

Interview of Garn Holbrook

April 15, 1986

Interviewer: Unknown

Announcer: We would like to welcome you all out today. We are missing a few key people but maybe Dale will come and we are sorry that ___ ___ can't be with us today but she will be back next week. We are glad to have Garn Holbrook with us today and I'm anxious to hear about farming. We have learned a lot in the past few weeks, one of the secretaries up at the school, Ada Peterson. I'm sure you all know, said Holly, you are going to know more about farming than I do. I just love it. I really enjoy the class. We will be here again at least for three or four more weeks before the session ends. I'd like to invite you back next week. Now we would like to turn the time over to Garn Holbrook.

Garn: Well, I was going to try a little bit today to change the presentation. The things that I say and do will relate to soil conservation, agriculture in general, irrigation industry, and crop production—things of that nature. The reason I said that I would like to change it a little, when you are LDS you don't go back East and tell people in the East that are of a completely different faith and a different understanding than you have—you don't start out this way like I am today. They want to know about your area, what our productivity is, and what we do and how we accomplish it. And especially what they want to know is what we have in reserves on the agriculture land and your agricultural country. What I am starting out with today—you can see on the board here—is a little bit different from there. Most likely I will just wander around like I always do. Sometimes they have me go a long ways away from home just to hear me wander.

This is, of course, grows out of our religious concept and also out of our appreciation for: our church, appreciation for our study periods that we have in reading the scripture in our Sunday School classes, and so forth. Religion and re-

ligious concept: that is where we as a people here, we have a different concept, a completely different concept. Our country, our homes, our towns—everything were organized and brought about by a different concept. The early pioneers of our people, under the guidance of Brigham Young who thought that our people should live in small communities like Lehi, like Cedar Fork, like Fairview—not live out on the land. Recently they didn't want to live out on the land because they had many, many unpleasant experiences is Nauvoo. Coming west, they had many unfavorable experiences. The other concept is that we wanted our church leaders, who are guiding us—they wanted us in communities where we can participate as a community in religious activities—your church, your Sacrament meeting, your Priesthood meetings and all those things that are related there to us. You can't have that and live out in the country. I went out with a farmer's union—I went East under their invitation. Every major area that we went to, there was only one or two homes—five, six, seven miles to the next home. Those people had no activity in religious activities. They had none of the social activity, no religious activity, no activity that we look for here. The other thing is, going a little deeper, in the Book of Mormon it was said unto Lehi “keep my commandments and I will lead you into the Land of Bountiful”—you'll never want, your never need for anything, just keep my commandments. Of course you can't stand and say this in the front of a bunch of Catholics. But this is what one our concepts in our state and the western country, wherever the influence of the LDS people, have come to settle.

Last week in our Sunday school class, Elmo Gray was the teacher, and he talked about the land of Bountiful, the land of plenty that was promised to the children of Israel. So you never could permit a course to answer that country, so you only

lived on the outside of your fields. That was their reward after fourteen years of wandering in and out of the wilderness that could provide no food or no care. So they ate the manna, which was a bread like substance apparently. They were fed with the doves that flowed in from the desert and settled there and those were the two main things of food.

As I talk the rest of the day I would want you to realize that you can not—you just can not live in this type of an area in this type of community and not slowly absorb some of these ideas and it becomes part of you. It doesn't matter how much I try or how hard I try to keep these talks objective, scientific, and so forth without these things seeping in. I don't mind because that is what I believe. This is what my children believe. This is why we are still on the farms and still on the land, because this is part of their lives just the same as it is mine.

Now, like I said, you wouldn't go to Denver to talk about the Book of Mormon, to talk about keeping my commandments or have Nephi say "If you keep our commandments you would be fed and cared for." You know when they didn't, they would go broke, they had family troubles and about half didn't start because they did not have this background.

Garn: The agricultural history of the United States is a unique history. It is built upon a group of people who were accustomed to hard work. People who had come out of the European countries looked for many blessings and for many reasons. The system that they had, did not particularly grant the opportunity of land ownership. This did not give much of the individual a privilege or much of an opportunity to develop, to grow, and to have for your own, any type of real estate or property. These are the people who settled on our coasts. And as they became, particularly, as they became more community wise, they started to move across the area and across the nation. All they wanted from the farmlands that they were acquiring, was a chance to produce, clothe their families, and take care of their needs and their wants. Their needs and wants were very limited because from the countries they came from. They were limited because of the lands they came from. At no time did they have a surplus of hardly anything. They wanted religious freedom. They wanted the social freedom. They wanted

the right to work, the right to produce, the right to choose. The lands had granted that. They had to put out nothing, just keep themselves moving. Sometimes some of these agricultural people moved three or four times during their life times—always further west—always further, looking for new lands and new opportunities. They were satisfying their wants and their desires within themselves.

But what happened? After quite a number of years, we were thinly populated all over the country, then came along one of the great wars of the world, World War I. They picked up the people from all over the country and they were drafted into the army. They went back to Europe—they went to England, they went to wherever the United States was engaged in conflict. This changed these people. They looked back upon the old country which they lived. They wanted to continue and they wanted to come back home. It was a new experience. Most of them and their children had never left their original site of occupation. So they were an entirely different class of people now—changed by circumstance. Not so much by need, but by circumstances.

So what happened? This was the period of time when the great agricultural giant of the United States woke up. This was the time when the United States began to grow and to develop. These are some of the reasons: first, the United States had been farming. Whatever farm lands that had, up to this time, were farmlands with horses. You know how many millions of horses it took? Twenty million horses just to carry the agricultural load that we had up during the period of World War I. We were not a very settled nation. Homesteads were here and thousands of acres here and there that no one that had ever farmed. So then here, all of these horses were here and half of all we produced went to feed the horse.

I can remember as a boy, staying out at Cedar Valley. We had twenty one horses. All the hay that was raised clear around this area was hauled out there to feed the horses. The productivity was not very great. We had to share it with the man with the horsepower that made its productivity possible. At the same time, there was a giant awaking. Then came along the industrial age—the great industrial age, where everything went to mechanical power. Everything started

to change and to move. The Industrial Age was born—the few automobiles like Ford tractors, the powered combines. All of the things that were great and made agriculture move forward. I'm talking about agriculture in the United States, not worldwide. What happened? If you had a tractor you didn't need a horse. If you have two tractors you didn't need twenty horses. Slowly the horse population, the horse power, the great power that we thought was so necessary to operate our ranches and our farms, were lost. What were we to do? This great agriculture awakened us. That went into the production of food, clothing, and shelter. All of the things that we have to have takes four things, primarily, to survive—food, clothing, shelter, and water. If you don't have those you don't survive, so we adopted this industrial period of time coming along and the agricultural trail of all these things.

So with ingenuity of the American farmers and the American manufacturer, the American Industrialists started to move. At the same time the railroads began to grow and develop. So there was transportation to transport the foods and the products in the agricultural world. The rivers up and down, and the canals and the barges, out of the lakes, the Great Lakes, were started to be developed slowly. Transportation started to develop for this great commodity that agriculture was now producing.

This is the time, primarily the time, that we came along, you and I, and my parents and so forth. Now we say, 'Where do we stand today?' That was one of the things that I think they asked then. Where do we stand today? We stand on the threshold of the greatest industrial prosperity that the world has ever known. The technology that is here today is so developed and so complete and so necessary, that without it we could not, under any circumstances, could feed, clothe, or take care of our families. To say nothing about the people we feed overseas—which is vast. We will talk about them a little bit further—the many things that we do but you really don't appreciate using them. They come so fast, they come so gradual, and they come into your lives and you just accept them. But I think that which is necessary, my boys scoff at. I say this partly joking because they forget what got these farms started. They don't think Dad knows anything today. But that is the way it is.

Man: That is the way it has always been.

Garn: And that's always the way that it will be because there are so many new things that you and I don't know. You just can't keep up. This is a little by-product commodity called Gleive. I'll show you a picture of what it is like—this little thing—technology. In this container when it was full, I would not dare to bring it. If it were full, weighs eighteen ounces—\$375. You know that is as much money as June and I took in for maybe a half the year. And here we stand holding it in my hand.

Man: What is that called again?

Garn: It's called Gleive, you can look into it, just don't take anything out. It's pelletized.

Woman: What is it? Is it a fertilizer?

G: It's a weed killer. It's a herbicide. Now the thing that I want to show you is how the development of technology in a scientific development of these things, enters into the great picture of the food basket of the United States.

Man: Is that the same stuff that is in Roundup?

G: No. This isn't the same thing that Roundup is. Roundup is a chemical that you can use on weeds, not the same as this and it cost at the present time \$85.00 a gallon. You dilute it to one to seven or eight times and apply it in the water, and apply about 12-14 gallons to the acre.

W: This isn't very heavy is it?

G: This Gleive, under ideal conditions, you use one sixteenth of an ounce.

W: To the acre?

G: On sixteenth of an ounce to an acre. The average output, I checked this out just yesterday to make sure, like I say, you can't go to Boise and have them believe me. They never heard of it. I had never heard of it. This is put out by DuPont, a very outstanding company. But these are the things that have changed agriculture. Then when you get this diluted, you put this with water and you apply it to your crop. And you only apply just the water only at a very low gallonage of water. You only apply that at the rate of three to four gallons of water per acre. Your park up here, Wines Park, is approximately, sidewalk to sidewalk, is approximately three acres. You would

treat that whole park with just a few kernels of this substance.

M: It doesn't hurt grain does it?

G: This is a selective product. You might say that as you go along, and please ask me anything that I know, but please don't ask me anything I don't know [laughter]. No, this is a selective herbicide applied upon the ground that only attacks certain types of plants. This does not attack wheat.

M: What type of weed will it kill?

G: This will kill sun flowers. It will kill all the thistles. It will kill herb buttercup. It has a little bit of effect on morning glory. To take morning glory out completely you would use Roundup that we talked about. It would do more on morning glory.

W: What kind of buttercup did you say?

G: Herb Buttercup. That is the little yellow flower that as soon as snow is off the ground it comes into bloom, and grows so high. It takes all fertilizer and moisture out of the ground so quickly that your wheat crop can't grow properly. It is wide spread throughout the area.

M: What would you call it? Does it have another name?

G: I don't know. I hardly ever saw any of it for twenty years. All the years I kind of went along.

W: Would it take dandelions out of your lawns?

G: Yes it would take dandelions out of your lawns. Selective sprays, or selective any kind of a weed killer that is a selective—most of them like 2FourD and Roundup, and those kinds like that, they stimulate the growth of the plant, very selective plants, so much, that the plant can't live. It gives the plant a chemical shock that expands and grows so fast that it destroys itself by breaking up the cells. If you had used it, you would pull it up and you would see it exploded from the inside out. This Gleive you apply late in the fall and apply it early in the spring. Now this is our own equipment. That is the type of equipment that you use to apply it with. This is the same thing — a very fine spray. You can hardly see this spray.

W: Does it have an odor at the time it's dispensed?

G: No, it does not have an odor at the time of spray. You apply it through these booms that you see there [picture]. These booms are forty feet wide, and the machine has the capacity of about 100 acres a day. In this area, we add water that comes from the farms into Lehi—ditch water would be the source.

W: How often do you spray it? Once a year?

G: Gleive as a rule is only sprayed once a season. Roundup, 2FourD, and those types of selective sprays are sprayed when needed.

M: Can you use Roundup around wheat spraying? Won't Roundup kill grain?

G: Yes, Roundup will kill wheat. Roundup will kill about anything.

M: It will kill just about anything you want it to. I once sprayed something four times with Roundup and it didn't kill it. I talked with the people and they said I must have mixed it with something else. I went to get it and they said they were out.

G: Most likely they were telling you that you were using Vanville.

M: That's what it was Vanville.

G: Vanville is a stretcher, not this little unit like this. These things weren't available. Industry had to produce them, before they could become agricultural tool. An agricultural tool is not just a shovel, or a hoe, or a fork. It is anything that increases the productivity of the work that you are doing. That is what the tools of agriculture are all about. Since like the little keeper on the bottom of those booms, they are twenty three inches apart and they go straight down and then have a little flair so they do not strike each other. This is the orifice. That orifice is ground and produced so accurately—it sprays exactly the amount that it puts on which then correlates exactly with the size of the hole was drilled. These really aren't very expensive. All of the material goes through there, and you can hardly recognize it. One of these is one thousand of a millimeter opening. These others are a hundred of a millimeter. All of the material that goes through these orifice's has to go through here first.

W: So these orifices are changeable depending upon what you are spraying?

G: You are right. You just unscrew that and install a new orifice. They cost about seventy to eight dollars a piece. They wear out after two or three years. The water going through there cuts them and erodes them just a little so they throw out just a little bit too much. At the prices of the ingredients, accuracy is a very important part.

M: Garn, I have always said that for many years throughout all the years, that with all the sand and gravel we have and all the pipe nails and all the cement pipe placed, we sure as well should have put this precious water under the ground. I find new leaks every year even on my new place where it comes with the water. If we could have got that water at the source and brought it in by pipe... I remember back in the Depression, back in our drought, our water would run out before it got to the end of the ditch. But all down the sides of the ditch was a jungle and just splurged because it was drawing water out of that ditch and we could not do anything about it.

G: The system that you are talking about is the Dual system. You have your culinary water throughout the system. The best functioning one that I have ever seen or been around, is in Tooele. They bring their culinary water through one system. Now the reason for it, to pass through one system and the irrigation through another one thing, is turns. You have to have methods of getting water out. So Glen would have a turn of water for his garden, and when he takes it, if it's a dual system, that doesn't keep June from getting water to get the dishes clean.

G: Then this dual system that we are talking about...what you say is true.

M: I sure hope we have time for you to tell us a little bit about why you think that the agriculture is in such bad shape today.

G: Well...

M: Not everybody, but generally there is a lot more stuff than they could pay for.

G: Along with this technology that we are talking about, I wanted to move on. You could spend weeks on sprays. I just want to make one general statement. Spraying [I have a picture of a plane here] by plane in the United States and here in this area is very limited in this area. By spraying by plane to put 2FourD, Roundup and things of

this nature on the ground, the agricultural people in the United States put more tonnage of that substance than we ever put out in the entire war—the last war. You wouldn't believe that?

W: Now is that every year?

G: Yes every year. Just a farm like ours, it takes five, six, or seven complete barrels. That would be equal to a plane dropping a barrel weight of product of 400 pounds loaded.

W: Does that pollute the air and cause problems?

G: Yes. There is some pollution with this. The new methods of testing for soils and new methods for testing for these herbicides and so forth do have some pollution. Some people are tired of thinking about that pollution. Some people are agitated about it. They won't eat a commodity of crop that has been sprayed. They won't eat grain that has been sprayed. They won't live on land that has been sprayed with commercial herbicides. But at the same time that this came along, you can go back on this new technology of this sprayed material—like herbicides. We do fungicides. We do not use very many fungicides especially in the West. But we use a lot of herbicides for the commodities we are speaking of now.

The other is insecticides. Insecticides can be sprayed by plane, sprayed by the type of machinery that we showed you. That is what we use when we talk about insecticides. That is what we used to get rid of the grasshoppers off the fields—all of those things last year, aphids on hay....

M: Did you have any trouble with grasshoppers out there last year?

G: Yes. In fact we sprayed for grasshoppers out there last year. A short area through the valley from Lehi and Cedar Fort, right in there where the state sprayed that area, there the grasshoppers were so thick crossing the road that the whole road was covered.

M: I didn't know we had those. I had heard of these in Idaho.

G: Now with these advancements, there is no need to be able to control the plant growth, fertilize, and bring about a good crop unless you have some new harvest secrets. A man in Cedar Valley once told me—he said, "You might be

able to plow and plant that much ground but you'll never harvest it. You can't harvest that much." Earl, I said, "How much ground are you talking about?" Well we all had 160 acres and we all farmed 80 acres of it.

G: You can maybe plow it and get it ready to plant but you can never harvest it all. After a few years the Industrial age came along with these kinds of combines [showing pictures of combines]. These two are on our farm. We don't think anything is impossible.

W: Someone told me that you can harvest twenty four hours a day—night and day. That's hard work. How many shifts do you run? Three?

G: Well, usually two. All of these kinds of equipment like I'm showing you, that we are talking about, now are so hard and so technical and so hard to manage and to handle that you can't just go out and pick up a young man or a boy from high school or anything like you used to when you drove the horses and rode the tractors and drove the lessor combines. You just can't do it, because they have not had the training. And they don't want the training. They don't want an agricultural life. They just want enough money, and I mean good folks, they just want enough money to go on to school. We just had a boy leave us, that worked with us off and on for seven years. His name was Peterson and he just graduated with a degree from trade tech this Easter. Now he just wants to go out and find a job with more money. Not that he dislikes the work, the wages are better than on the farm.

M: That reminds me of a story that was told to me. A magazine salesman was trying to sell a farm magazine, a subscription to a farmer. He just went ahead of fixing the fence and the salesman followed him and the salesman finally lost his patience and said, "What's the matter with you? Don't you want to learn how to farm better?" The farmer said, "Heck no, half the farmers now don't know what their doing."

G: This is a set of drills—that is what we call conventional drills. They follow the same pattern that you did when I was a boy, that you father did and so forth where you fallowed in the fall—August and September. It would come up and those are just the standard way we did with and had a little more capacity.

M: You never plow any more do you Garn?

G: We need to talk about that. Those kinds of drills are retiring—obsolete. Nobody ever talks about them. The new drills are this kind. [showing picture]

M: Garn, talk about obsolete. You talked about horses being obsolete. You know what? My wife down there can handle a three horsepower lawn mower pretty good. [Laughter]

G: Glen knows this is true. He looks over the fence and June mows all of our lawn. I wanted to say something about this new drill. This is the new concept of planting, the new concept of farming. You do not plow, you do not work, you do not plow. You just take that drill out and plant. The discs will penetrate the ground and the drill will plant the seed. Costs and is made by only by one major company. The [Ulder?] company in Spokane Washington and it costs one hundred and thirteen thousand dollars.

M: Wow! That is more than my lawn mower.

G: That is more than your farm. But to pull a machine like that you have to have the horsepower. This is our John Deer four wheel drive tractor that is setting down here in the shop now. That machine we gave the Case four wheel drive for and seventy five thousand dollars. People ask about agricultural costs—seventy five thousand dollars. But you can't pull that machine without this tractor and you can't use this machine without that machine. That is just the way you accept it. But that isn't any harder. Along the highway out here, did you notice the combine on that side of the road setting next to the fence is an old mower. I remember the first mower that we bought. Paul was there. How in the heck were we going to pay for it? We bought it up in Murray—eighty five dollars. Eighty five dollars and the man who came to help us run it is Harvard Hinton's father. He lived out there. He drove the horses that pulled that eighty five dollar mower. And some days he got two or three acres. Today our power mowers that we use on our farm, because we are a diversified farm, if they don't knock out between twenty five and thirty five acres, we would think they were sleeping all day.

M: We used to pull the mower with that Ford and do twenty acres.

G: This is not as bad as it sounds because this is what is called the no-till method. The no-till method of farming is that you take that spray I just showed you, you put that in there and you go over your ground and spray the ground. You do not plow it. You do not work it, you do nothing but you just come back and just plant it. And you plant it every year as long as you have the moisture capacity to handle a new crop. But you have to have the moisture capacity to handle a new crop. Food and water is a great thing. You have got to have that capacity of water. You have to know it's there and you have to know why it's there. Now that machine that you see working there is completely no-till.

M: Are you the only ones that have this kind?

Dale: No, oh no. Grant Smith has one. Grant has a bigger one than this.

M: It seems that on our stake farm, they tilled three or four times to plow.

G: No, I don't think you are. Grant has the best one in the valley. There is only two in the whole valley. There is one in Tooele too. The soil conservation district there has one—a little smaller one.

M: I think Boyd Sunderland has one.

G: He has what is called a hay-buster needle. A hay-buster needle is not the same. This machine here, when loaded, will run several hours before you have to put more grain in it. It does two things. It lays a starter fertilizer. These discs are down in the ground three of them following each other. Each has a single hydraulic press on it, just like on your automobile that has a hydraulic shock and it keeps that absolutely the same pressure on the drill. It goes down into the ground and as it goes down in the ground it puts, on each side of this crop, and you put it into banding and it puts it in two rows. And it comes in from both sides and puts this fertilizer on and it's about that deep. Now this is just the starter fertilizer. The plant's germinates, starts to utilize that, and when it starts to put down its deep root system, now you have laid down another band of fertilizer—just six inches under the ground. And as the plant gets six inches deep, then it strikes that bank all under the ground.

W: Doesn't the stubble get in the way of your harvest?

G: This I'm going to show you. This is the way you do it. You notice there, that you take nothing off the top of your ground. You take no vegetation off. You spray it and take the weeds out. Then when the spray has worked you have to wait two or three days. Then you come in and band the grain in with one of these yielders or hay-busters. There are only three types. John Deere is now coming out with one too. Did you notice that there are two rows? The reason for doing this is to hold the moisture, to eliminate the erosion by wind, by rain and all of those things and what we thought you know had to be plowed. Whenever you put a plow into the ground you lose part of your moisture. We used to go out, and I did it many times, ten or fifteen years ago—and it was raining when we went out, and we would go out with our big harrows that were forty feet long.

M: Should you cultivate your garden then? Heck, we used to cultivate the beets when we were watering.

G: I'm not too versed on those garden crops. We used to raise a lot of beets and we use to cultivate them. Yes, and we thought we had to. But one of the reasons of cultivating was weed control for as much as anything else.

G: We talked about water rights and I have said to you several times,—water is the keynote. That industry is the keynote to farming. It is the keynote to your happiness. Every acre of ground that comes under cultivation requires water. If you had an acre of ground and if they didn't have a half acre of ground water that you could use on that property to raise a crop it would not support your needs. That is mostly because we have washing machines, some people need air conditioning—all of these great things that we long for. A third or fourth of your water in this area, particularly, is covered with cement or hard top or something like that. They consume that water, so that water can't be applied on agricultural land.

And the new method of sprinklers that you have seen throughout the country—these are sprinklers that are marvelous. We change them every twelve hours. We change them and they lay down as much water as you design it for. You de-

sign it by the size of the orifice. They can adjust the pressure. Some of these pressures are controlled and used by diesel motors. We have one motor that is diesel but most of ours are powered with electric power. If they run out of water they automatically shut off. If they get hot they automatically shut off. If the circulation is not sufficient to keep the motors cool, they automatically shut off. That is just some of the safety factors we put in the system because water is so important. You need to recognize that you people are the ones that are paying for it. You don't think you are. You are paying for the water and for some degree you are paying for the power to pump the water in agriculture. If we abide by their rules and regulations, I'm speaking of Utah Power and Light, it isn't completely unfeasible.

W: What do you mean about those farms that rely on the rain and run without irrigation. Aren't they called dry farms? Are there any farms down there that only rely on the rain?

G: All of our farms in Cedar Valley depend upon rain. All of our farms—up there on the river is a thousand acres that isn't ours—up there is all rain.

W: Where are these sprinklers then?

G: These sprinklers have to have two sources of water. It has to come through some kind of irrigation system or it has to be pumped from the ground. Pumping is quite expensive. All of the big desert farms down in Arizona and those countries all get their water from underground.

M: I read not long ago that the Idaho Farm Bureau had gone to Utah Power and Light and also Idaho Power and Light to see if they could get a break in getting the juice. They were taking it all. That does put the farmer at the mercy of the power company doesn't it?

G: Yes, it is very, very expensive. The unit that you put in is not cheap. You have to have a pump. You have to have your own motor to drive the pump. You have to bring in your own power in most cases. You have to have your own transformers—the power company won't furnish them. A sprinkler system that you are looking at is between eighty thousand dollars and about fifty eight thousand dollars. So because water is so scarce—I want each one of you to take one of these—because water is so scarce and plays

such an important part of all types of agriculture, except like I said when I started, that you people expected to talk about dry farming. That is what you associate with. But that isn't true. These are what make up Central Utah Water [maps handed out] this is where the water originates and how it's going to come to your country [handing out maps of the Central Water Project]. These are all. Is there enough for everyone?

M: I had a well that I dug in Tooele County when we moved out there. The company was more than glad to help me put in the transformers and all of that stuff. I thought it was real reasonable. But as soon as they got me all the stuff they raised the price and the next thing they did was come to me and told me that I had to pay standby, where we got two or three grains and we were tickled to death. And here came the greeting from the power company and that we had to pay for standby whether we used the juice or not—we would have to pay.

G: You have to now stay in a reasonable rate. You have to designate which day you are going to lay off the water. If we designate Wednesday then we can't turn on our pumps on Wednesday. Maybe the neighbor down the street, two or three miles, from the map you can see the grid, the power company has worked out just when they do not have a draw on their system to air conditioning. Air conditioning consumes more electricity than all the farms put together. So we lay off on certain days out here which you set up even before you turn your pumps on.

I didn't want you to go away empty handed. Well, let's go on here because it is getting late. I don't know how long you want to stay here but we started a little bit late. What are we looking for tomorrow? That is one of the suggestions of what are we looking for.

W: We will always have to eat.

G: That is right. You will always have to eat. You will always have to have shelter. You will always have to have food, shelter, and basic clothing. These are the basic fundamentals for survival.

W: Have they done any studies in respect to the capacity of third world countries to start to produce?

G: Yes, there is a lot. These countries like you are speaking of, they do not have learning skills. Many of them can't read or write, therefore they aren't schooled enough. The only lesson they can learn is by observation. The rest is something that is very hard to bring about—one of these technological machines that we are talking to you about.

W: But didn't the United States farmers stand to lose if these developing countries develop this potential?

G: Yes, when they develop this potential. There is no question about it that the markets that we have will be lost. Another thing in relation to this has been government policy. For quite some time, especially under the present administration, the American farmer has been used as the whipping post for all of the administration's problems and mistakes. The thing that I am really trying to say is that we can say that Russia is a good example. "We are not going to ship you one more kernel of wheat." What are we going to do? We have billions of bushels of wheat we have stored in the United States and have no place to go. When we were at peace with them, they bought from us. They did this and they did that. The greatest problem is when we got mad at Russia. We shipped no grains to Russia. We shipped no wheat, shipped no corn. The greatest production in our nation is in corn and soybeans—all of those all of those commodities that produce any oils or any fats. You can even get oil from cotton, from the cotton seeds.

M: Did you ever plant any soybeans?

G: No.

M: You can see miles and miles of soybean fields back east.

G: If you fly very much, one the enjoyable things when you look out the plane window, you see these vast circles of crops with the corners. Those are what we call pivot systems. The water can come from the ground, or the water can be piped in for the crops themselves. Then when the pivot system turns it irrigates and is set on a timer and it rotates around like that. The reason the corners aren't planted, it is making a circle and the pivot machine cannot cover the outside edges. You can see just hundreds of them. I say to June "Where does all of this grain go to?

Where do all these cattle that we see, go to? What does it all mean?" When I get back East and go to Chicago and New York, look at all the cities all over, I went to Philadelphia many times, I looked at all the masses of people racing up and down the street and say to myself, "Where do they get all their food to eat?" So it is kind of a complete cycle. Well, alright, now for tomorrow. I have a little questionnaire for tomorrow. What are we looking forth for tomorrow. We are looking for the highest technical age in the history of the United States. You will see the highest technical methods in relation to agriculture, a program that you cannot even comprehend. Even that machine that I showed you. One whole side of those machines under one those covers, is a set of gears. You take this one off and put it there. And you that that one off and put it over there. And that changes this fertilizer here and this one changes that one there. And you look at all of those and it's really a bewilderment. So you say to the man that sells it to you—"Talk to me." What do I have to do to operate it? That's too hard. You are going to have to show me how to do it all on a computer. So I am supposed to take a computer class. That is knowledge of technology. I couldn't even go out and do it. I mean that sincerely. There are all of these hoses up here are green up there and across here is a dial up there. It is almost as complex as an airplane cockpit is. If this plugs, that one goes off. If that one plugs, that one goes off. If this one here isn't reading to what it was set to, it registers. All of these things register to you out there, but what good is that if you can't read it. You know what it says, but you don't know what it means.

Most of all these big companies train. They have men down here by the hour because you can't operate those machines without know how. The know-how you can have if you have specialized training. I brought this one to show you the complexity of the system. I say that technology—you asked me what I thought about the dry farms that used to be—this is a machine, the long _____ (?) is what it is called. It measures the water that is in your soil. You have to be licensed to run it because it is electronic. It can produce cancer so you have to have a special license to run it. In our area there is only one man licensed to run this machine. We come along. The machine as it shows there, a little over five thousand dollars, you press that pipe in the ground and you see

him here [in a photo] put in those tubes down this pipe.

W: Does it take a core of the soil?

G: No. They press that and they set this machine up and they test for water. So you turn this on and the electrons and the neutrons that are around the outside of the pipe are struck by the rays and comes through this machine and tells him up here what the moisture in the ground is. How important is that? What good is that? Twenty years ago we didn't know. Ten years it was very good. Today it is your life blood. So the big farms, we have three or four of these. As you mentioned Grant Smith, Grant Smith, they have a couple of these even out on his dry farm. Alright, now this man goes out and charts. He hangs the chart out on the shed on the farm. Steve comes along looks at the chart and takes a look because it is very easy to determine. It says the last time you irrigated until this time, you have used three inches of moisture. The moisture now lays ten inches below your crop. Your crop is a crop that has only six inches of capacity of reaching your water. You have to get your water there. Now before this machine, you went out and unless your crop looked like it was burning up, it was all right. Why be so fussy? Our grandparents got along without it. The fussiness here, is because you can't afford to waste water any more in any part of our state.

W: Now are these tubes placed permanently in the ground?

G: We pull them up usually in the winter. We pay a hundred dollars a tube for this service. The service is actually furnished by technicians. Most of these boys that we have doing this for us are students from the AC. They are going to school and spending the summer doing this. We pull the pipes up primarily so you don't run into them. They are planted flush with the ground. If you are going to till the ground or not going to plant any crop over it or mow or anything like that you just leave them. When they started out it cost you fifty dollars. It must cost the government several hundred of dollars for each one of these. The Department of Agriculture pays for the machines and also pays two thirds of the man's wages. What you pay is just a small part of the actual cost.

W: Is that specialized metal?

G: No, just regular tubing. The only thing specialized on it is on the bottom and you will notice that there is a plug.

M: How do you say that they put the pipe into the ground?

Dale: There are two ways. You can press them down or you can dig a small hole with a posthole digger and put them in. Pressing them is a little better because they come a little closer and they fit a little closer to the side.

W: So you don't schedule your water turn regularly—just as you need it?

G: Yes, if you have adequate water, then you can, even if you have a scheduled turn every fourteen days—he has that reason. He knows that in the last fourteen days it drew this much water down and the plant is now going into stress because it needs this much water. The same kind of stress that you have at home—not only thirsty but the other pressures that are on you. It will remove and register that.

W: Then can you request an additional water turn anytime you need it?

G: A place like ours or a place like these sprinklers, you just turn the sprinklers on. The thing you need to watch there on the sprinklers is that you don't turn on your sprinklers on the days that you have the agreement with the power company. You also have to consider the economics which is all part of it. It's primary. A place like ours and a lot of the farms out west here, the water is adequate out there and the terms are pretty set on the turns. On our place we don't have any turns. We turn our water on in the spring and turn it off in the fall. We have enough acreage and enough water supply to handle the difference.

M: We talk a little bit about Salt Lake and their over supply of water in Salt Lake. Several people said that they shouldn't even get a cent. They ought to just flood out because every time anybody tries to get any water on this water shed anywhere, Salt Lake contests it. Kennecott Copper—when they were in there, you had to fight them, no matter what water trick it took, to get the water. They had a built in contract that contested any access. And now they have used this

Utah Lake for storage access for such a long time, whether the ground is flooded or not. We hope in the dredging it will fix part of that. Now the people think they have too much water. They want a stake in it and all the government wants is to pump it out into the desert to waste the water.

G: Well, the water that comes down the Jordan River and out of the Provo River—most of that I am quite well acquainted with. That doesn't amount for a drop of water. It goes into the lake, don't get me wrong, but if you drained all of the water out of Utah Lake it would only raise Great Salt Lake one inch.

M: What could we do to get Salt Lake to drain it off and get it back down to the Compromise point?

G: The point of Compromise. They lowered the point of compromise. About ____? Inches ____ [plane noise] that you mentioned

M: How much did they lower it?

G: About ? inches.

[Bad tape]

G: After the water passes the Turner dam, there are eight irrigation systems that take the water down to the farmers. The canal that handles the water in Salt Lake valley is called the Salt Lake Canal. Well, this is one of the techniques when I say that we are moving towards a complete campaign.

Even as old as those combines are that I showed you, five or six years, they are almost completely obsolete. You know all they will do is tear down the grains. They will only tell you that it is plugged some place. A light comes on and tells you where. If it is plugged in this position you do that. If it is plugged in that position you do this. I don't even want to tell you about campaigns. I really mean that sincerely, it's almost obsolete. We can hardly keep up with the advances. We can't keep up with the growth. The great scientific advances, the math is going to be a bear and a half and have to have a college education. American agriculture—no nation can compete with us because they don't have the know-how or knowledge.

M: These forty-five or ninety thousand tractors and those stories on TV is part of the trouble.

They bought these great big air conditioned tractors and all of that and they can't pay for them.

G: You take that Case tractor and seventy five thousand dollars cash and trade it in on this new machine. It will cost you a hundred and ten thousand dollars.

M: That is a lot of wheat isn't it?

G: That is a lot of wheat. If you are going to live, you have got to do it. Going back to what you asked me to say. The thing that, and you see it every day and unless you really understand it, it is awfully hard to say why did that man lose his farm. Why did his wife move out, and his kids have no place to go. Part of that responsibility is his, part of that responsibility is the bank, and part of the responsibility is the financing him. It is a three way problem. He had his farm when he got that crop, but we got into a fight with the Russians and we don't ship them anymore. So that wheat sets and the price goes down and down. We talk to some other nation and they say we will ship a little bit here and a little bit there and as a result you don't get the whole thing. But you sit there paying interest, waiting for the government or waiting for a market to develop.

Here is one of the other things. I have a piece of land and it is worth a hundred thousand dollars. I go to my bank and say to the banker, "I'm getting along pretty good but I need equipment and I need this and I need that and ask can you help me?" The banker looks at the piece of ground weighs its productivity and says yes and in his mind. That farm is almost worth one hundred fifty thousand. What is he basing the extra fifty thousand on? Because there is a doctor, there is a lawyer, there is an industrial man. There is somebody that lives around here that is looking for a tax shelter. So they say, you can give me that much money. So the banker is secure. But what happens pretty soon—there is no market for the grains.

Pretty soon this happens, the economy of the country collapses. All of these things happened so now the banker says, "Maybe we had better get out and get out from underneath this, why don't you sell it?" He can't go back now to these speculators, so the only person he has left is the bank. The widow who lives down the street says that I'll just put my money in the bank. That is a

good solid bank. John left me with two thousand dollars and that's all I have to live on. So here sets the bank controlling the land, and controlling her money. But what happens, they can't sell it so they can't pay anything to her. The interest rate starts down. They don't pay very much interest, so what happens? The bank says that we need to get a hold of that land and make the most out of it because Widow Jones that lives down the street "This is her livelihood".

M: I heard another story on the farmers. This hired man was rummaging around about dusk and the farmer went out there and the farmer asked what are you doing? The chores are all done and I had my dinner. I thought I'd light up a lantern and do a little courting. Gosh, that's sounds like a big waste of oil he says, "I've done a lot of courting in my day and I didn't use the lantern." But the hired man said, "Yeah, and look at what you ended up with."

W: Is that how they brand their cattle?

G: This is an electric brander. This is one of my boys here. We have what you call a dry heat option. We buy the cattle, buy the hay and grain that we produce and when they become heavy enough to reach the market we sell them. These are the modern methods. It's actually like the coils in your stove.

W: It's a lot easier on your back though.

G: These are just a few pictures to show the difference of technology. I want to talk about this machine a little if you're not too tired. I talk about this here all the time, both to show what happens in the industry, what happens on the farm and how these things grow up and how the cost happens. My boy says, "Dad, we just can't find help to cut this hay." We produce a lot of hay. We just can't find help, so we can't haul hay like we used to. It's too hard and so forth. It then comes on the market and had been on the market for several years—what you call a bale hauler. It does down the rows and picks up the bales and puts it on a machine and stacks it. I said, "Well, I guess it's all right." So we went up to Idaho where they are a little bit more competitive. We thought that we could have the machine that has the motor on so we could just drive up and down the rows, come in and pick up the hay and stack it like this—come into town so we could breeze in and sell it anywhere. The

machine dumps the hay like you see there and stacks it in tiers for you very, very easily. Very simple. So we bought it.

Alma Peterson built my house. Kent was a young boy and he worked on that same house. It was shortly after the war, and he said, "Garn, we might just as well start now." I said, "Well, it's just after the war and cheaper prices will be better later." He said, "That is exactly what you will say in ten years from now." You will say that it is better with this and better than that. So we entered into an agreement because he says, "I don't want to be saddled with the responsibility of finding lumber and hard to get materials." So we went on an hourly basis, based on the union wages and ten percent of any that came along on the house. It upset me so much to buy that hay bailer. It cost exactly what we paid for that house not including the lot—seventeen thousand dollars is what that house cost without the garage.