and his wife can hardly see each other.

Here is another scene (Screen.). The people here are selling string beans, , potatoes, strawberries, etc. I didn't see any strawberries on the canals when I ^a was there last December; however, which was too early in the season. You can see them reflected in the water here; it is really a picturesque scene. As you go along this canal you will see different kinds of vegetables and different kinds of poverty. (Screen.). Here you

see the same thing, only the grouping is different. You can see the doors and windows; you never see any other kind of window here. In passing along the whole length of the streets, you won't see a single window which does not have these huge bars to guard it on the outside. One is quite at a loss to know whether they are arranged in this manner to protect those inside from those on the outside, or those on the outside from the people inside. When you see them inside it is always when they are peeping out from behind the bars.. The boats are propelled with long poles thrust into the bottom of the canals. Mrs. Kellogg and myself got on one of them; two boats were hitched together, ~~at~~ and one man propelled the boats along with some rapidity..

(Screen.). Here is another view of the cathedral Guadalupe Here is a view of the shrine, and here is the famous blanket I was telling you about. Silver and gold plating, and gilt, are very abundant here.

Some of the most interesting sights are to be seen at Chapultepec, four or five miles out from the city of Mexico. One reaches Chapultepec by driving up a considerable hill or mountain. We found the castle of Chapultepec on the top of the hill. This has been the residence of the Emperors for hundreds of years. It was here that the Aztecs first found a foothold in Mexico. They were afterwards driven off from the main land onto the islands in ~~the~~ lake Tezcuco, which is a salt lake. There are four lakes which surround the city of Mexico, and this is the ^{largest} ~~smallest~~ est. Sometimes one or other of these lakes overflows, and brings quite an inundation. As the waters of Lake Tezcuco have no outlet except by evaporation, and the valley has no drainage, this and the other lakes are filled with water from the mountainsides. The government is putting a tunnel through the mountain

side by which to drain the valley of Mexico, and give sewerage to the city. At the present time there is no sewerage except what goes into the lake. The city is built into the lake. It was first built on an island in the lake, but the lake has lowered so that the space is filled.--I should have told you before, that this canal leads out to the "floating gardens" which were known as far back as to the time when the Aztecs were driven off the main land onto the island, which soon became too small for them; there was barely room enough for the people to live upon it, but their only safety from their enemies was on this ^{little} island. They were, however, ingenious enough to meet the emergency; they made large mats of wicker-work and covered them with leaves and grass, and then put several inches of mud on the top, and thus they made floating gardens, and then they were able to live on this little island. When they went visiting, they could hitch one end of their boat to their floating island and take it along with them. Each man had his floating garden. They have them at the present day, and each Mexican must watch his garden, or hire some one to guard it, that it may not be stolen. For this purpose, you will see towers in every field of corn,--great towers twenty or thirty feet high--and a man on the top of the tower, continually watching to see that nothing is stolen. These floating gardens had been used for centuries or more by the Aztecs. At length their enemies reduced them to slavery. They were at first subjected to great hardships, --almost as much as were the ancient Israelites under their Egyptian taskmasters. They were compelled to bring one of these floating gardens a distance of several miles, to the palace of the king, with a swan on her nest, and another must be brought with a goose on her nest, and they must arrive at the capital at the same exact moment when the goose

should hatch. Afterwards they became tired and rebelled and became the tyrants of the country in their turn. Up on the top of this castle (of Chapultepec), there is a beautiful garden ~~and~~ which I don't suppose quite rivals the famous hanging gardens of Babylon, but which are very interesting. Here is a tropical foliage. Here is another view. From this point you can see the Military School. This part of the castle is devoted to the Military School. Here is a number of little pools, and very beautiful views of the garden. In these little pools there are various kinds of animals. They are very tame. One alligator was so tame that I couldn't get him to stir. Here is what is called "the Montezuma tree". He was said to have been arrested under this tree. It is an enormous tree, but there are many other such trees there.

(Screen.) This is a view of a road. It runs near to Cordova, down into the hot lands. Cordova is about half way down from Puebla to Vera Cruz which is down on the coast. There is a railroad between Vera Cruz and Mexico which was constructed by the government about twenty years ago, under very great difficulties. The government did not dare commence building the road at the city of Mexico, for fear an insurrection might be stirred up (as they have so many), and it would be easy for the rebels to reach the capital. So they had all the materials for building the road carried to the other end of the road,--commencing it at the wrong end, and building it wrong end ^{forward} to, all the way to the capital, in consequence of this tendency to rebellion.

(Screen.) Here you see hundreds of huts, especially in the vicinity of Cordova, which is the very center of the tropical part of Mexico. At the time we were there, yellow fever was prevail-

ing in Cordova., and we took some precautions against it, about which I will tell you at another time .

(Screen.) Here you see some of the natives. These are well-dressed natives. (Laughter.) This ~~is~~ one is perhaps not quite so well dressed as the natives usually are . You cannot see the faces, as they are a little blurred here ., but they fairly represent the poor people of Mexico.. But the poor people of Mexico constitute almost the whole of Mexico. There are in Mexico about 10 000 000 people, and of this ten millions of people, there are six millions half-breeds or "peods" as they are called. The "peod" is really a slave; he must work to pay his debts. If a man gets in debt to another man, he must work for the other man until his debt is paid, but that man is very careful that the debt is never paid. Millions of the people of Mexico are in that condition; they are really slaves.

(Screen.) Here is another form of hut. It has a hole in the top for the smoke or gas to escape .

(Screen.) Here is a Mexican stove . Some of the peculiarities of Mexican cooking are due to the peculiarities of the Mexican stove., which has no chimney and no stovepipe. The Mexican stove is similar to what you would have if you were to take the stovepipe off the range. ^{run with charcoal} The Mexican stove is ~~made of brick~~ has a hole in the top and a hole in the side communicating with the hole in the top. The charcoal is set on fire, and the woman who bakes the "tortillas", etc., must stand by and blow the fire continually through a pipe. These pipes are sold upon the street at a penny apiece. Here is a tortilla, which is somewhat similar to our griddle cakes. This is their principal bread. They are made principally of corn and water with the addition of a little salt. The corn is hulled, then reduced to quite a fine paste,

then the paste is worked over by hand. . Here is the paraphernalia of cookery, and just what you will see even in the city of Mexico itself, although I had supposed they were to be found only in the country. At the hacienda of a land-owner said to be worth fifteen or twenty millions of dollars, the only stove they had, was just such a stove as we were looking at a moment ago. There was fifteen or twenty openings in the kitchen--sufficient for the escape of the smoke . This food must be ground through two or three times . Here is a very good assortment of the dishes used ^{in cooking} in Mexico. When the cakes are to be prepared for baking, they are not rolled with a rolling-pin; the batter is too thick to be run. So the housewife takes a little in her hand and works it until it is perfectly round. Then she begins to pat it, and gives it a little whirl and tosses it into the other hand. Then she pats it a little more and tosses it with a little whirl into the other hand, and so the cake keeps going from one hand to the other, every now and then giving it a deft touch, and keeps patting it, like this (patting). Here you see the work completed. Then the cake is placed over a common sheet of tin over the fire. Here is the tin on which the cooking is done. When made in this way, the cakes are very sweet,--very much more palatable than any corn cakes that I ever ^{tested} ate in this country. They are palatable and wholesome, if you are sure that the hands that made them are clean, which I am sorry to say is not always the case.

(Screen.) This is washing-day. The Mexican woman is not satisfied with a common-sized wash-tub. She wants a river, or a ditch with ^{a stream of} water running through it. She has a large flat stone and rubs the clothes with soap-root, washing them thoroughly on the flat stone. This place that you were looking at before, is called "Aguardientes", which means hot water. A great body of

hot water falls down here in a stream. Passing along by this stream at any time, you will see it lined for half a mile on both sides with people washing their clothing. Now and then you will see some poor old lady who is waiting while her friend is washing her clothes. Sometimes you will see a man sitting ^{down} in a ditch with one foot soaking in water while grinding the dirt off the other with a sharp sand-stone. (Laughter.)

(Screen.) Here is a wash-day in Paseo (i). Here is a ditch. Here is Paseo. There are very fine trees there. This ditch runs from Mexico to Chapultepec, running along by Paseo. If you were to ride by there, you would see many quaint scenes.

(Screen.) This represents one of the principal industries of the country, the manufacture of pulque. About one half of the population of Mexico are engaged in the manufacture of pulque, and the other half in drinking it. Agriculture is almost unknown in Mexico. Most of the corn eaten in Mexico is shipped from the United States. Wherever the land is tilled, it is very awkwardly done by cows and oxen and wooden plows. The plows are all wooden which merely scratch the soil. These plows are similar to the old-fashioned plows of Palestine; you will also see them employed to some extent in Italy. The ground is harrowed by hitching onto a brush-heap and dragging it over the ground.

(Screen.) This is a century plant. It is sometimes several years in getting ready for blossoming. When the time comes for it to blossom, there is a shoot which runs up fifteen or twenty feet, with such an astonishing rate of growth that you can almost see it grow. I have seen them with these stems ^{or} twenty feet high; but in Mexico I didn't see a single stem coming into

bloom. But I found the reason why. These are the "pulque" plants; when it comes time for the stem to come out, when the great bud should appear, the pulque gatherer comes around and ~~carefully~~ cuts the bud out and very carefully scoops out the hollow, and it fills with juice. The plant does not seem to know that the stem is gone, and so it continues to furnish juice for its growth. The pulque gatherer then draws it out and puts it into a barrel in which pulque has been already fermented, and the sour yeast sets the pulque juice to fermenting, and it is ready for market the next day. It is put up in tigers' skins which have been made water tight by sewing up the openings. It is then blown up and dried, and then the pulque is poured into it. I saw a great wagon load of these pulque bags.

(Screen.) Here are some of their ox-yokes, which cross from one ox to the other and lashed to the horns. This yoke is connected with the wagon by means of ropes and a huge tongue by which the wagon is drawn. In this way, the ox pulls by his horns instead of his shoulders. The same method is followed in Italy, but I did not see quite so queer teams in Mexico as I did in Italy some years ago. In Italy, I would see a horse and a cow hitched up together, and sometimes it would be a great horse and a small donkey. Once I saw a cart drawn by a donkey a mule and a cow; the donkey was on one side, the mule on the other side, and the cow in the middle. In the city of Mexico you will see donkey trains of forty or fifty together going through the city, monopolizing the most populous streets, all following their leader. Donkeys carry everything. Great racks, each one as heavy as a man could lift are piled onto a mule, three four of them are put on a single donkey; and they not only carry these heavy burdens, but they carry a haystack also. You will

see the hay-stack moving, and you wonder what moves it. You will see, upon closer observation, the donkey, and also the donkey's mistress piled on top. The donkey is also the milk-cart, and you will see the milk cans piled upon them.

(Screen.) Here is a representation of a Mexican woman in holiday attire. This is not the dress of the higher classes but of the poorer classes, and it is an unusual thing to see a woman dressed as well as that, but that is a fair representation of the holiday dress of the lower classes. This is the common dress of the lower classes, and of the Indian women of Mexico. You will see in the city of Mexico, thousands of people dressed in just this way. It is more common, however, to see children dressed like this little fellow, (Screen) wearing absolutely nothing at all. The majority of them are either rolling about in the gutters, or in their mothers' arms, sometimes stripped, and sometimes with a little strip of cloth about them. (Screen.) This little fellow wears quite a superfluous amount of clothing.

(Laughter.) Especially this little collar around his neck.

(Screen.) This is a fair representation of Mexican Indians; these are Puebla Indians. The ancient Mexicans belong to the same people who built the Indian mounds all over this country, especially in Michigan, and the valley of the Ohio and the Mississippi. These mound-builders have penetrated the regions of Lake Superior. The old copper mines were made by the ancient Aztecs who were advanced in civilization.

I have thrown these views before you for the purpose of showing you the condition of the majority of the people of Mexico. Most of these people go about in the most wretched manner. You will see men, women, and children, with scarcely sufficient clothing to cover them; in fact they are not half covered, as you

see here. I think I have seen hundreds of children more poorly dressed than these you see here. It is not an uncommon thing to see a woman with four or five dresses on. "How do you know she has on four or five dresses?" Well, for example, there is a big hole which shows a blue dress underneath; then in another place, a hole shows yellow underneath, and another hole shows red under it, etc. Since the holes themselves don't happen to match, by putting on four or five dresses, they can nearly cover themselves.

There is probably no country in the world where medical missionary work is so much needed as in Mexico. They have almost no religious teaching; they have almost nothing to elevate them. They are in a state of the greatest beggary, poverty and misery. Nine tenths of them can neither read nor write. There is but little done for them. There has been a little done by the Baptists for the whites,, but so far, nothing at all has been done for the three million pure-blooded Indians who live in the mountain fastnesses. While we are sending missionaries to the heathen of Central Africa, and China, and the uncivilized people of Japan, it seems to me we ought to think of these poor heathen in Mexico, our nearest neighbor. This republic has been making a brave effort for independent existence, and it seems to me that this country should help her. That country is in the same condition that this nation would be left in, with one sixth of its entire population composed of Europeans, two thirds of the balance, half-breeds, and the remainder, pure blooded American Indians. That is the state of Mexico to-day. President Diaz himself is a creole; he is half Spanish and half Indian. The President who preceded him, Juarez, was a pure-blooded Indian.

At the present day, the people of Mexico are held down in

poverty and wretchedness by the wealthy, and there has been much robbery practiced there, but President Diaz has been very ingeniously making sheriffs and other officers of the brigands, thus causing this class to almost entirely disappear from the country. Yet it is not safe to ^{go} through the country without a guard of soldiers. You can't do as we do here, take a street-car, and ride four or five miles. They have a regular train of cars going from the city of Mexico to Chapultepec, attended by the students of the Military School. When they are all ready, the train moves, but not before, for it is not safe, for they are likely to be assaulted by cut-throats and garroted.

I hope some of you may become enough interested in Mexico to go there and visit that country. And I also hope the time will come when some of our missionary nurses will be ready to go there, and do medical missionary work there. That is the great need of that country. We are now waiting for some one to volunteer to go there. If any one will volunteer, I will see that they have a ticket bought for Mexico, and that they are started off for their journey within a week. I have letters from there, asking me, "When is that missionary coming." We will have to get ready for this work, right away.

2 - 10 - '93.

CASE 12. Mr. Elsin Lochram. Age 28. Morphinism & alcoholism. Lawyer. Addicted to the use of alcoholic liquors since 5 years of age. Had 2 severe attacks of dysentery at 12 or 14. Has drunk excessively at times. In January 1892 was poisoned by Roush on Rats. Then began to have indigestion. Was drugged in June 1892. Thinks he was well from previous poison. Has used cigarettes since age of 12. Has been drinking only moderately since last July. Vomits frequently, also has griping pain in bowels. Used morphine 7 months, usually 6 grs. daily. Has used as high as 57 grs. in 2 days. Has pain in chest. Despondent. Uses morphine to brace him up. Hadorrhoea 2 years ago and now has some discharges from urethra.

Went home better, but bound to smoke.

Treatment:--G. N. Cool sps. daily. Morphine reduced 3 gr.

3 times daily at once, with Tinct. Cap., Nux. El. Br. & c. Felt better at first. Very sensitive to cold. Had periods of pain in bowels. Depressed. Nervous. Slept fairly. Appetite better. Gained 6 lbs or 1/2 lbs. daily. Gradually leaving off smoking. Gets "full" occasionally and has spells of excessive smoking with acute attacks of repentance and numerous good promises. Mind more stable. Taking paregoric and atropine.

March 15, '93.

Case 13. G. H. Walters, M. D. Age 35. Had blood poisoning 12 years ago and has not been well since. For 5 or 6 years neuralgia and rheumatism in left side of face and arm. Six months ago began morphine habit. About 5 months ago took 6 heaping teaspoons morphine 4 times a day, also 1 qt. whiskey in milk.

Now has no appetite. Digestion is impaired; sleeps with morphine. Bowels constipated. Dull aching pain in small of back. Palpitation. Sinking spells. Nasal catarrh. Very nervous. Mind weak. Uneasy. Melancholy. Worse in morning.

Made a good recovery and got quite strong. Went away well pleased.

Nov. 30, '90.

CASE 20. Mrs. W. S. Spencer. Age 36. Always had at times severe headaches over left eye. Spells of severe vomiting. Always irritable bladder. Has taken chloral and morphia for years. Is taking 18 to 20 grs. morphia daily. Constipation for long time. Had dropsy at 16, and also 5 years ago. Two years ago had neuralgia in arm and again in legs last spring. Irritation in bladder keeps her awake. Periods regular in last 3 months. Flow scant with some pain and much aching. Severe backache.

Slept very little at first after leaving off morphia. Burning all over. Headache. Constipation. Pains everywhere. Insomnia. Extreme nervousness. No appetite. Melancholy. Improved steadily and went home much improved.

Dec. 2, '90.

CASE 21. Joel S. Wheelock, M. D. Age 42. Morphine habit. Never robust. Always sick headaches from 12 years of age. Malaria 17. 18 months ago began to take chloroform for headaches. Later used morphine 3 to 4 grs. 3 times daily. Now takes smaller doses. Eight weeks ago received an injury and in a few days began to have rheumatism in right hip, both sciatic and crural. Variable appetite. Nausea in morning, often vomiting, &c. Constipation. Bilious attacks. Pale. Nervous. Sleeps well.

Diagnosis:--Morphinomania and torpid liver. Glands in groin much enlarged.

Went home much improved.

July 19, '88.

CASE 43. Mrs. Dr. W. B. Rose. Age 53. Began taking morphine 19 years ago for facial neuralgia. Was sent to a hospital and cured of the habit. One or two years after this opium was prescribed as a last resort in acute dysentery and she continued its use 4 or 5 years, then stopped it, but 5 years ago took it again and has taken 1 dr. daily. Has poor appetite. Always keeps food by her to eat when appetite "is on." For some months past has taken 1 pint Bourbon whiskey and 3 oz. laudanum in 24 hours. Alternate diarrhoea and constipation. Pain in region of liver. Bloating in abdomen and legs. Was thought once to be dying of consumption. Has constant cough. Much general neuralgia. Mind much impaired by opium. Irritable bladder.

Took morphine for some weeks. Diarrhoeal Vomiting. Excited. Pains all over. Urticaria for 2 weeks. Had another attack of pain and diarrhoea. Pain still continues all over. Son supplied secretly 1 oz. daily of Tr. Opii.

July 24, '87.

CASE 52. Mrs. R. Brown. Is mother of 2 children. Used morphine 15 years. Has been in ill health for years. Doctor gave opium, iron and morphia for neuralgia and she has kept up the morphine. Since last April has taken 120 grs. daily. Has tried to quit. Appetite good. Constipated. Usually wakeful. Has yellow skin. Per. irreg. Menorrhagia and leucorrhoea, with bearing down pains in pelvis. Slept well at first. Sleep is disturbed. Aches all over. Feels weak and tired. Diarrhoea. Headache. Improving in 5 weeks. Went home better.

Sept. 10, '86.

CASE 54. Mrs. H. E. Clark. Age 48. Morphine habit is hereditary for 3 or 4 generations. Has had 4 children. Twenty years ago had an attack of inflammatory rheumatism which left general pains and aches for which she began the use of morphine and has continued it to the present time. Now takes 2 grs. 3 times a day. Appetite and digestion are good. Bowels regular. Pain in region of kidneys. Sleep broken. Is nervous. Has trembling pains in the limbs. Menstruation ceased with last pregnancy 7 years ago.

6-22-'86.

CASE 58. Dr. E. B. Louisburg. Age 48. Nine years ago had dysentery with ulceration of stomach and bowels following. Suffered much for two months and then began the use of morphia and has used it steadily for nine years. Never able to break habit for he has terrible pain in legs and feels weak when he tries it. Has taken 10 grs. daily, but in last year uses 3 grs. daily. Appetite and digestion fair. Bowels constipated. Sleeps well. Nervous and irritable.

10 / 14 / '85.

CASE 60. Mrs. W. F. Addis. Age 27. Was healthy until after marriage 4 years ago. Had bladder trouble 3 or 4 years. Was very sick last winter 3 or 4 weeks with uterine disease and began the use of morphine increasing the dose until now she uses 25 gr. daily. Took it first after the operation. Once took 2 1/2 lbs. chloroform during nervous spell last summer. Uses morphia. Bowels constipated. Had an operation for antelexion. Before this had irritable bladder.

RELATION OF THE MUSCLES TO RELIGION

Lecture to College Students . June 15, 1893.

J. H. Kellogg, M.D.

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*Begin to copy up 13
marks in red
on p 15 go back to p. 12 for
below on p. 11.*

My Friends: I am very happy to meet you here to-night, and especially to find you in such a happy mood. I suppose it is because you have had an extra dose of exercise. When Mr. King, a day or two ago asked me to come over and talk to you this evening, I very thoughtlessly consented, and so I find myself advertised to deliver an address to you here to-night. Now you know I never deliver "addresses," nor give "lectures." I sometimes preach lay sermons to my patients,--or rather, talk to them--and so I will talk to you a little while to-night about the relation of the muscles to religion.

The true relation of muscularity to religion is generally overlooked. It is generally supposed that, somehow, it is a little wicked to be strong, vigorous and muscular, and that there is some sort of relation between hard muscles and hard hearts. But this certainly is not necessarily so. The idea that there is something religious in being weak, sick, is a notion which most religious people have, and it is one which ought to be uprooted from the popular mind. But the impression seems to be thoroughly seated, however, in the minds of the people, that there is something good in being sick. I suppose the idea is, that people are afflicted for their best good; that they are made to suffer sickness in order that they may be good, and consequently, that when we find people who are thus afflicted, that they are good. In my professional experience, I think I have seen and examined at least 50,000 sick people; I have talked with them and had a good

opportunity to study their mental, moral and physical states, and I am thoroughly convinced that sickness does not contribute to piety, but that sickness tends to make people bad, rather than good. Sickness causes weakness of the muscles, and weakness of the muscles is clearly related to weakness of the will, and weakness of the will is closely connected with weakness of everything good. I have visited a great many prisons, poor-houses and hospitals, and I have noticed that the people whom one sees there, are, almost without exception, sickly looking people. It is surprising to see how many epileptics are found in prisons. A large proportion of these people are suffering from nervous disorders, from dyspepsia, and a great variety of physical ailments. The average man found in State prison is far from being a well man,--very far from it. The people who constitute the criminal classes in our large cities, are not large robust and healthy looking men; by no means. They are the very opposite. They are sickly looking, haggard and hollow-eyed, with bad tongues and bad breaths, men upon whom there is the stamp of disease, infirmity and weakness. On the other hand, take a man who is strong and vigorous, hale and hearty, who has clean breath and a bright eye: That man is certainly a much safer man to trust, and to be left alone with in the dark, and to meet on a dark night. I am sure you would all feel safer with such a man, than with a man who is blear-eyed and sallow, and looking the picture of disease.

Disease deforms people morally as well as physically. It is an awful thing,--it is really an awful thing--for a person to grow up sickly and diseased, to grow up with a diseased stomach, a sick stomach, a sour, acrid stomach, a stomach that is constantly sending sour, acrid fumes up to the brain, sending into his brain poisonous substances, and poisoning every fiber and every cell.

The man who grows up with that kind of stomach grows up in a very unhealthy mold; because a sour stomach makes a sour brain; it makes the mind sour; it makes a man feel sour toward his neighbor; it makes him look through blue glasses; makes him despondent, unhappy, morose, and a hypochondriac. The ancients knew about this principle; it is not a modern discovery. The ancient Greeks said of a man who was downcast, blue, melancholy, etc., that he was a hypochondriac. We sometimes see a man whom we say is "down in the mouth," when he feels melancholy out of sorts and "blue," because at those times, he has the corners of his mouth all drawn down. Now the ancients discovered, in some way, that there was a relation between a man's liver and his mental state. So when a man was in the state that I have described, they said that he was "down in the liver," that is, that he was down under the liver, under the ribs. Hypochondria means under the ribs, and the liver is under the ribs. So, with the ancients, a man who had the blue as we term it, was down in the ribs or liver, because it has reference to the liver which lies under the ribs. "^{in Greek} Hypo" means "under" and "^{pertainig to} chondria," the ribs; hence it is evident that the ancient Greeks understood this principle, but in modern times, we are blinded to this important physiological fact, that the liver and stomach which lie under the ribs have a real relation to the life and the brain. (Explaining by the use of a mannikin.) Here is the great abdominal center of the body, which in physiology is recognized as the abdominal brain. This great abdominal brain lies down here. This is an important mass of nerve matter which controls the processes of digestion, and the liver action, and the functions of all the abdominal viscerae, and it controls the conditions and gives form to the body. It also determines what shall

be the quality of the blood and the tissues of the body. The brain in the skull does the thinking, but the great abdominal brain makes the brain in the skull, so it really determines the quality of thought. Now this same important abdominal organ bears a very close relation to the heart, and also to the lungs and the liver; so that whenever there is a disturbance in one of these organs, there is a disturbance of the other. Whenever there is a sympathetic disturbance set up in the abdominal brain, there is a corresponding disturbance set up in the brain in the skull, and consequently a weakening of the power of the will. The man who grows up sickly, in a mould of disease, decrepitude, irritability and inefficiency, will find his whole life influenced thereby, and that he will be an entirely different sort of man from what he would have been if he had grown up under wholesome influences.

I think the idea that the body is of no account, and that the soul is to be purified by abusing the body, originated with that church which has originated so many other false doctrines, the Roman Catholic church. Christ taught a better doctrine. I cannot imagine our Savior as having been a man enjoying anything less than perfect health. I have sometimes seen pictures of our Savior, in which he has the appearance of an invalid,--pale, sickly, feeble and emaciated. Our Savior was a perfect man, and to have been a perfect man, he must have been in the enjoyment of perfect health. I cannot imagine the Master as anything less than a perfect man mentally, morally and physically; to have been a perfect man, he must have had a perfectly healthy physique. But the Roman Catholic church, through its puny, dyspeptic monks, taught the doctrine that the body is of no account; that it is absolutely worthless, of itself; that it is of no more account than is represented in the epitaph:--

"Under this sod, and under these trees,
Lieth the body of Solomon Pease;
The body that's here was only the pod,--
He shelled out his soul and went up to God."

Now that epitaph illustrates popular theology. It originated, as I have said, with the Catholic church, which taught that the body is simply a receptacle for the soul as the pod is for the peas; and you know what is done with the pod, after the peas are shelled out. It is cast out, to be trodden under foot. The doctrine was taught, that the body was a sort of prison; that there was something in it that was all the while trying to get out; that that prisoner is the soul, and the sooner it is released from the body, the happier it will be. When I was in Mexico a few months ago, I saw the walls of some of the churches which were spattered with blood, where the ascetics of the church had been whipping themselves with thorns. These people ^{would} whip themselves in this manner, tread upon cactuses and upon thorns until their flesh was lacerated and the blood flowed in streams down upon the church floor. This is something that may be seen in Mexico to-day. All this is done with the idea that by thus abusing the body, the soul is going to be purified. You may see the same idea illustrated in Sunday school books. When you see the picture of a good woman, in many of these books, it is always the picture of a poor careworn, dyspeptic, sickly woman. A good boy is illustrated in these works, usually, as a poor, puny, hunchback,--at least there is something the matter with him. The same is true of the good girl,--there is something the matter with her, physically. In this class of literature, you rarely see the picture of a person who is good and strong at the same time.

Now what sort of bodies ought we to have, and for what purpose? The apostle Paul exhorts us in these words, "Glorify God in your body, and in your spirit, which are God's. (1. Cor. 6 : 20.) The former portion of this text is usually soon forgotten, and this part, I will talk about a little to-night.

How can we glorify God in our bodies? In the first place, it will not be by defacing or abusing these bodies, for they are God's handiwork. They are the masterpieces of Almighty creative art. If there is any way by which we can glorify God, it will be by making the most of these bodies. God made them beautiful; hence we can glorify him by keeping them beautiful. I don't mean by this, that we are to try to make our bodies beautiful by the use of paints, cosmetics, or fine clothes, or by other artificial means, but that we are to make them as beautiful as we can make them by healthy living. There is no virtue in being unsightly or ungainly; there is no virtue at all in being homely, if you please, but there is virtue in being beautiful, for God, in the first place, made man beautiful. God loves beautiful things. And God himself is beautiful; he must be transcendently beautiful. As I said, God loves beautiful things. Just see what abundant proofs we have of this. Everywhere in nature we see beauty. Look at the beautiful sunset, when the skies are painted with such brilliant hues. And we see the same love of beauty when we contemplate the glories of the morning sunrise. We see it in the mingled tints of the rainbow. It is God's love of the beautiful which puts pearls and diamonds in the dewdrop, grace in the hanging bow and the swaying grass-blade; it paints the plumage of the birds and tunes their voices; puts songs in the brooks and hymns in insects' wings. We find all nature in tune, and singing beautiful anthems of praise to God. God's love of the beautiful

is seen in the most exquisite flowers and landscapes, in living forms, and in the voices of man and beast. It is that love of God for that which beautiful which mirrors the sky upon the crystal lake, and sometimes in the mirage paints earth upon the sky; that puts the attractive colors and graceful lines into every flower and plant; that marks with such grace and beauty the movements of the springing fawn and the flying bird, the squirrels in the tree tops, and even in the worm crawling upon the ground. There is no end to the evidences of this wonderful love which God has for beauty, which we see in the Creator's handiwork which is everywhere spread out before us. All nature is beautiful ...

~~As I said~~, God himself is beautiful. Moses himself could not look upon God's face. Why? Not because it was the glory of a devouring flame, but ^{the unapproachable perfection and loveliness} the transcendent beauty of his countenance. We sometimes see a very striking countenance; there is such a beauty in the expression of the face; there is a beauty in the eyes and in the expression of the whole countenance; there is such a fascinating beauty in it, that we can hardly take our eyes away from it,--even from the painting of such a face--although we would much rather look at the face itself. But what must it be to look upon the face of God! But every beautiful thing is the embodiment of a thought of God. Every form that is beautiful is simply an incarnation of a beautiful thought away back among the generations past,--we don't know where it was, but it certainly originated in a divine inspiration; it was born of God somewhere in the past. Everything that is beautiful comes from God.

God is beautiful, and that which is good is always beautiful, and that which is evil is always hateful. Truth is always beautiful, while error, evil and sin are always hateful and repulsive. We may glorify God, then, by making our bodies beautiful.

God made Adam and Eve beautiful. They were doubtless more beautiful than any of the creatures which we have ever seen. Picture in your mind's eye, if you can, what Adam and Eve must have been when finished by the Creator's hand. What symmetry of form! What roundness of limb! What beauty of figure! What dignity and grace of carriage there must have been! Now this man Adam, in the days of his innocence in the garden of Eden was not idle. God gave him work to do; he was to dress and keep the garden. I suppose he also had the animals to train,--and there he was the finest animal of them all. For man was "created a little lower than the angels." He was created with keener sight, sharper ears, more acute taste, fleetier limbs, more enduring muscles and greater physical perfection than any other creature of God. Even now there are savages in the forest who are capable, by their fleetness of limb to capture any other animal. Certainly Adam and Eve must have possessed these remarkable powers, in order to be master over all the animals.

But man has degenerated so greatly that at the present day you can hardly find a man or woman who has not some deformity. As an illustration of this fact, you will remember that there was a proposition to have a statue cast in silver, of a perfect female form, to represent Montana at the World's Fair, and there was an eager contest among the ladies of that State as to who should pose as the model of that statue. After the person in charge of the matter had made careful search for a model, he wrote to a prominent artist upon the subject, who said, in reply that it was perfectly absurd to attempt to find a single living woman who would be a proper person to pose as the model for such a figure; that if they wanted such a figure, it would require 30 or 40 women, each to pose for some different portion of the statue. Said he, "You must have the

head of such a woman, and the shoulders of such a woman, and the hands of such another woman, and the feet of such another woman, etc., so this statue must be composed of thirty or forty different models. Now that is what the modern artist does, if he is going to paint a perfect human figure, or if he is going to make in marble a representation of the human figure, and he thus develops a representation of the human form in its most perfect proportions. Now Adam was a perfect model, and if the artist having charge of the making of the Montana statue could have got hold of Adam, he wouldn't have had to have a half dozen different Adams in order to make a perfect figure; he would have had a perfect figure to begin with. Even now man is the most perfect of all animals, though his hearing is dulled by disease, and his sense of smell is nearly lost by disease and neglect.

God has put into us a love of the beautiful, as I have said; but this includes more than external loveliness. ~~Beauty is more than skin deep.~~ I suppose you have heard of the New York girl's prayer. After praying for her father, mother, brothers and sisters, she added, -- "And, Oh Lord! Make us very stylish." She had heard her father and mother pray, and she thought this was in accordance with their prayers. Now it is right to be stylish, provided it is the right kind of style. The Lord made Adam stylish. I don't suppose you ever saw a man who could tread the earth with such a commanding air as Adam. The man who was master of the whole earth must have trod the ground with a most commanding air, -- don't you think he did?

Now the Lord wants us to be beautiful; he loves everything that is beautiful. Everything in this world that is not beautiful is one of the consequences of sin. I think good Christian people sometimes get wrong ideas on this subject; they think there is

some virtue in abhorring everything that is beautiful, and in depriving themselves of everything that is beautiful, and in surrounding themselves with things that are somber and undesirable and uncongenial. I know of some people who make it their duty to eat things that they don't like; they think that there is some virtue in that, and seem to think that ~~this is what~~ a holy life consists in. *doing what he does not like to do, and in trying to* Now there is a certain discipline in self denial.

But God never wanted any man to live under circumstances abhorrent to his real nature (although ^{circumstances} they might be abhorrent to his artificial nature, and be in harmony with his real nature). God does not want any one to go down into a repulsive atmosphere,--except it be to make it better, by bringing into it a purer atmosphere, and bringing in a different condition to that which he finds there.

Now what does exercise have to do with all this?--As I was just saying, God made everything in this universe beautiful. Anything that God ever made has been beautiful and perfect. But everything has since been marred by sin. And yet this earth and the things that are therein are still beautiful. And it is not only in the earth that we may see wonderful beauty, but look through the telescope at some of the immense planets. Some of you who have looked through the telescope at the starry heavens, can well remember the sensations which you experienced when you first saw an immense planet bowling along through space. ^{you could} One can almost hear the "music of the spheres," ^{as} the ancients believed they could do. This great astronomical clock keeps ticking on through the ages, with wheels and wheels, and wheels within wheels, and all in perfect harmony. You can ^{also}, with the microscope, look into a universe which is infinitely small. Look at a grain of sand, and notice ^{its} the beautiful lines, angles and crystals. A drop of

solution of salt when drying, viewed through the microscope, discloses beautiful pellucid crystal plates springing into being, piling up in masses, forming huge crags and peaks, miniature glaciers and ice-palaces iridescent with light, and gleaming with a thousand rainbows. The commonest bit of wood, ^{or splinter} or chip, when viewed through the microscope is transformed into a thing of beauty; you see there beautifully rounded cells, bands, fibers and spirals, and all the elements of plant architecture, presenting a startling picture of beauty and symmetry. Now put on a little more "objective"; increase the magnifying power, and new beauties will appear. Increase the magnifying power still more, and there is still another spread out before you. As you keep magnifying the power, new beauties and wonders will continue to appear. A butterfly's wing will disclose plumes and feathers under the wonderful power of the microscope, beside which those of the ostrich and the ^{bird of paradise} peacock sink into insignificance.

These principles apply when we look at the body. Beauty is more than skin deep. Beauty on the outside is born of health inside. Beauty of figure means health of body, for beauty is born of health. The man who is hollow-eyed is not healthy. The man who is hollow-chested is not healthy. A weak waist, and weak carriage, all these symptoms mean internal weakness and disease. The minute structure of the body is infinitely beautiful. When you take it to pieces, till you can ^{no longer divide it} ~~take it into pieces no finer,~~ you will find fibers and cells of most wonderful form, infinitely delicate, transparent and beautiful; some of the fibers are so small that 20,000 of them when laid side by side will make a band only an inch wide. If you would dare to do so cruel a thing, and will take a live frog and tear out some of its muscles and put them under a microscope and examine them and you will see that

those muscles are absolutely transparent. It is only when the muscles die that they cease to be transparent. This transparency is caused by life and vitality; it denotes the absence of everything but what is alive; it has God's force and power in it, vitalizing it and keeping it alive.

Now suppose we neglect this body; suppose we treat it as a bad housekeeper does her house. Or suppose you picture to yourself an ^{unoccupied} house in which everything within is out of order; it is full of dust, rubbish, remnants of the last meal, old shoes, broken mirrors, shattered crockery, carpets tattered and torn, disabled chairs, defaced walls, broken floors, cobwebs on the walls and all sorts of garbage, -- everything that is disagreeable and unhealthy has been accumulating in that house for a dozen years. Now that is exactly what God sees in an idle, diseased body, -- the house that we live in. (We find, ^{Even} in the brain, ~~for~~ ^{are} instance, the poisonous substances which should have been carried off in ^{by} the use of muscular action; ^{indeed, there is} and an accumulation of organic dirt in the ^{whole} ~~rest of~~ the body. That is the reason why, when ^a ~~one~~ ^{person} has ~~long~~ been sitting ~~idle~~ in his room for a long time, having taken no exercise, His face gets sallow, and his eyes get yellow. ^{Why is this?} ~~And why?~~ Because organic dirt has accumulated in the eye under the transparent membrane, and makes "a dingy sclerotic." This dingy appearance of the sclerotic is a significant thing to the ^{physician} doctor: It means not only that the eye is dingy, but it means that the muscles, nerves, glands, and everything connected with the digestive organs ^{are affected} ~~is dingy~~; ^{clogged} the citadel of the brain is ~~dingy~~ and the whole body is in a ~~filthy~~ state.) This unkempt condition of the body is like that uncared-for house which I have been describing to you. Now we cannot see this inward confusion and

unsanitary condition of the body; but God looks down, and he sees all this disorder in these bodies which he had made so beautiful at first. If we allow our bodies to get into this state of desuetude and confusion and filth, is not God displeased with such a state of things? Does not God abhor dirt and everything else that is unwholesome? He cannot be pleased with us, when this inward beauty is gone. For it is this inward beauty which is of the greatest consequence; it is greater than external beauty. But the two things generally go together. Now a boy or girl, or any person who has a sallow skin, haggard face, dark circles around the eye, a rough pimpled skin, ^{a weak body} a weak carriage, and sunken chest, has the evidences of weakness and decrepitude. Such a person is not beautiful either outwardly or inwardly, and God sees what a wretched creature he is. Now, can such a person glorify God in his body? When a man falls into such a state, he cannot glorify God. His brain cannot be clear; his moral insight cannot be keen. It is impossible for such a man to "think the great thoughts of God after him," because he has become impure and not beautiful.

~~Now exercise is one of the best means in the world of becoming beautiful; its maintenance is absolutely necessary for beauty.~~ ^{overall} You know what happens to a stagnant pool, ~~when there is an absence of exercise or movement in the water; it gets covered with slime and gives off offensive odors. The same thing happens to the body which is deprived of exercise.~~ ^{know} Exercise is to the body just what a running stream is to the pool of water. Turn a running stream ^{into} ~~upon~~ the stagnant pool, and it carries away the slime and filth, and makes the water pure, and the pool soon becomes a pellucid lake instead of ~~being~~ a stagnant frog-pond. ~~The same thing is true of the body: the body which is not subjected to~~

In the body which is not
~~exercise is just like a stagnant pool ; there is the same accu-~~
~~mulation of unwholesome things within, and the same giving out of~~
~~unwholesome emanations which we have seen a stagnant pool. Let~~
~~me give you a simple illustration of this fact: many of you have~~
~~been on a farm when boys and girls , and you have noticed that horse-~~
~~es and cattle , when allowed to run in the fields and have plenty~~
~~of exercise in running and cantering about have a different kind~~
~~of sweat from what they do when in a state of confinement and~~
~~idleness.~~

To illustrate: from accumulation
 When a horse has had plenty of exercise, and then goes
~~along the road or works until he sweats, the perspiration is clear,~~
~~and does not leave a stain. But if you leave a horse in the sta-~~
~~ble all winter, and then work him and make him sweat, and there~~
~~is a thick sticky gum mixed with it, which you can hardly~~
~~out of his hair. How many of you have noticed this: hands up!~~
he has stood
when he begins to work

Do you note,
~~What is the reason of that? And what is that gummy substance~~
~~that is mingled with the perspiration? That is matter which has~~
~~been distilled from the horse, -- that is extract of horse. (laugh-~~
~~ter.) This distilled substance is a collection of impurities~~
~~which have accumulated during the idleness of the animal.~~

and
~~Before~~
~~that gummy impurity was in the hair of the horse, it was in the~~
~~horse,~~
it
in every gland, cell, and nerve-fiber

the
~~It was not in the skin, it was under the~~
~~skin; it was not only under the skin, it was all through the body.~~

~~Just an hour before that gummy substance came out into the hair~~
~~of the horse , it was in the horse, all through the horse; in every~~
~~gland, cell and nerve-fiber, and every tissue of the body of the~~
~~horse, there was that gummy, sour, crude substance. The very~~

~~same thing is true of the man of sedentary habits, the man who is~~
~~shut up in the little stall that he calls his study. If he sweats,~~
~~this mucilaginous, sticky substance comes out upon the skin. The~~
~~same substance is in his brain and muscles and nerve-fibers and~~
~~tissues.~~
because

it
~~Such a man always feels depressed and sour, -- and no won-~~
~~der.~~
all his

der that the man feels depressed. His whole body is contaminated with these impurities, and exercise is the thing to carry these out of the body. But you may say, "I will take a hot bath."

But hot baths do not take out the impurities of the body, as exercise does. When you exercise, your muscle fibers rub against each other, and has a similar effect to that of cleaning the sweat off from a horse. Exercise is a sort of inward currying; it jostles and stirs up everything in the body that is stagnant.

If there is any part of the body that is not exercised, the same thing happens to that part of the body that happens to a stream when any part of it is obstructed. Wherever there is a sheltered nook, or an obstruction of any kind, to the current, or a great big rock sticking out in the center of the stream. Now if any one should throw anything like a dead cat into the stream a little above the obstruction, when it comes down to the obstruction, there is a little eddy there which keeps whirling round and round, and retains chips, sticks, and filthy substances which have been thrown into the stream.

The same thing happens to the body, when any part of it has not been subjected to exercise. If there is any part of the body that is not exercised, that part of the body becomes the receptacle of the effete matter and debris of the body. It accumulates there. They are like the inert things that accumulate in running streams.

Now the right kind and amount of exercise taken every day stirs up every part of the body; it makes the heart work; it makes the lungs work; and it makes the whole body work so vigorously that the whole body fairly steams with perspiration, and the impurities within are forced through every part of the body, and every part palpitates with activity. Now you should stir up the body in this way every day, so that there will be no chance for

various excretory channels. The body is stirred up into the

body in this way every day, so that there will be no chance for

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body in this way every day, so that there will be no chance for

various excretory channels. The body is stirred up into the

impurities to collect. It is then like a stream rushing down from a mountain's side; there is no chance for stagnation. ~~But the~~ young man who stays in his room and studies there all winter, or the girl who shuts herself up in her parlor and drums on the piano is in the same condition of the stagnant pool. The breath is fetid, and the whole body is in a state of inactivity, impurity and disease. ..I am not overdrawing this thing at all. I gave you the example of the horse, because that is one which you are familiar with. The same thing is true of the dog: ^{as of the horse when young and} if he is active, he keeps his perspiration pure, and ~~he~~ is comparatively free from the offensive odor, so that he can be tolerated, and even be taken up into the lap. ^{in the house} But the dog ^{which has become} ~~who is~~ old and inactive ^{can} is not tolerated in this way; he is not allowed to stay in the house. The pup is allowed to stay in the house, because its breath and its skin is sweet. It is active, and so it keeps its breath and skin pure and sweet. That is the difference between the young dog and the old dog. (One dog, by reason of lack of exercise carries a mass of impurities within his body; while the other keeps his skin and breath pure by his activity. You see the importance of ~~outside and inside~~ purity and beauty, and how essential is ^{is just as essential} exercise to the attainment of this end. ^{in human beings as in animals,} ^{how it accomplishes} ~~But how does exercise secure this result? how does it se-~~ ^{the} ~~ure~~ cleanness of the body, the blood, the muscles, and the tissues? ~~How does it accomplish it?~~ All these accumulated impurities of the body ~~must be~~ ^{are} gotten rid of by being washed out by the blood, through ~~the~~ perspiration, and by being burned up. The heart, beating from 60 to 150 ^{times} beats a minute, sends a torrent of blood through the brain, muscles and tissues of the body, washes out and purifies ^{in things and} it. ^{purification of the body} This is brought about not only by the increased blood activity which is produced by exercise, but ^{by} increased lung

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The person whose system is filled with poisons is apt to be in a depressed state of mind, but when exercise has brought in sufficient oxygen to burn up all these waste matters, the brain is cleared of its cobwebs, and the spirits brighten. We should imitate the birds rather than the frogs. The frog is a ^{through} pessimist. All his life he does nothing but sit and groan and croak, while the birds ^{which} sing in the tree-tops, ~~and they~~ easily keep up with the fastest railroad train, singing as they fly. Indeed, there is everything to encourage one to persevere in habits of exercise and industry.

exercise, by which an abundance of oxygen is brought into the body and burns up impurities which are not washed out by the blood. Dr. Brooks shows by experiments that ^{a person} we breathe in seven times as much oxygen when ^{running} exercising as when lying down on one's back, and this seven-fold quantity of oxygen ~~taken in by running~~ is what burns up ^{the} impurities of the system. A great fire in a city has one good effect, -- ^{it} ~~to~~ burn up accumulated impurities. ~~London~~ London was once visited with the "Black Death." This was followed by the great fire, which disinfected London of filth and germs, which had greatly accumulated, for in those days they had no sewers, and people dumped their filth and garbage into the streets and lanes of the city. That is why they were visited with the Black Death, and then the great fire came along and disinfected London, and they have not had a great plague there since, because of the thorough disinfection of the great fire; and when the new London sprang up, it was a clearer and a purer London, and they were able to keep cleaner and purer than the old London, because of their improvements, in scavengers, sewerage, etc. (Now that is what a "fever" ~~as it is called, although really a cold~~ does when it comes into the human body; it is like a fire, because it sweeps away the impurities of the body. But when one keeps his system clean and pure by ~~exercise and oxygen, there is no room for disease and fever; there is nothing~~ ^{there} ~~which is left~~ for the fever to ^{feed on.} catch onto and burn u-p.)

Exercise helps a man, because it makes him strong. That is another way by which we can glorify God. We can serve him with our muscles as well as with our brain. And there are some who can serve God better with their muscles than by their brain; but as I have said, exercise is necessary. David, for example, if

he had not had the strength of steel, which he attained by exercised, he could never have killed Goliath and delivered Israel. That was by no means the first time that he had discharged a stone from a sling. It was long training with sling and stone that enabled David to put that stone in the right spot. Samson also, for many years defended and ruled over the Lord's people by means of his great muscular strength. Now the Lord can use muscular strength for his glory at the present time as well as then, and this, not by mere brute force, and brutal ways. For muscular strength; ^{does not come alone} it means nerve-strength as well; it means endurance. If a man has muscular strength, in gaining it, his brain ~~also~~ has been strengthened also, so that he can endure mental as well as muscular labor. I wish you to get that thought into your mind. When a man is going through a course of vigorous muscular training, by means of which his muscles are rendered strong and vigorous, so that he can endure great muscular strain, that man's course of training has purified his brain, while it has ~~has~~ made his chest, liver, lungs and whole body strong, and his blood pure and good. In this condition, with his whole body strong, vigorous, elastic and enduring, he is better able to serve and glorify God, than though he lacked these physical qualities.

The greatest men that have ever lived have been strong men. Julius Cesar was equal in strength to any man in his army. Pompey could leap and run as well and as far and as fast as any one in all his legions. Gladstone, the greatest Englishman, perhaps the greatest living man of the present day, although ^{between} some 80 ^{and} 90 years old, is a man of wonderful activity and strength of mind and body; one day he is chopping down great oaks, and the next day translating Homer, or writing a scientific essay; the next day, chopping down a great oak at his place at Hawarden. That is

the way he keeps himself so active and muscular . physically and mentally. I think I have stated at some time, that Gladstone smoked, but I am glad to learn that this is a mistake, and that Mr. Gladstone does not smoke. Ericsson the inventor of the Monitor by means of which the Union fleet was saved in the Great Rebellion, was a man who took a great amount of exercise. William Cullen Bryant kept his brain and nerves strong and vigorous, and his heart regular and strong, up to the time of his death ... "Fifty dips" was his morning exercise for his legs; then a walk of ten miles, and a run up to the top of the building ten or twelve times during the day, for the sake of the exercise. He could have had his servants wait on him, but he put himself through these exercises, because that was best for him.

When the Lord told Adam that by the sweat of his brow he should eat bread, this was not intended as a curse, in one sense, because under the circumstances, it was a blessing; it aided in the preservation of his body, and in suppressing his evil tendencies. It was by this means also that Paul was able to "keep his body under." A certain little girl's commentary upon that expression of the apostle's, was, that he did those things "to keep the soul on top." The best means of doing this, is good hard work every day. Every young man or woman needs sufficient exercise every day to make his heart palpitate rapidly, to make him perspire, and make him pant vigorously. The exercise that many go through, dragging their slow length along, amounts to nothing. A man must put his heart, mind and strength into the exercise, in order to have it do him good .

I am glad you have a gymnasium in this Institution, and I am very much interested in it. It is not as good as it might be, but it is the foundation of this school, - (Loud cheers.) and I

hope it will "magnify its office" and spread out to still greater dimensions . Now I do not complain of the gymnasium, but I say that we should make the best possible use of it. Why, it is possible for one to get all the exercise he needs in a space two feet square. If you will stand up in such a space and give yourself such exercise as it is possible to take, you will be glad to rest in the course of ten minutes. It don't need a costly and elaborate apparatus for all the purposes of exercise. A man has apparatus enough in himself; for instance, let any one bend forward as far as he can (like this) and remain in this position five minutes. Put your arms out (in this way), and then lean forward and stand on one foot for a couple of minutes . You will be glad to take a little rest by that time . There are a great many exercises of this kind. You can use the body itself as the apparatus by which you do the work. Make the body itself act as the lever, the weight , etc. By doing this, you can get all the work you need right in this corner . But the gymnasium is useful, and they are using it in the schools. The gymnasium here is a good deal better than those in some other schools. You can get a good deal of capital work out of it . I am glad so many young gentlemen and ladies, and boys and girls have been patronizing the gymnasium. Mrs. Councilman your preceptress, who has undertaken the work of giving instruction in this work, in addition to her regular duties, is engaged in a good missionary enterprise and a very important work. Mr. King also has undertaken this work for your benefit, and I am glad to see that so many of you are interested and receiving lessons in it. I trust you are prepared, by these exercises, to make a good showing in competition for the prizes offered at the beginning of the year. This chart was prepared at the beginning of the year, from strength measurements taken of 200

young men. The strength of all the different groups of muscles was tested, for each of these 200 young men,--the muscles which close the hand, and bend the hand; the muscles which bend the arm and which expand the arm; the muscles which raise the arm, which bring the arm back, and bring it forward; and the muscles of the leg; the muscles which bend the trunk forward, sidewise, etc. All these different groups of muscles have been tested. That is, for each one of these different groups of muscles tests were taken, and the figures were arranged, beginning at the strongest groups of muscles,--not beginning with the strongest man, but with the strongest groups of muscles; for instance, the strongest grasp of the hand was put down at the top of the column, and the weakest grasp was put down at the bottom, and the intermediate measurements were placed in regular gradation between the highest and the lowest, and thus we proceeded with all the different groups of muscles, and then the average was taken, the center of the line representing the average strength. The top line represents the two strongest men, and the bottom, the two weakest men. You will understand the method, when you look at the chart. If a man were equally developed, the figures representing the strength of each of his groups of muscles would run directly through the center. But instead of that, see how irregular this line is, the high bends representing the strong muscles, and the low bends representing the weak muscles, some muscles of the same person being very strong, and some of them being very weak. So that by looking at these lines, you can determine the condition of the man's muscles, and of different parts of the body; for instance, you can see by this line (which represents the strength of the shoulders), that the shoulders are not strong, while the muscles of the legs are strong. Some of his ^{groups of} muscles are very weak, while two

of his groups of muscles are very strong. I could tell, without guessing at it, that this man was a horseback rider, by looking at this line. You see the chart gives a picture of the inside of the man, and hence it is very interesting. The photograph shows the outside, but this chart shows the inside of the man. It tells us the actual strength and physical value of the man, giving the picture of the man from a muscular standpoint. Now after this man goes through a course of exercise, the line is more uniform. Here you see the line touches the top; here it comes up to the top line showing that the strength is equal to that of the strongest man of the two hundred. See how much more symmetrical this line is than the other. Sometimes you will find a line with even greater symmetry, but we never find one that is perfectly symmetrical, for we never find an ideal man. But this is one of the best specimens of symmetry.

Now this representation of the chart means a good deal to this man. His shoulders are square; the retractor muscles come up to the top,--showing that the man's chest is well swelled out and his lungs expand freely, and he has dignity of carriage. And dignity of carriage means a good deal to a man. When you see a man walking along in this way (stooping over, assuming a weak position), you conclude that he is just as weak, as to his internal man, as he is in reference to his exterior. His internal atmosphere is just as weak as his external atmosphere. When your shoulders, chest and breast are up, you have an entirely different expression. Now if a teacher should assume this weak position as he went about, his pupils would not respect him. But when he assumes a proper poise, his pupils are easily controlled. The physical appearance of a man or woman has a great deal to do

with their success in life . This is something that can easily be verified. Lack of proper physical bearing is something that is the result of neglect of physical training and of will cultivation. The whole class, numbering some 44 I think, at the beginning of the year were able to lift only 132 tons: ^{I should have said, 115 tons} a pretty weak class, you see. At the present time, this same class are able to lift 17 1/2 tons more than at the beginning. This is quite an addition. They don't lift that amount upon their shoulders, but with their whole bodies,--using all the muscles of the body. Their arms, for instance have gained seven tons in strength. That shows that they have been doing some good work with their arms. Their legs have gained six tons, but I expected their legs would come out ahead, while watching them on the ball ground. But extra arm work means not only increased strength of muscles but a broadening and deepening of the chest-capacity, and consequently greater ability to lift. The trunk has developed some; it has increased some 3/4ths of a ton. There is not so much gain there. I suppose you have not had in your gymnasium all the apparatus which ^{is} proper for the development of the trunk. Now an increase in trunk capacity is one of the most important gains that can be made . Possibly next year you will have some better equipments, and which will help you in that respect.

Now this increase of arm capacity and of leg capacity may sometimes mean a great deal. Many a man has failed entirely in his enterprises simply because he broke down physically. His health failed; his lungs failed; he could not breathe fast enough probably; his heart failed. Many a man has fallen dead, because his heart failed to beat fast enough, and he could not run fast enough to catch a train, or for some other purpose which required extra effort in this direction. ~~Now~~ Now the exercise which

made the arms and legs strong, will make the heart and lungs strong also. The same exercise which will make strong muscles will also make a clear brain. *Indeed, there is nothing like exercise to* Exercise will bring in an abundance of oxygen, which burns up waste matters and clears out the cobwebs of the brain; and the man who has a clear brain will be likely to have a clear liver, and to be hopeful and to take a cheerful view of things. *We should imitate the birds rather than the frog* He is ~~not~~ like the frog. The frog is a pessimist. All his ~~whole~~ life he does nothing but groan and croak. ~~(Laughter.)~~ But the birds sing in the tree-tops, and they easily keep up with the lightning express train, singing as they fly. There is everything to *encourage* stimulate one to persevere in habits of exercise and industry. But I see I have taken up so much of your time that I must close here, thanking you for your attention. (Loud cheers.)