So, my presentation is Christian faith and the care for creation. Its part of this creation care, the theology, and the science here at the Byrd Research Center, sponsored by faculty in Christian fellowship.

I’m going to begin with a doxology. We’ll conclude my session with a doxology, too. Doxology means praise, of course, and one of the Christian doxologies is “Gloria in excelsis deo”. Another Christian doxology is “Praise God from whom all blessings flow; praise him all creatures here below”.

Creation is a symptom of material and life cycles empowered by earth’s star, the sun, whose energy drives whole circulations of air and water; flow shaped by unequal meeting and varied typography of land above and below the sea; solar energy captured by green plants; fuels, molecule to molecule and organism to organism transfers, helping to weave earth’s integrative biogeography and trophic fabric that interlaces all life.

God’s creatures produce and consume, multiply and diminish, develop and decompose, each with peculiar roles in sustaining biospheric integrity. This is creation’s economic factor; creation’s economy.

As we human creatures are part of this fabric, we also are its stewards. Stewards of this symphonic gift. Stewards with divine appointments to safeguard the integrity of creation and sustain and renew a life of the earth. Unfolding and candid in Scripture, vindicated in Christ’s resurrection, and celebrated in the Holy Eucharist, this economy is our comprehensive context for Christian community, for Christian mission in the world.

My little book *Earthwise* is kind of picture of this for a polar research center. There’s ice there. There is reflection here of the two poles, but there’s an image in here, too, of a human being that is impacting very much upon the processes of solar exchange between power plant and our star and the sun.

There is another doxology, which comes in Psalm 104. Sometimes this is expressed in the third verse of a hymn that’s sung, “Thy bountiful care, what tongue can recite? It breathes in the air, it shines in the light. It streams from the hills, descends to the plain, and sweetly distills in the dew and the rain.” This comes from this text. “He makes springs pour water into the ravines. It flows between the mountains. They give water to all the beasts of the field. The wild donkeys quench their thirst. The birds of the air rest by the waters. They sing upon the branches. He waters the mountains from his upper chambers. The earth is satisfied by the fruit of his work.” Psalm 104:10-13.

This is a kind of sports minded university here –

− and the University of Michigan is sports minded too. So is the University of Wisconsin and what I’m going to do here is I’m going to bring in three topics about which we’re gonna do some cheers and this is actually done –

− sometimes on the basketball floor or in a football stadium and what’s said when the pom pom girls come out is, “Earth keeping. Fruitfulness. Sabbath.” That’s what we’re gonna do here.

And I’m gonna unpack each one of these topics. These topics are Biblical topics which summarize creation here, and when we’re finished with these three, we’re going to come to a fourth which will be an all embracing principle. So, I’m gonna give you three Biblical principles – earth keeping, fruitfulness and Sabbath. And we’ll unpack those using the Scriptural text. And then, we’re gonna capstone it with a fourth principle, which I’m gonna keep secret for a little longer –

− except you will anticipate it’s coming. (laughter)

So, just to warm up here, here comes the pom pom girl and – we say, “Here’s our cheer.”

*Audience:* Earth keeping. Fruitfulness. Sabbath.

That’s good. We don’t even have to do it a second time. (laughter)

Earth keeping. Now, some of you, of course, have been confronted, you’ve discussed the question of Genesis 1 and its passage, and Genesis 1:28, that gives dominion to the earth to human beings. And we often stop at Genesis 1:28 and we often begin at Genesis 1:28. Interestingly, in Genesis 1:22, we read, “Be fruitful and multiply, and fill the skies, and fill the seas.” It, obviously, is not a blessing to human beings. No, it’s a blessing to the other creatures and it comes prior to our blessing in Genesis 1:28. To be fruitful, and multiply, and fill.

The Hebrew word for fill is the Hebrew word mala’, which is used for filling water bottles, wine bottles, wine skins, rivers. And what it really – it’s richness of meaning means to fulfill, to bring to completion, not to overfill. And so, the blessing here in Genesis 1:22, as well as Genesis 1:28, is that the entire earth be fulfilled and flourish as a whole creation. So, be fruitful and multiply, and replenish the earth. Replenish is the word fulfilled, bringing to beautiful completion.

The dominion passage and the sub two passage in Genesis 1 are coupled with the emphasis in that first chapter on God as the Creator of Heaven and the earth, and the fact that none of the creatures are themselves gods. And so, when we read there of the sun, which is created, and the moon, which is created, they are not referred to by their Hebrew names, for to do so would be to identify the means of gods. And so, these two great creatures, the sun and the moon, are referred to as the greater light and the lesser light. So, this whole first chapter of Genesis is saying there is just one God, that all the rest are creatures, and none of those are gods and you can put the cipod on any of these things and you will not get nailed by that god in retribution. That’s the point.

And also, the point is brought home time and time again that these things are good. They are good. They’re very good. So, if you stop there, you’re told you can put the cipod on anything in creation. But why? Because none of them are gods. They’re God’s creatures. And so, when it comes to Genesis 2, it’s really interesting. Now, Wendell Berry says one of the problems with the critics of the Bible is that they miss the first principle of Biblical or literary criticism and that is you must first read the book.

And if you stop at Genesis 1:28 and don’t go to the second chapter, it’s like, you know, reading the introduction to your physics text and saying, “You know, this stuff is really incomprehensible.” You have to discover that by reading it. That’s the \_\_\_\_\_\_.

Discover it, perhaps incomprehensible for most of us. You have to read the book. And so, we have to go to Genesis 2 and so, what does Genesis 2 bring us? And what it does is it brings us, in Genesis 2:15, to this great Washington admission that’s given to Adam of Adamah. Adamah is the Hebrew word for soil – A-D-A-M-A-H would be its transliteration and ada adamah earthly would be earth. The \_\_\_\_ of the humus is asked to abad the garden. And shamar – I’m going to deal with the shamar word first. The Shamar word is a word that is translated to keep and, usually, or to safeguard and it’s the basis for our first principle earth keeping. Again, the Jewish community and COEJL, the Coalition on Jewish Life and the Environment, there is a group that is formed called shamroy agama. Shamar agama. shamrai adama, the keepers of the earth. That’s one of – that’s kind of their creation care – one of their creation care purposes. Shamar adama, keepers of the earth, keepers of the soil, keepers of the planet. Shamar is used the blessing of Aaron in Number 6:24. “The Lord bless you and shamar you.” And that keeping is a dynamic keeping.

I’m a wetland scientist and I’m really interested in the wetland \_\_\_\_\_ up here, which we might see if we take that option versus looking at ice bars, but that – these wetland systems, studied here by Bill Mitch and others, those wetland systems – in order to maintain them, in order to preserve them, in order to create them, what has to be done is they have to be put through their paces.

To keep a wetland a wetland system, it has to go through a fluctuation to water level. It can’t just be locked in because if you lock it in in a particular water level, it will turn out to be just a bunch of cattails, and a bunch of cattails in water does not a marsh make.

What you have to do is sustain a marsh or sustain other kinds of wetlands is shamar them, not sarve them. Not sarve is another Hebrew word which means preserve in an uninteresting state. Peter, Peter, pumpkin eater, had a wife and couldn’t keep her. Put her in a pumpkin shell, and there he kept her very well – a very bad way to keep a spouse. (laughter)

That’s not the keeping – that’s not the keeping that is requested here. It’s interesting when you look at Torah that notsarve and shamar are - both are used. Preserve the Torah, preserve God’s law, notsarve, and practice it, shamar. Both of them keep it. So, keep the law and keep it. Interesting. So, shamar means to keep the garden with dynamic integrity. Keeping the garden with dynamic integrity.

I have a little piece in your folder that Greg kindly reproduced there. It’s published in *Lutheran Woman Today* some years ago, and it is entitled *Gaurdening*, G-A-U-R-D-E-N-I-N-G. It’s guardening. That’s where we get our word garden. A garden is the guarded and a short distance north of here, there is a city called urbs in horto. Well, it’s its motto. Urbs and horto. What city is that? Chicago. Their motto – you’re looking for a seal that says, “Urbs and horto – city in a garden.” And they have gardeners throughout the entire city that ride around in police cars. And in those police cars, it says on the side, “To serve and protect” and it’s “To abad and shamar” is on every one of their police cars. They are the gardeners of a city.

What’s the motto on the police cars in Vancouver? “To serve and protect”. What is the motto on the police cars in Toronto? “To serve and protect”. Jewish police commissioners.

Genesis 2:15, right on the police cars all across North America. Earth keeping – as the Lord keeps and sustains us, so must we keep and sustain our Lord’s creation. Earth keeping. What are our three principles? Here we go.

*Audience:* Earth keeping. Fruitfulness. Sabbath.

Now remember, the net time we meet, we’re gonna have a quiz and if you get one of these wrong, it’s a 67 percent, and that’s failed.

Fruitfulness. It’s a fantastic principle. I mentioned yesterday my coming to Washington, D.C. with a cooker from the Columbus Zoo here, and testifying at Bruce Babbitt’s office, at recivilization, and on *Fox Morning News*, and in a great, big news conference that here this cooker is representing the Endangered Species Act and why we really have to care for God’s creatures. But, the story I told in 1996 was the story of Noah and the Ark.

The story of Noah and the Ark is a fantastic story. It’s a marvelous story of God’s commissioning one that is very capable first people to engage in the rescue of the \_\_\_\_ cities. It’s the world’s first Endangered Species Act. And it is for the purpose of maintaining the great lineages of the creatures. The lineages of the creatures and lineages in all of Jewish thinking, of course, are extremely important. And Noah is asked to expend an immense amount of time, energy and money, and resources, and do it under the duration of all sorts of observers who are saying, “You know, Noah, that thing will never float. It’s a, you know, it’s a dumpy wreck and besides, when will a flood ever come to Iowa anyway?” And so, it’s a fruitfulness teaching and it answers a lot of questions.

One of the questions we often hear asked today is, “Isn’t it more important to save people than to save these animals?” And the story answers the question by saying, “Well, it depends on what kind of people you are.”

Because Noah’s safe and, while a hard teaching of Scriptures is if you’re not saving the creatures and the flood comes, you might just be taken away. I’m thinking now that there’s two people at the wheel and one’s riding – or both of them are riding and one is taken and one is left. And in the story of Noah, some are taken and some are left. Noah is left. We gotta kind of work our heads above the importance of the resurrection of the body.

I’ve often thought, especially recently, “So, we’re gonna all be resurrected in our bodies so that we can be whisked off to Heaven, while Noah stayed earth.” It certainly seemed to \_\_\_\_ quite the right – but, that’s another question. I mean, it’s another topic. This earth is pronounced good in Genesis 1, and very good in Genesis 1. We are now committed by God to be as stewards. We are commissioned to being its guards, its gardeners, its \_\_\_\_ wardens. Wardens, gardeners, stewards – we have this great commission to bring good news to every creature, not just to ourselves, but to every creature. And when you’re saying, “Praise God from whom all blessings flow, praise him all creatures here below.” And we don’t say to these creatures, “Well, I’m gonna smash you very soon because I don’t praise God.”

I remember one of these songs that was sung in one of our – in our coliseum in Madison, one that is by a very famous Gospel singer, and the song was, “Quiet all creation and let me sing.”

Who \_\_\_\_\_ \_\_\_\_\_ at the intermission?

So, whole creation praises God and we join in. And fruitfulness is also taught in Ezekiel 34:18. “Is it not enough for you to drink the pure water? Must you also muddy the rest with your feet? Is it not enough for you to feed on the green pasture? Must you trample the rest with your feet?” Some of you have the NIV version, and as you’ve read through the Psalms, you’ve maybe been puzzled by the fact that on two of the Psalms at the top, it says, “To be sung to the tune of do not destroy.” Does anyone recall seeing that?

*Audience:* Mmmm Hmmm.

You do. Good. In Hebrew, do not destroy is bal tashchit. It means, “Do not destroy”. And NIV translators picked that up over - \_\_\_\_ some ancient text. No one knows what that tune is, but do not destroy is another expression of the fruitfulness principle. We are not to destroy life on earth. And it’s persistent in just that little phrase, also. And, of course, “When you come across a mother and her young and you need food, you may take the young, but not the mother”. “When you lay siege to the city, you may not destroy its fruit trees.” There are many, many fruitfulness teachings.

So, we’ve got three principles – earth keeping?

*Audience:* Fruitfulness. And Sabbath.

And so, we come to Sabbath. “Remember the Sabbath day, to keep it holy. Six days, thou shall labor and do all thy work, but the seventh is the Sabbath and the Lord thy God in it. Thou shalt not do any work. Thou, nor thy son, nor they daughter, your maidservant, your manservant, the cattle, the stranger within your gates, for this is the day that God rested.” And it’s interesting that, probably, God was not tired after creating the word. I don’t think God gets tired. But, God took a rest and the rabbinical dictum on this is the Sabbath is the day you create nothing, you destroy nothing, and you enjoy the great fruitfulness of God’s creation.

So, the teaching here is everything should enjoy God, and enjoy their being, and enjoy being who they are – frogs, and toads, and palm trees, and people, creeping things, and beasts, and cattle, birds that in the Heavens fly.

When we come to Exodus 23, moving three chapters ahead from the Decalogue in Exodus 20, we read that the land has to keep a Sabbath rest. It must be given a Sabbath rest. And then, in Leviticus 25 and 26, we learn that if you fail to abide by these ordinances, the land will take its own rests, the Sabbaths that have not when you dwell upon it. Sabbath. We must provide for creation’s Sabbath rest. Just think of what that means.

I know an Arlandean farmer in Alberta who gives his land a rest every second year because of the Biblical teaching of the Sabbath and Christ’s affirmation that this is principle that is a principle, rather than a legalistic requirement, and his response to my question, “Why do you let it rest every second year rather than every seven?” is, “Because that is what my land needs. The Sabbath is made for the land and not the land for the Sabbath.” That’s the way he interprets that.

And now, the overarching principle. We come back to Genesis 2:15, a little word, abad. This is the first word on the police cars, “To serve and to protect”. Interestingly, in the Book of Joshua, we read, “Choose ye this day whom you shall a lot. As for me and my house, we will abad Jehovah.” It’s translation, to serve. And work, serve, slave, labor, all these things that relate to service, servants, are all connected with this word abad. And so, in the NIV, Bruce Waltke, when he translated this, translated it “To work the garden”. That’s not a bad translation, especially if you – he told me he did save in your study notes all the \_\_\_ and \_\_\_\_\_\_ outside.

One of his daughters, when she was 13, brought another friend of hers, another – a girlfriend in to introduce her to her father in the study and said, you know, whoever it was, “Sarah, this is my dad. He lives here.”

In the study, and what’s interesting is, as I have conversed him, he said, “You know, other translators have picked the best words for these translations and we’re pretty much bound to select the \_\_\_ word, and maybe I can give you another illustration of abad in terms of another translation, which is cultivate”. Sometimes, \_\_\_\_ will cultivate and I’ve thought – some of you know Gilvean Krantz, who had been – who has – was the Director of the Royal Botanic Gardens for an awful lot of years, and I thought, “What would happen if I drove up in my John Deere tractor with a \_\_\_\_\_ plow in the front of Kew Gardens and I say, “Yeah, I’m here to tend your garden.” And what you discover is you wouldn’t want to cultivate that garden with a John Deere plow. You might wanna do your cultivation with a scalpel.

Just very carefully because tending garden is very much dependent upon the garden and what is required of it. So, Noah did not – Noah? Adam did not have a rototiller –

− for a number of reasons.

But, abad, in regard, has to be your – in fact, here’s an interesting thing. I have many Jewish students in my class in \_\_\_\_\_\_ science, and at one point I said, “Have you ever thought of Genesis 2:15 and how this goes and how it relates to environmental science?” and these kids study Hebrew and I – you know, I have – and she says, “You know, how does that \_\_\_\_\_\_?” and I give her a hint. And she says, “Oh, I never thought of that before.” And she’s thinking Hebrew. But, you know, when we think about it, we have to translate it into English and we’ll translated it \_\_\_\_\_, perhaps. But, we should somehow think of this Hebrew. The whole thing would just kind of ring because adam abad ama, it’s a play on words, is to serve \_\_\_\_. Let’s think about that.

The rabbinical approach to the Scriptures, which I like to think out as being imaged in *Fiddler on the Roof*, where these rabbis are rocking back and forth, you know, for a passage to Scripture. Turn it about, turn it about, turn it about, for everything you need to know is in it. That’s the dictum. Turn it about. And if you turn this one about, this particular passage, what you’ll discover is that what we know about the garden is not being said. And what we know about the garden is that it serves us. It serves us with food. It serves us with aesthetic beauty. It serves us, maybe, with some herbs for medicines and flavorings. It serves us with the valuable transplantiration, and the moderation of climate, sort of have a pleasant place to walk with God in the garden in the cool of the day. It serves us. But, Eve did not think about how returning that service with service of her own.

And so, what the Scriptures are saying, you serve this. Those of us who are gardeners know that, in fact, you do serve the garden and we often don’t think of that until we start a garden. And, boy, after a while, you would realize that you’re putting a lot of service into this garden. And the interesting thing about the biosphere is it needs our service too. If you decide to take of the fruits of any part of creation, you must return those fruits with – and those services – with services of our own.

Curiously, in this university and at University of Michigan, the University of Wisconsin, universities all across America and around the world, we developed in the last ten years or so the concept of ecosystem services. Bill Mitch here with this wetlands center is really high on the ecosystem services provided by wetlands. What do they do? They filter water. They provide for wildlife. They moderate flood \_\_\_\_. They increase flows during drought and diminish flows during floods because of their action as a buffer on the landscape’s water machine and that’s called an ecosystem service.

And the Biblical teaching is, as creation serves you, where they take your service systems, should we not just take, but to return that service with service of your own? It’s a reciprocal service. It’s a con service. Con means \_\_\_\_\_\_. And so, that’s why we can call it the con service principle. What is the con serving then? It’s something never takes without giving back. That’s what’s gonna destroy conservatives.

Because the odd thing about today, if we were to write our \_\_\_\_ letters all over again, is we’ve discovered that a conservative says, “I can just keep taking and I don’t have to give back.” And, curiously, the Biblical view is, “No, be conservative. You have to keep returning the service of creation and the service of others with service of your own”. It’s a loving, reciprocal relationship. Isn’t that something? It really is. And when Gifford Pinchot was riding horseback alongside Teddy Roosevelt about 100 years ago, Roosevelt – Teddy said to Gifford Pinchot, “What shall we call this gathering of the governors I’m bringing together to deal with national parks, with these various savings of pieces of creation?” And Gifford said, “Let’s call it conservation.” Both Christian people. Interesting. And that’s what it was called. Conservation.

We must return creation’s service to us with service of our own. “Great are the works of the Lord. They are pondered by all who delight in them.” Let’s all delight in these creatures. Creation’s economy is the context of our Christian community. It’s the context of our mission. In the world, it’s the context of our human economy. What we delight in this great \_\_\_\_\_ Jerusalem, pictures of wheels. The big wheel being creation’s economy, the economy is the biosphere and the human economy, the little wheel, and on the left, he describes as the wheel without the wheel, which moves opposite to the big wheel.

If we put our wheel or imagine our wheel, the human economy, is outside of creation’s economy, then they work in opposite directions. But, if we place our economy within the economy of creation, they move in the same direction harmoniously. And so, when we go to this service thing, the service idea, this con service thing, is our con service is working harmoniously within the great book of creation. Our work in creation. Our economics works in accord.

One of the definitions of economy, it’s the first definition of the third edition of the unabridged *Webster’s Dictionary*, is the remarkable means by which God matches ends and needs and creation. That’s the economy. And I recall one said – one of our Au Sable Institute forums – an economist who was there objecting to an ecologist’s statement that, more or less, resonated with what I presented him, and he said, “You biologists have to take economics to know how things work.” I was sitting in the back of the room and I got a piece out by Carl Linnaeus. Linnaeus is the inventor of the binomial system of classification. His responses were centered to our whole system of nature. It’s called *Systema Naturae*, 1658, and in it, he established our classification system. He also has a *Systema* book that is about the ecology, and in that, he gives the first – I think, the first written definition of \_\_\_\_\_\_ \_\_\_\_ Webster’s and that is, “By economy, we mean God saying \_\_\_ the \_\_\_\_ way of matching ends and means in the whole creation.” That’s the economy \_\_\_\_\_\_.

Paul \_\_\_\_\_\_, in a very secular way, summarizes this by saying, “Nature vast last”.

We’ll break here very soon and – but, I’m gonna kinda help us make the transition now. This is a picture of Michael Polanyi, who in 1968, wrote a piece in *Science* called *Life’s Irreducible Structure*. And I’m now moving from how do we, taking the science, ethics, praxis triad and putting that in our head, and having dealt now with what ought to be, to some extent, and getting prepared now for dealing with how does the world work, it’s important, I think, for us to look at thinking that’s directed at bringing things together in that.

Polanyi was a professor of physical chemistry at the University of Manchester in England. He had come from Hungary, speaking from there. And as he broadened the scope, more and gratefully, he eventually became also professor of social science at Manchester. And what he says in his paper is each level relies for its operations on the levels below it. It reduces the scope of the one immediately below it by imposing on the boundary that harnesses it to the surfaces of the next higher level. And we control all this transmitted stage by stage, down to the basic intermeeting level. I’ll explain that in a moment.

As we ascend the hierarchy of boundaries, we reach the higher levels of meeting, our understanding the whole hierarchy ethics keeps \_\_\_\_ as we move upward from stage to stage. What Polanyi, in this paper, says is that each part of creation has within it its internal controls. For example, an atom has within it its internal controls that govern how electrons, the length of the nucleus and so on. But, there is a level of control above it, which, maybe, say, controls the molecule of which the atom is a part, and that molecular control limits what the atom does because it confines it to the constraints of the molecule. And the molecule then has its own internal controls, but it may be constrained by, say, a cell of which it is part. And the cell will be constrained, even though it has its internal controls, will be constrained by the controls of the tissue of which it’s a part. And the way up to organ, and to organisms, and to population, and to biotic community, and to ecosystem.

And what we do in our science is, usually, is reduce things by saying, “All other things being equal, all other things being equal, all other things being equal, all other things being equal.” And you get right down to these little bits and pieces, and before long, you have, like my professor \_\_\_\_\_ \_\_\_\_\_\_ at University of Michigan, when I ask him what does he mean when he said, “In the mammal, this happens.” He said, “Oh, in the white rat.” And I said, “Oh, you studied white rats?” I knew he didn’t, but I said, “You’ve studied white rats?” He said, “No”, he says, “I studied cells.” And I said, “Well, then you must have some lab rats?” He said, “No, I don’t. In fact, I studied myocondrea.” And I said, “Well, how’d you get your myocondrea sheet?” And he says, “I have them delivered to my lab every morning in a vial.” He never saw the white rats because at the University of Michigan, we have to consolidate where you can just order up a bottleful of myocondrea from this \_\_\_\_ and all these \_\_\_\_\_. And you never even have to look at a rat. I suppose it’s a \_\_\_\_\_\_ curriculum this year.

Now, it’s been competing with Ohio State on how to integrate things and get things back together. But, when you have a bottle of myocondrea delivered to you, it’s very difficult to get either \_\_\_\_, the image of a rat, or a population. So, Polanyi is very helpful because what he is saying is, “What we’ve done in our science is we have gone to deeper and deeper levels and we progressively have lost sight of the controlling bubble to bubble. And if we go back up the chain, we’re going to suffer.” As he says, “As we ascend these boundaries, we reach ever higher bubbles of meaning.” And that, of course, is the stress under which most of us are operating these days in our scientific society. It’s that meaning is being lost as knowledge increases or understanding the whole hierarchic edifice keeps deepening as we move upward from stage to stage. And, of course, this brings us to secularization as well because, as you go farther and farther up, you, ultimately, come to the Creator of Heaven and earth. And that’s a good place to go as you’re ascending.

So, next, I will talk, after break, about what science tells us about the state of creation.