The following message by Dr. Granville F. Knight was delivered at 3 o'clock P.M. on November 15, 1966 for the second and final adress of the Martha R. Jones Nutrition Lectures held in the Royal Auditorium on the campus of Asbury Theological Seminary. The message was recorded through the facilities of Asbury Theological Seminary and is now made available to you through the Seminary Tape Library. Additional copies may be ordered by contacting the Tape Library, giving complete identification of the message. Copyright privileges must be observed and its message must not be transcribed without the specific consent of the speaker. Now, here is Dr. Frank Bateman Stanger, President of Asbury Theological Seminary, introducing Dr. Knight.

Now we are hopeful today that at the conclusion of the lecture there will be some time for questions and, if not, maybe we could have the same arrangement that we had this morning that there would be a question and answer period. Is this room free at 4 o'clock? Does anybody have a class in this room at 4 o'clock? All right, we'll make a final announcement a little later.

I know all of us appreciate the presence of Dr. Knight on our campus. He has come a long way and he has interrupted a very busy professional schedule in order to be with us and we certainly bid him welcome as our 1966 Martha R. Jones lecturer in Nutrition. And now it is my happy privilege to present Dr. Knight to you again, this time for his second lecture. Dr. Knight.

Dr. Binian, members of the faculty and students, I am delighted to be here again this afternoon and before we start I would like to make a presentation. I am most impressed with the project which the Martha Jones Foundation has stimulated here at Asbury. Namely, the investigation on a clinical basis of the affect of a change of diet which is going to be instituted after laboratory studies and other measurements are made, and which may well prove to be a landmark in this type of survey. Nothing like this has been done before in any institution of this sort. You can be very proud of Dr. Stanger and others, and Dr. Martha Jones for this work, which is about to be instituted in the near future. And, I wish to present Dr. Stanger with this copy of the Health Evaluation Blueprint and the plan for the survey, which is to be placed in the Library.

Thank you very much, Dr. Knight. And thank you very much, Dr. Jones, for making this possible, and I'm very happy now to present the volume to Miss Schultz, who is our Librarian. She knows exactly what to do with big books like this.

Now, we talked this morning primarily on chemical contacts, which are harmful to the human body and mind. This afternoon we are going to talk about physical degeneration and the evidence of it in this country and in other countries. Robust health, as you know, involves a feeling of vim and vigor, lack of susceptibility to the common cold, virus infections and to other illnesses. In other words, good natural resistance, the presence of very little allergy and continued reproduction of the racial pattern without defamation and without change. In other words, a person lives a long, healthful and happy life,

and this is the way it should be, and this is the way it is in some areas of the world. The Hunsas, particularly, in Northern India, are in their valley. The people in the Luchensahl Valley in Switzerland and one or two other areas do not know what illness is. They live to be 100 or more. In the Hunsa land one man of 100 walked, or partly ran,,,20 miles with a 20 pound pack, and thought nothing of it. That is quite different than the physical stamina which we know, but we should all have it. And unless something is done to bring back that type of energy and ability to perform, we are going to go down the drain. Not only the United States, but eventually the whole world. And since we are living in a poisoned world, we are up against it. As I mentioned, we have changed the food habits by going more and more to processed food, from which some of the main nutrients have been removed, and this has resulted in the difficulty of acquiring enough vitamins, trace elements and adequate protein with which to feed our bodies. I mentioned some evidence of degeneration with which I'm sure you are all familiar, graphy projections; the fact that only 70% of all children passed the recent strength tests, whereas around 70% of European children passed. Our experiences in the Olympic Games and personal observations, which I have made on B deficiency, nine out of ten people coming into my office are B deficient. I can tell this by looking at the tongue. I showed you this morning pictures of B deficient tongues. I have also been using Dr. Kuraskin's Vitamin C test, where you put a drop of dye on the tongue and try and estimate the Vitamin C saturation of the individual,

and I would say probably eight out of ten coming into the office are deficient in Vitamin C. Other tests done by other individuals in hospitals on blood for Vitamin B. complex, Vitamin A, Vitamin C and so on, have shown that probably 20% to 30% of the individuals in hospitals are deficient in more than one of these vitamins and 80% are deficient in one of them. So we have something to worry about. Now, let's talk for just a moment about how this happened. We have first for inheritance. We cannot pick our parents nor our grandparents, and unfortunately over a period of years, due, I believe, primarily to poor diet, we are seeing physical degeneration in our population,which is going down gradually like this. The grandparents may be quite healthy, but if they shift to a poor diet then the children become less healthy, and the less healthy children on the same diet produce children again that are less resistant, that have a change in the facial pattern, which I will show you in a few minutes with the slides, and whose resistance, again, goes downward. The amount of tooth decay in the country is phenomenal. It is almost 100%, and we know that natives in all parts of the world, where they do not contact civilization, have practically no tooth decay until, and if, they meet civilization and start using so-called civilized food. When civilization meets an isoloated, primitive group, the first thing to be introduced is white sugar and white flour and calico and gifts of various types, baubles. But the white flour keeps so well and the sugar keeps so well, and it tastes so good, sugar does, that the natives are very happy to have it, until they

learn what happens to those who eat it. The natives having beautiful teeth, all of a sudden after eating sugar for a year or two, or even less, they begin to get cavities. They have never known dentists, they have never used a toothbrush, they know nothing about dental plaque, about which we read so much, and which is considered possibly to be harmful, and our dentists remove it when we go to have our teeth cleaned. But all these natives have dental plaque, and in their case,,because of their diet, the dental plaque is a protective. It is not harmful. So, with the advent of sugar and white flour, they begin to have tooth decay and lose their teeth and become unhappy. Now, if they have children while they are in contact with civilization, and on this changed diet, which is different than their tribal pattern, then the children are born with narrowed faces. I am somewhat of an example of that. The cheekbones become narrowed, the face becomes longer and the teeth become crowded. So we find in the second generation, whereas in the first generation there were perfect dental arches as I will show you, in the second generation they not only have tooth decay, but they have narrowed faces and a narrow dental arch with crowded teeth. The upper lateral incisors tend to project out. The next tooth tends to project inward, and they have to be extracted, and as you know, there is great need in this day and age for orthodontic treatment for the average child. Now, this is a sign of physical degeneration, and it is not according to Mandelian Law. It is an acquired characteristic as a result of poor food. At first it was thought

to be Mandelian, but it is not. Now, we know from animal experiments that other things, such as cleft palate and club foot and other deformities, which were at first thought to be Mandelian in origin, may not be at all. It may be due to an absence of choline or riboflavin, parts of the B complex, at a certain narrow period during the gestation of the animal or of the human. They have found, for instance, that in rats if you withhold Choline, I think it is from the eighth to the tenth day of gestation, while the young are being carried by the mother, and then readd it after that time, about 60% of the rats will develop high blood pressure, and examination of their kidneys show damage to the kidneys and damage to the glomeruli or the filtering organs in the kidneys. If the choline is supplied adequately to the mother all during the gestation they are all normal. So there is such a thing as induced deformities, which are not according to Mandelian Laws. Now, we can't do anything about our inheritance except to recognize it, and do the best we can from there on. It has been shown that trouble can begin before or at the time of conception. In other words, parents, if they want to have perfect children, should be on a perfect type of diet before conception occurs, and the mother, while she is carrying the child, should also follow this same type of diet. That means avoiding any harmful chemicals, as far as possible, and taking an adequate diet, which is complete as far as protein is concerned, calcium, phosphorus, magnesium, trace elements and vitamins. Only by this means can the race be propagated as it should be. And unless this

is recognized and acted upon, we are going to be in real trouble. Now, we read and hear that we Americans are well nourished. We have plenty of Calories, an adequate diet, all you need to do is eat the right food, like the right food, because we can't go wrong, we have such a wide selection, according to the Food and Drug Administration. So we don't have to worry. Of course, you have to stick to the basic good food, your protein and your green and yellow vegetables, eggs, milk, and so on. Bread can be either enriched or whole wheat, and keep the snacks low, that is, the sweets. But, Roger Williams, at the University of Texas, has done some interesting work. He has taken humans, analyzed their urine specimens for amino acids, and found out that everyone has a different pattern. If he analyzes for, let's say, twelve amino acids and draws lines out from the center, he gets a star shaped pattern. We may find one amino acid here is very short and another one is very long. In the next individual this one will be long and this one will be very short. In other words, everyone is a different individual, has a different metabolic pattern, and so there is no such thing as an average. There is no such thing as saying this person, or everybody, needs a certain amount of vitamins or minerals,because everybody is different. So we can generalize to some extent, but we cannot say this is good for everyone. People have to find out more or less for themselves and they should get an excess of vitamins, minerals and proteins in order to take care of the different patterns.

He found, for instance, some individuals need ten times as much Vitamin B1 or Peridoxine or B2 as the average individual, so-called. He cannot get that from food. He has to get it from nutritional supplements. Now this is a case of conditioned deficiency in some enzymessystems, using the Vitamin B complex or that fraction of it. Though I have found people who have been ill for years, and Dr. Williams and others have found the same thing, they have been feeling below par, they have various complaints, until they get enough of the Vitamin B complex they don't feel well. They have always been sick, and after they do, they notice the greatest improvement and one of the greatest satisfactions I have is to have a patient come in my office and say "Doctor, I feel ten years younger." And it happens, on good good and supplements when indicated. Now, we have an inadequate intake of nutrients, which I have mentioned. This is due to poor selection, soil depletion, and yet you will read in many of the magazines that there is no such thing as soil depletion. It doesn't matter, if a plant grows, it will have everything that that plant needs and it will be the same as a plant that is well fertilized or gwown in another soil, except it won't be as big. This is in spite of the research work of Dr. William Albrecht, who spoke him some years ago, who was the Department of Soil Chairman at the University of Missouri. This is in spite of the work of Dr. Furman Baird in New Jersey and others, who have shown there is a tremendous variation in trace element content, in protein content, in the content of calcium and phosphorus

when he found how the plant is grown and the soil on which it is grown and the way it is treated. So it is difficult to understand why such statements are made and why individuals like myself and Dr. Albrecht are called crackpots and fanatics for suggesting that something is wrong with our diet, and it's high time that people knew what is going on and took steps to protect themselves, because apparently that is what is going to have to be done. The people are going to have to wake up, be informed and learn what to do. And if you fall into the crackpot class for doing that, you'd better accept it because it's the only way you are going to get along and remain healthy and strong and avoid heart attacks and cancer and other degenerative diseases.

Now, with the move to the cities, we have green fruits and vegetables that were picked green in order to keep. They are not tree ripened, with some exceptions of frozen foods,which, because they are quick frozen, can be almost tree ripened. But those that are not, that are in the market, have to be given time to ripen slowly, otherwise they'll spoil. We have processing, such as canning. We have the milling of cereals and flour. And, incidentally, your dry cereals, whereas they are more expensive because they are processed, have been robbed of part of their lysine, one of the amino acids, and therefore are not as nourishing as the hot cereals, such as field cut oatmeal or that type of thing. They are more expensive. They are less nourishing. They are much easier to prepare. All you do is take them out of a box, pour them into a dish and put on some milk or cream, but

it is better to use the hot cereals. We have hydrogenation, which is used for our oils clarification, which takes out some of the elements which are necessary for the body. Heat denatures proteins and reduces the content of vitamins. This applies to the pasteurization of milk as well, even though authorities say there is no difference between pasteurized milk and raw milk. If it is certified raw and you can get it, be sure it is certified so that you don't take a chance of getting undulant fever, but if it is certified and the cows are all tested, and if you can get raw milk, it is preferrable to the pasteurized milk.

We have a loss of Vitamin E because our cereals have been milled and the wheat germ has been taken out or the barley germ, or whatever it may be, and that takes out the Vitamin E because that turns rancid very easily and therefore the flour keeps without it. And with the Vitamin E goes most of the Vitamin B complex and the trace elements and the calcium and the phosphorus. Now some of these things are replaced by adding some of the known fractions, which improves the rining flour, which is mostly starch, which is not the same thing as the balance nature has in the original grain. So, I would urge you, whenever possible, to obtain freshly ground whole wheat flour made into bread rapidly, and I think eventually, as I mentioned before, we are going to have to have in this country a milling center or a miller in each community where wheat can be ground freshly each day, baked into bread within a few hours and then distributed from these. Otherwise, a large part of our diet is starch and is composed of refined carbohydrates, and we

are going to go downhill unless we keep supplied with something of that sort. Now, there is poor intake as well. Many people skip breakfast or just have a glass of fruit juice and a cup of coffee. The best part of the vegetables are usually thrown down the sink or in the water in which they are cooked. That takes out a lot of the vitamins and it takes out a lot of the minerals. And that could be used in soup or in tomato juice. Dr. S. M. Pottenger, Jr., of California, has shown on experiments with cats that there is something in live foods, or uncooked foods, which is essential. He had a sanitarium where he treated tubercular patients and asthmatic patients, and he had some cats around the place. Suddenly his attention was drawn to the cats. Some of them were scrofulous, losing their hair and they didn't look very healthy and they were fighting a lot and he began to wonder why. He realized they were fed from the scraps from the sanitarium table, and what they got was mostly cooked food. So he had an idea and he put one batch of cats in a pen and another batch in this pen. He fed this batch of cats cooked food, cooked meat and pasteurized milk. In this batch he fed them raw milk and raw meat. This batch thrived and reproduced normally, were healthy cats, had about 5% allergy and practically none of our troubles. This batch went rapidly downhill until the third generation couldn't even breed or reproduce because the bones were so soft that the pelvis outlet was narrowed. They also developed pneumonia. They lost their teeth. They had sinus infections, and from 5% allergy they went to a high of about 95% in the third generation. Now he saved a few of

these cats and bred them back on raw milk and raw meat. It took three generations to get these cats back to normal cats. So, when people say all you have to do is eat the right diet and you are going to be fine, don't believe it, because you cannot come back immediately to taste regeneration, but you'll be an awfully lot better on the right diet and you will prevent an awful lot of trouble. Now, we should be careful in reducing diets to keep up the protein intake and keep up the intake of vitamins and minerals and unsaturated fatty acids and the things which are essential. Otherwise we get in trouble. If, as Dr. Fred Stair of Harvard says, what you have to do is reduce your intake, your Calories, if you are already on a protein deficient diet, as many people are, and you reduce your Calories, you cut down your proteins as well as your carbohydrates. So you are still worse off because you are getting less protein than you were before. To me, that isn't the answer. The answer is to cut down on your Calories, cut out your empty Calories, which are sugar and white flour. Cut out those primarily. Leave in potatoes, a small amount, and keep primarily meats and vegebables and fruits, and almost everyone will lose on that type of regimen. Now, you don't have to cut down on the fats so much as you do on the carbohydrates, because even though fats are higher in Caloric value they do not have the fattening capacity that carbohydrates do.

We have, in addition, other factors which affect nutrition. Besides inheritance, we have poor digestion. Those who

are B complex deficient often have a lack of hydrochloric acid in the stomach. Therefore, they don't absorb or digest their food the way they should. It tends to make them more deficient. It gets to be a vicious circle. Others have fewer pancreatic enzymes than they should, and those are necessary to digest the food after it has left the stomach. If they are deficient, they in turn get more and more deficient and we have diarrhea and constipation and various symptoms, gas and so on. Until those are resupplied and their diet is good and they get enough supplements, they are going to be sick. After a while, with the good diet plus supplements, some of these people can stop their enzymes and stop their extra hydrochloride acid and go along by themselves. So it is possible for them to redevelop hydrochloride acid production and pancreatic enzymes. Individuals of this type are likely to have constipation and allergy, poor teeth, fatigue and emotional tension. I was going to mention Kentucky race horses because it has been known that men who have horses are in the habit of bringing them to pasture in Kentucky when they are in poor health, in order to bring them back to their vim and vigor, but I just heard since coming here that the pastures of Kentucky are not quite what they used to be, and this must be due to a loss of the trace elements, which in turn made the Kentucky Blue Grass something that didn't exist anywhere else. I assume that the State of Kentucky is in the process of finding out what is wrong, if that is true. Because it probably is a loss of trace elements. They have found, for

instance, you have heard of brucellosis or undulant fever, and cattle herds may be decimated by this disease, and it is one of the things we have to avoid in drinking raw milk. One thing that has been found out is that those pastures where those cows have undulant fever or develop it, are deficient in manganese and zinc and cobalt, primarily manganese and zinc. If those trace elements are supplied to the land, you can put new cows which are uninfected in the pasture with the infected herd and they won't get brucellosis. But if you don't do that and put uninfected cows in, then they all come down with it, showing that there are some trace elements which boost the resistance of animals to brucellosis, so that gives us an example of how important trace elements are.

Now, we have to have good protein which contains the right type of amino acids. Your vegetarians will do all right if they are very smart and very careful, but since your grains and your vegetables do not contain complete protein; in other words, with all the necessary amino acids, or building blocks, they have to balance one vegetable with another, so as to be sure, if cystine is missing here, we get cystine in this food at the same time. All of the amino acids have to be present at the same time, in the same meal, within an hour of each other if they are going to be used as building blocks. If incomplete proteins are taken, the protein is just burned up and passes out of the body without being used as a building block. Unless we have complete protein, the proteins are not used. The vegeterians have to be extremely careful and the lacto-vegeterians will do much better than the straight

vegetarians because lacto-vegetarians will take milk and eggs as a rule. But it is better for those who have no objections to get their protein in the form of animal proteins which are complete protein. Now, we have to have enough fats. The American diet is probably a little too high in those, around 40% or 45%, and we could do easily with 30%. I stress in my patients eating more of the unsaturated fatty acids, the polyunsaturates. These include vegetable oils. Of these, we have safflower oil, corn oil and cottonseed oil, although I don't like that as much. Safflower and corn oil are two of the best sources. They can be used for cooking, for frying, if one doesn't fry at too high a heat. They can be used on bread if you want to.. I question the use of some of the margarines. They are much better than they used to be, but they still contain some of the hydrogenated fats. Now, hydrogen is added to a liquid fat in order to solidify it or make it solid at room temperature. It changes the molecules of the fat to a completely saturated state and creates an unnatural molecule. Now, the body doesn't like unnatural molecules. It is used to handling certain types of molecules over hundreds of thousands of years, and there is some evidence that it may have some difficulty in metabolizing the hydrogenated fats. Therefore, even though the new margarines have less hydrogenated fats than they used to, I still think it is wise to avoid the margarines, particularly anyone who has a liability to high blood pressure or hardening of the arteries. It is better to use butter, even though butter is not what it used to be because it is often from

cows that are eating hay, whereas the best butter, as Dr. Price has shown, comes from cows that are on pastures where the grass is green, where the grass is green and young and fresh; and that butter has healing qualities that the ordinary butter does not have.

For Vitamin D, it's probably best if one can get fresh cod liver oil, to use that as a source of Vitamin D, because an excess of irradiated ogosterol, which is the source of most Vitamin D in vitamin tablets, can be toxic, particularly to children. But your cod liver oil should be fresh and be kept in the refrigerator and the lip of the bottle wiped each time a dose is poured out before it is put back in the refrigerator in order to prevent any rancid taste. It can be for children or adults. It can be beated up in grape juice, but twice the amount of grape juice as you use cod liver oil, and that makes an emulsion which is practically tasteless. I think one tablespoonful of codliver oil is good medicine. So is wheat germ oil. We are lacking in E and it was only this past year that it was determined necessary for humans. Now it is stated that probably about 15 mgms. is a good idea for everyone to take. Well, a study shows that we get less than that in the average diet where white bread and sugar is used. I think it is advisable for everyone to get at least 50 mgms. and that can be taken in the form of tablets or capsules, or in the form of wheat germ oil, and it may be very soon that the Food and Drug Administration will say that nobody can get more than 15 mgms. because that is what they are going to say is needed and any more is

unnecessary, and this new ruling which becomes a fact in January, it does not protest, it will limit everyone to a small dose of what they call essential Vitamins. If they had passed this ruling 20 years ago Vitamin E would not be in there, peridoxine would not be in there, which prevents convulsions in children, and we'd be in real trouble. I think they have made a serious mistake in this ruling and I hope there will be enough protests from individuals, as well as companies, to see that hearings are held and that the whole thing is repealed. It's one example of the fact that people in our government are human. They can err just the same as we can, and yet they have tremendous power, which, if abused, can work to the detriment of every man and woman in this country.

Now, I want to mention something about tooth decay, which can be prevented almost 100%, about 90%, if people will stay away from sugar and eat a good diet, and also stay away from white bread. Sugar is the most important, in sticky form, because when it sticks to the teeth acids start to form within 15 minutes, which help to dissolve the enamel. Some people can eat candy all day, it sticks to their teeth and it doesn't bother them at all. So there is more to it than that, but we don't know the factors as yet. We do know that avoiding sugar will stop decay in most instances. It means a change in the diet. It's very tough to tell your children you are not going to eat any sugar. Don't have it around the house. A little bit of honey perhaps is all right, but just don't have sugar or candy in the house, and you'd be surprised how soon everybody

in the family will think sometime "Well, I haven't wanted any candy for about three months." And that's the way it goes. It's establishing a new eating habit and it's what everyone has to do. Now, Dr. Martha Jones has done some very interesting work which should be confirmed, and why it hasn't been before this I don't know. She is a very smart individual and she has done work on acid base balance, which I had heard about in the past, of course, and looked it up and found nothing that impressed me as being very definite of value. Some people said alkylosis develops in some people, acidosis in others, and the textbooks all say that acidosis or alkylosis is compensated very easily by the neutralizing properties of the blood stream, by carbonate and the formation of urea and so on. So I could never find anything to sink my teeth into. Well, Dr. Jones has found, and has produced experimentally in animals, complete loss of bone around the teeth of animals, so that only the enamel crown remained and this was done by means of a diet which was made very alkaline. She found that when a diet is acid, the bones in the body and the dentyne, or inside part of teeth, become hard and the decalcification goes on apace, but the enamel goes to pieces, and she believes that there is a certain amount of alkalinity which is absolutely essential to prevent tooth decay and at the same time preserve bony structures. This work deserves confirmation and deserves much more research, and Dr. Jones may have put her finger on the very important subject which has been completely neglected. It's probably been neglected because it's so simple. She has written papers on the subject many

years ago, which aroused temporary interest, but then discarded. I have found that in the field of nutrition things which are too simple are discarded or paid no attention to. For instance, Dr. Frederick Fenner in North Carolina, whom I have known for 20 years, found that Vitamin C given intravenously, and I've used it for 25 years intravenously, will cure polio if it is given every four hours around the clock, in the vein or in the muscle, plus plenty by mouth and plus an amount of fresh orange juice by mouth. He's treated about 150 cases. I treated only 14 up in Santa Barbara before I moved down to Santa Monica. I had no controls, but there were two people in respirators. They were out of the respirators within a week. In every case of the 14 the fever came down within 48 hours, as it was with Dr. Fenner's, and they proceeded to get better. Now, he got in touch with the Polio Foundation, told them about this, said "Will you please do some work on it, please either show that I'm right or show that I'm wrong?" They weren't interested. Too simple. And so that has been neglected. Now the polio vaccines seems to have reduced, at least temporarily, the incidence of polio, but I am convinced that a healthy body doesn't get paralytic polio. Everybody gets a little touch of it during an epidemic. You get a little sore throat and that's it. Only those who are deficient, in my estimation, are those who are markedly fatigued who get paralytic polio, and I think we are going to find again a resurgence of polio because we are not getting at the basic cause, which is nutritional. I think eventually we are going to have more epidemics. It may be a different

type of virus, but in my experience resistance to viruses is primarily nutritional. People on a good diet don't get colds, particularly if you pick up their allergies. Many people have food allergy, which makes them susceptible to colds, and if we pick those up and they are on a good regimen, they go for two or three years without a cold. If they get one, it is just minor. It doesn't amount to anything. I have shown this time and again with children with repeated ear infections and bronchitis and pneumonia. Take the sugar out of their diet, put them on a good diet, give them extra supplements if they look deficient. They don't have any more infections that amount to anything. They get one or two and then none. It is very satisfactory.

Now, I want to show some slides of Dr. Price's, who, as I said, went to all corners of the globe to find people who did have tooth decay and if so, to try and find out why then didn't. Everywhere he went he found natives with beautiful dental arches, with practically no tooth decay, and we will show you what he found and what happened.

Now these are slides of American Indians, which show perfect teeth, perfect bony structures. He examined hundreds of these American Indians and found they had no trouble apparently during their lifetime, as you can see, all their teeth present, and the incidence of decay was maybe 1% or 2%.

Now these are four brothers, Polynesians. Look at those perfect dental arches. No tooth decay. They are happy. They

aren't brothers, just members of the same race, who are healthy, with the wide, broad cheekbones and the perfect dental arches, which are typical of natives on their own natural diet.

This is an example of a modern skull below and of primitive skulls above. Notice the thickness of the primitive skulls as compared to the modern skulls. That would be very handy if you happened to get caught in an alley, if we had the old type skull. But it shows what is happening to our bony structure.

These are Gaelic people who are on their native diet. They are not using sugar or white flour, and you will notice how happy they are and how good their teeth are, and they are a very happy people and in good shape.

This is another example of a native on a good native diet, good physique, happy, good teeth.

There is another Indian. I think that's coastal Peru, who is showing perfect teeth and you notice his wide cheekbones and dental arches.

There is a perfect example of a fine mature woman. I think she is 80 years old, and, as you can see, she is in perfect health, she is serene and she is beautiful. That's on a native diet.

That's another example of a good regimen, perfect teeth and the usual good health that goes with it.

There now, we get into trouble. This is a man who has left his native diet. He was born on it, but he is now getting tooth decay and you can see he is in real trouble.

Here is another man who is coastal Peru. On the right hand side is the father. Now he was on his native diet when he was born and brought up, then he went on the White Man's food, so called, the food of civilization, and you see his child on the left, with the crowded teeth and the dental trouble which goeswith it and the narrowed face.

This is a father on the right hand side who is on his tribal diet. The son has the narrowed face, notice the narrowing of the face which goes with poor diet.

This is another example of two brothers. The one on the left was raised on a good diet. The one on the right you can see the crowded teeth, which is so typical of the narrowed jaw, which occurs when a child is born to parents who are on a poor diet.

These are two brothers. This one doesn't show it very well, but the one on the right, they both ate at the same table, but the one on the right was careful of his food, whereas the one on the left, they had access to civilized food, ate more of it and has got the narrowed face and dental trouble which goes with that type of diet.

These are children. This shows the change in physical pattern. The girl at the left was born to parents who were on a good diet. The next two you can see the narrowed faces, were born while the parents had started eating food of civilization. The last two have come back to the tribal pattern again because the parents have gone back to their native diet and have given up so-called civilized food.

This is an example of physical degeneration, which is very obvious. Note the markedly narrowed face. These are all pictures of the same lad. Notice in the upper right hand corner, you see the teeth which are crooked and out of line because the jaw has been so narrowed. You can see the narrow face, and, whereas he is smiling, he is probably borderline as far as mental eficiency is concerned, intellectual capacity, and he is an example of physical degeneration.

This is an example of real degeneration. You will notice on the one on the left the features are quite different from the one on the right. The chin here is markedly receded and the malar bones, the cheek bones, are flattened, and this is an example of extreme deviation from the original tribal pattern. This lad is branded for life. He is always going to be unhappy and he might very well have less mental capacity than those with whom he will be associating.

There is an example of a perfect dental arch. See the symmetry of it, and it looks like Medusa, but it isn't, but that's the type of teeth everybody would like to have.

There is what happens when a woman leaves her tribal diet, having been born on it and starts eating the food of civilization. They have no dentists in those areas. You can imagine the suffering they went through and still go through.

Here's another example of people who have been born to parents who ate good diets, but they then started eating foods of civilization and their teeth are practically gone.

Now, this is a chart which shows to some extent, although not very well perhaps, that with the increasing use or handling of food, first with slaughter down here. This is dependent upon soil fertility, with the slaughtering, with the harvesting, with the storage and marketing, the processing up above, and home cooking care where there are some more losses, and in the serving there is a marked decrease in the food value of this food.

This suggests the intake values of the average diet. On the left we have refined grains, the small section is for fine sugars, and the rest is meats, dairy products, vegetables and fruits. So you can see, if you cut out sugars and if you cut down on the refined grains, you are going to add a great deal, you are going to switch that section on the right over to the other half of the circle. These are the protective foods on the right. Those on the left are empty Calories, so you can see how important it is to take more of the effective foods and reduce the empty Calories.

This is an example of good, organically grown food. I don't like the term organic, but it means without the use of sprays and with natural fertilizers and composting, and the food looks awfully good.

This is an example of food values in lettuce. That one on the left, the deep green, was grown by a composting method. The one on the right is what you often find in the stores. Now you can imagine the difference in Vitamin A in those two.

This is an example of homegrown produce, which has been bottled, and which still retains a lot of its original value.

I know my mother and grandmother used to do that sort of thing when I was a boy, but we don't see much of that any more except out in the country.

This is an example of store produce, which is more or less sterile. It is all nicely packaged, but the values aren't there.

That is supposed to show an example of what is left. The foods are modern to the section of the tin can dump at Thursday Island for the White population, and these cans carried largely devitalized foods of commerce. The colony had many defectives, including malignancy. That's from physical degeneration, nutritional and physical degeneration. You see the pile of cans, and there was another slide, which I don't have with me, which shows thousands of birds flying in the air and fish jumping in the sea and porpoises and seals and so on, indicating the natural food sources.

This is an example of what happens at the end point of poor nutrition, or one of the end points. The product is as good as the soil, and that poor child, as you see, has severe rickets, and is doomed to a life of misery. Of course, he could stay on horseback all the time.

This is an example of comparing Eskimo and Indian caries, immunes and susceptibles. In the immunes we have calcium, phosphorus and iron and magnesium, copper and iodine. The immunes are on the top line under Eskimos, and we see calcium 2.14; susceptibles .39; per cent 81.8. Now the percentages are the reduction

in the amount of calcium, phosphorus, iron, magnesium, copper and iodine, which is found in those who are susceptible to tooth decay. These are a little difficult to read, but you can see that there is a marked difference in the intake of calcium, phosphorus and other trace elements in those who are immune to caries and those who are not.

Now, this gives the incidence of dental caries in primitive and modern, Swiss, Gaelic, Nordic, Eskimos, Indians, and so on. You see the Swiss, the primitives, have 4.6, the moderns 29.8, Gaelics 1.2, moderns 30, and so on down, all the moderns have a high incidence of tooth decay. The Australian Aborigines had none. The moderns have 70.9. Now they still aren't as high, even on a civilized diet, as the Americans are, or the English, because we average 97%, which means they still have some protection from their diet, but sugar then still makes the difference and knocks them down, so they all have a tremendous amount of decay.

Modern degeneration at birth. 25% are born dead, and those alive have the following history: 2 million born alive in 1941, within 15 years 180 thousand dead, 20 thousand crippled, 59 thousand tubercular, 309 thousand mentally deficient, 12,000 delinquent, 156,000 maladjusted, a total of 738,000 wasted, or 37.5% of the births.

That's another picture of this very fine looking woman on her native diet.

That's Doctor and Mrs. Price. Dr. Price is the dentist who made all these slides, who went to all parts of the world and found people who were living under primitive conditions with no

serious diseases.

So, I again didn't leave much time for questions. I think perhaps I have given you an idea of what needs to be done. It's complicated. It's not easy, but it can be done when anyone makes up his mind to it. Are there any questions now?