Lecture

Monday, January 28, 2019 4:31 PM

Different kinds of rice:
Rice that grows in lowland, rice that grows up in the mountain.
Ancient China, versus Balinese rice terraces.
Different kinds of technological forms that we would be looking at. Very ancient techniques for shaping the rice fields. As compared to the use of pesticides for tech farming.

Although the topic is invariably rice, we will try to understand not just about rice. I'm using the idea of rice as a model system. Model organism. It's a concept in Biology, not in social science very much, where they have certain organisms treated as models.

Model is jargon for a species of animal to be experimentally powerful. For example, the fruit fly, the organism chosen for historical reasons as genetic organisms. The fruit fly has become a model organism for genetic studies. We have more than a century, of investigation of the fruit fly, that the tool box to experiment with the fruit fly is superior to other organisms. To ask about any biological process, we go to the fruit fly.

Because it has a long history of study of it. Sort of for historical reasons, for serendipitous reasons, the reason is because there has been a long history of doing stuff with it. What's the use of doing it as a model organism. What is the objective of studying a fruit fly. Is it studying how it works? No. You can study about genetics, that you can apply the inferences to a broad range of organisms.

The objective of this class is to study rice. The point is not to just understand things about rice. We can use rice, and rice agriculture for exploring theoretical ideas about how humans interact with the environment. This is very important, especially in the age of climate change. About our relationship to the environment. We can study by focusing on one model. We can learn something more concrete than studying on our own. Now why rice? Similar to the fruit fly, it's a long history of people planting rice.

It means there's a lot of experience, a lot of experiments, that are evidenced through rice and agriculture. There's a lot of social science, research about rice agriculture. It's useful for us, we can use the research from before to explore the different ideas about environment interaction

What is one way that you interact with your environment? Building sea walls, infrastructure. For transportation

- Scuba diving. Marine tourism was harmful to oceans and stuff. Now that humans are aware, they try to limit the damage
- Releasing invasive species into the environment
- We have some kind of interface with the environment. Or putting something out into the environment

What are the causes and consequences of that interaction?

- Getting rid of aquarium fish after you got bored.
- Consequence: danger in the local waterways, people get stung. Reservoir closed from fishing
- Marine/Air pollution. Contribution to Greenhouse gases.
- Causes are: We have waste to throw out. The Consequence is: Plastic in the ocean or polluted air.
- If we take plastics/ brought about more recently, and how it's affecting green life. What are the consequences of plastic waste? With an increase in production, there would be an increase in consumer products, due to the increase in packaging
- Lack of understanding of the effects.
- Interaction with the food production: what are the causes? Human sustenance? And the consequences are extinction of animal species?

- Food production: The extinction of human species?
- Some of these causes are social/historical/political, things that drove it. Some of these causes are natural, biological environment?
- Something like food or waste? These are part of existence. But at the same time, there are a lot of causes here from social, historical and cultural backgrounds.

Do you think it would be possible to develop a general theory of human environment interaction. A theory that would explain all human environment interactions.

- People have tried to do that. My personal feeling is that these theories are too extreme, but I'll present them to you, and I'll try to explain why we are doing something different from that.
- One is environmental determinism? The other is cultural perception of environment
- These are two different views about what shapes our interaction with the environment
- In environmental determinist view, the argument is that
    - The way our cultures are shaped by the natural environment
    - Upland vs lowland rice cultures
    - Try to show that the different cultures and societies, the variation of those societies was a consequence shaped by the difference of their environment
- Eskimo, American Indian group. They have hundreds of different words for snow. Because of their environment, they end up developing very different set of ideas and perceptions.
- There's a different way of perceiving an environment? Compare chinese water-ink painting vs 19th century American painting
- The reason why this is so important: the Anthropocene. It's how humans can change their environment. With different kinds of measures. One would be harboring the atmosphere. We've entered a geological age, which defines the humans changing the planetary environment. Not just changing the environment around them, but changing the environment about them. The whole plan. You see that there's a lot of research right now, understanding how humans interact with the environment. So it is sustainable, in ourselves, how we continue to survive.
- Instead of trying to give this theory, we'll look at the specific case of rice, and through that case of rice, through different experimental case studies of rice cultures. What can make them more sustainable vs less sustainable.

What can we learn from the 'model system' of rice cultures to help us build more sustainable relations with our environments and with the Earth as a whole? What is the sustainability? And how do we get there?

Then I'll present the learning objectives of the class and go over the structure of the class.

This essay will be a discussion of issue: through the topic of food and food consumption.
Second learning objective: models of human-environment interaction in rice cultures. Use rice cultures as a model system, apply a model of human-environment interactions to a contemporary threat to sustainability.

Trying to apply that concept to some other case or environmental problem or sustainability problem. Using it as a model system. Trying to apply the concept outside the case of rice.

Third one is to explain the theory and model of agricultural modernization, and compare this model with the actual history.
Define and discuss how rice culture influenced and influences Asian society.

Readings: What are they going to be about?
What is it that is specific about rice as compared to other crops? Look at the history of domestication? Presenting the debates about domestication
Focus on rice, before doing some abstract things.
We'll look at the core concepts: What is culture? Geertz all over again. What exactly is human culture, and how does it relate to human biology? That will be a core thing in the class. The question: What is an environment. It is surprising. It's by a biology. Like a tick. What is the environment of a

tick. That's the cause of your environment.

We'll look at food, and debates about the assumption of culture vs environment
The production of food through rice, and several different readings of rice culture to politics and technology.
And then the last week, we'll have a couple of short readings about sustainability. And potentials and problems today.

Azri: Nasi Goreng
Akib: Nasi Goreng: three bowls in a meal.
Jia Min: Kueh: So they use rice flour
Yuluan: Sushi
Laura: Yangzhou Fried rice
Julius: Indonesian sticky rice cake known as lontong
Vinh: Rice with sticky meat
Wang Chen: Fried Rice
Guru: Olive Fried Rice -- Bishan, Block 53
Gabriel: Mui Fan: Rice with sauce.
Joanna: Chicken lo mai kai
vieri: Mutton Nasi Goreng
Andre: Brown Rice
Bertha: chicken Rice
Kenji: Moss Burger (Rice burger with beef)
Zhiqi: Nasi Lemak
Deeksha: Nasi Lemak
Joel: Charsiew rice
Javen: Don't eat rice! On a keto diet
Siayu/Simon: Rice cake
Francis: Vietnamese sticky rice
Ronald: Pineapple Fried Rice
Xiaowei: Korean Rice Cakes
Kenny: Sushi
Kenshi: Chicken rice
Helen: Briyani

Ends at 5.30

Reading Guide:

1. What is special about rice? What are the specific qualities and capacities of rice that distinguish it from other crops?

- Staple food of almost half the population of the world
- Rice was cultivated from very early times, but tuber crops or millets remained staple of Malay peninsula until rather later.
- Rice stayed because it was adaptable (cultivation not confined to well-watered river valleys or deltas. It could be grown on steep slopes cleared of virgin forest in Borneo, along deeply flooded river banks in Burma and Bangladesh, or Salty marshes along China coast)
- A natural swamp plant
- Hill rice: grown on systems of shifting cultivation
- Large number of varieties: indica and japonica recognized.
- Indica have fixed growth period, japonica sensitive to day-length, and do poorly in the tropics
- Rice is palatable, and can be boiled and eaten without becoming mushy
- Highly digestible and nutritious
- But not when polished.
- High-yielding: 2 tonnes/hectare without mineral fertilizers
- High yield to seed ratio (for subsistence farmers) compared to wheat, barley and rye
- Can grow two or even three crops in the same field.

- Fertility not affected even with multiple crops
- Rice will allow poor farmers to produce reasonable yields from their land with heavy investment of labour but without the need for purchase of fertilisers
- Risk-reduced with great varieties: subsistence and increase income
- Easier to grow indica as they always flower at a particular date

2. What is domestication? Who are the actors involve in domestication? Put another way, who domesticates?
- Cultivation of a plant for food
- Farmers?
- Hunter/Gatherers?
- "rice-farmers have always devoted considerable attention to the development and maintenance of desirable strains according to a number of criteria such as yield, habitat, flavor, growth period and season, resistance to flood, drought and disease, glutinous or non-glutinous endosperm, and fragrance" Pg. 17, Bray
- "it was through the efforts of individual peasant farmers that the best varieties of Champa rices were developed"
- "The Chinese and Japanese policy had been to select the best varieties available locally and to improve them through pure-line selection" Pg. 24

Lecture 2

Thursday, January 31, 2019 4:39 PM

We'll look at the environment through domestication.

Obedience
Intelligence - compared to wild animals. Different kinds of intelligence
Appearance

Domestication defined classically:

'What makes an animal or plant domesticated?

1. To convert to domestic uses or tame
2. To accustom to household life or affairs
3. To cause to be or feel at home; naturalize
4. To be domestic
    a. Source: Webster's

Domus: etymologically, idea of 'domestic' comes from the word 'domus, latin word for a certain kind of house occupied by the wealthier classes in ancient Rome.
Idea of domestic not just with pets but with household architecture.
In a lot of languages, like Chinese, there was a link of the concept of the household as a building, and the family as a social unit.
Farmers always told me that the reason that the character is written with pig. It has to do with pigs being part of the household. The classical family unit would have a pig. The meat of wild boars were used for ancestors.

History of domestication:

Brings us back to the very ancient of history. The neolithic revolution, began around 10 000 BCE. [beginning of Holocene]
Humanity took on different changes in society. Associated with the rise of society.
Domestication of major agricultural plants and animals.

Now, because of the early era of archaeology, rise of discipline, was very European-biased.
Special emergence in the region of agriculture. The origin of the fertile crescent in the middle East.

The Levant, modern Israel/Palestine, Egypt, and Iraq. There was the focus where certain plants like wheat and barley were domesticated.

Rice had a different origin of domestication, and different origin of civilization.

Short Film that shows you about the classic narrative? Of how farming started?

What is the narrative of domestication told in the film?

1. Hunter Gatherers were primary occupation
2. Ran out of animal prey 8-10 000 years ago
3. Resorted to domestication of plant life
4. Those who were able to succeed grew
5. Now there are presence of crops
6. Crops cannot be moved voluntarily, presence of specialization of roles
7. Fights break out over ownership
8. Without farming, we cannot sustain population growth.

a. It was done as survival move
b. Accident? -> serendipity about how people

c. Domestication gave birth to different ideas such as property, war, roles, hierarchy
d. More time: blend in to the social things

Who or what are the agents or actors behind domestication in the film?

1. Hunter Gatherers
2. Animals
3. Domestication of Plants/ the Plant life? Wheat, corn, barley was mentioned
4. Different roles - warriors/farmers/cooks/caregivers/story-tellers?

a. Who is doing domestication? Humans. Over again, the humans sat down, they started to domesticate plants or animals and that gave birth to all of human civilization.
b. A unilinear process that originated from a particular point, or cradle, and spread to other parts of the world
c. Origins in fertile crescent of Middle East
d. A transformative moment when human beings began to control nature through agriculture and husbandry practices

Domesticated animals are 'bred in captivity for purposes of subsistence or profit in a human community that maintains complete mastery of its breeding, organization of territory and food supply

Problems?

1. Domestication is not just one process.
    a. This is one farmer who farms ducks. But he keeps ducks in completely different ways. Farmed for commercial sale, and one for his own consumption
    b. Different relationships, farming practices with humans to the animals. Animals allowed to do different things based on that.
    c. Domestication is not just one thing.
    d. Ingold's three modes of domestication: studies reindeer herders. Siberia to Northern Canada. They all have reindeer. Caribou is the same animal
        i. Taming: Making the animals obedient, training them, bringing them into the home. Using them to pull sleds. That is a taming process. It's a certain domestication
        ii. Breeding: control how animals breed. In order to develop certain traits.
        iii. Herding: Keeping them in controlled spatial areas.
        iv. It's interesting as one group might tame reindeer but not control the breeding and not herd them. Other groups, they herd them. They collect meat, contain in certain areas. They allow them to breed in uncontrolled way. Don't make any work to tame and control them.
        v. The societies have different modes of domestication.

Different kinds of domestication going on in rice farming.

1. Dry rice and wet rice
2. Rice species: breeding in a laboratory: natural selection
3. Farmer selection processes
    a. They will take the best for seed crops
    b. In terms of whatever traits they want
    c. Soaked the seeds in water/or mud or salt. Those that float will not be as good.
    d. Farmers using selection methods that will have a genetic effect on the plants. Natural selection is a selection process. Selecting different genes. Breeding of rice in the lab is a different way in which gene transfer is happening. Including gm, transgenics. Putting other species into the rice.
    e. Can't treat all of these as one thing.
    f. Two moments: one by the Song Dynasty era
    g. Import of Champa Rice/Long grained rice coming from Vietnam. And via Vietnam, from India, and those long-grained rice was more productive and could be grown quickly, allowed for multi-cropping. Growing more crops per year
    h. The Green Revolution: Different techniques, modify for high yielding rice. Different approaches to the intensification. Selection of breeding happens. Has different effects

on what rice looks like.

Four stages of domestication

1. 'unconscious selection' ca 10,000 BP.
    a. Change of environment conditions, rather than 'selection' or breeding
    b. Domesticated had more to do with bringing them into different directions through farming regiments.
    c. When you are hoeing the field and harvesting the rice and replanting the rice. It ends up having genetic effects on rice. Not through practice of natural selection.
2. Non-specific breeding principles to maintain favored types
3. Improved animal breeds, 'conscious' crossbreeding and inbreeding (18th century)
4. Advanced molecular biological techniques that circumvent genetic issues.

Problem 2: Who is doing the domesticating

1. In the classical narrative: human agency. That humans domesticated animals vs plant
2. "Cultivation is a human activity; domestication is a genetic change in the plant" -- Fuller (2011)
3. It's the plants that are doing the domesticating.
4. E.g. Dog: chooses to domesticate: dogs started appearing around human camps and their behaviors, physical features and some other aspects actually change from their own active approach to human societies.
5. Taking wolves in, making them under our control. It's a very different kind of narrative. Wolves chose to be domesticated.

"domestication syndromes"
Biological definition of domestication, different from social definition.

1. Certain traits of plants and animals that are distinguishable from wild ancestors.
2. They are not exactly the same traits in all animals or plants.
3. It's called domestication syndromes
4. Variation in coat color as well as texture, dwarf and giant varieties, changes in reproductive cycle, tooth crowding, and floppy ears.

It isn't because of intentional breeding. Wolves approaching and live around humans, change the environment (living under scrap food) initiate process of domestication syndrome in the genes.

Can this theory be applied to rice? Did rice choose to be domesticated?
How do you use the word choose when they talk about plants?
Dogs will never go extinct. Wolves could go extinct. There's an advantage to being domesticated.

Domestication syndrome for rice:
Non-shattering? In wild rice, which is just like a grass basically. It looks similar to this. The seeds, when they get close to being riped, the plant just breaks apart and the seeds go everywhere. That's very problematic because when you're trying to eat it. You have to get the right time. With domesticated rice, over farming of rice, they developed a trait called non-shattering. After some time, you get this non-shattering where seeds stay on the rice and they don't explode out.

1. Mutant non-shattering ones. For evolutionary theory, there's always diversity. One possibility is that farmers selected those
2. Tendency that they are more represented in the seed that are collected, because non-shattering is more prevalent
3. Rice plants would no longer need to shatter due to the process of human agency.
4. Humans become the intermediary part of the reproductive cycle. So the plants are able to add this kind of things that would be removed from the gene pool. And natural selection. It's a tendency to be maintained or even preferred by the unconscious.

With rice, it may not be that easy to see. They could still be reproduced.

There's a more extreme example: Corn

1. They are enclosed completely within the husk of the corn, it doesn't regrow if humans do not replant corn. They are stuck on the cob.

Did humans domesticate themselves? The same process of unconscious selection happening on humans as well.
Similar to the biological features that distinguish dogs from wolves. Like in Neanderthals. This is not likely to be a consequence of controlled breeding. It's a consequence of change in the environment. Relaxing natural selection. And causes this domestication syndrome to develop in the gene pool.

TLDR: We can't really see humans as being conscious beings directing the process of domestication alone, but the interplay between the agency of the plants. The dog/wolf as well as humans and unintentional effects of altered evolutionary process.

Problem 3: Origins in Asia
Is there a different history of domestication? Focused on the middle east as the origin of civilization. Rice is a distinct origin of domestication linked to a different development of civilization. Is there a different narrative or story that can be told by Asia about the story of Rice. Compared to historical domestication told about the Middle East.

Where is the origin?
1. Cultivated Asian rice = Oryza sativa
2. Wild progenitors: Oryza rufigana and Oryza nivara/Indian…

Where's the origin that they looked at?
1. The distribution of the wild relatives.
2. And this led people to theorize that the area of origin was in South East Asia. The problem with that theory? Climate change between 10,000 and now, and distribution back then. The distribution is much farther North.

Origin was probably in the Yangtze river area, around 10,000 years ago.

There's a distinct origin of long-grain rices in South Asia. That's an interesting terminology: indica/india and japonica/japan. This terminology was determined by a Japanese archaeologist. It doesn't reflect the origins. You go to the West, you only have the long-grained rices.

4000 years ago? They have rice paddies. Area as big as the table, but they were doing different irrigation systems to have dry times, wet times, but at a small scale. Each one of the paddy unit would be around 1m^2 to 3m^2.

Did human cultures make rice or did rice make human cultures
What are the relationships between the specific qualities of rice and the characteristics of Asian societies and civilizations
It is clear that the history of Asian societies, their human population and the evolutionary history of rice as a crop are inseparable.

There's a civilizational space populated by Asian rice, rather than farming define the political area.

Assignment

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Geertz argues that culture is a "system of symbols" and he defines a symbol as:

"words for the most part but also gestures, drawings, musical sounds, mechanical devices like clocks, or natural objects like jewels—anything, in fact, that is disengaged from its mere actuality and used to impose meaning upon experience." (45).

In observing social life around you during the week, identify **one food item that operates as a cultural symbol**, and then examine the meaning(s) underlying the symbol, and its social importance. Present your findings in a 1-2 slide Powerpoint presentation—that can include photos of what you observed, text discussion, or other visual analyses. Send these slides to me by Wednesday, February 6, 12 Midnight. Bring a copy to class as well.

Lecture Thursday

Thursday, February 7, 2019 4:40 PM

Humans are different. Different groups; differences between our society. But the question is, what are we supposed to do with that difference? How does it relate to what the human is?

One way of looking at human difference is through culture:
Latin *cultura, colere*
Colere = inhabit, cultivate, protect, honor with worship
Cult as in religious cult
Cultivate = plant, and animals. Analogy of how we cultivate plants and animals, and thinking about how we cultivate ourselves as human beings.

15c: English: culture = primary meaning = husbandry, the tending of natural growth, a process
18th, 19th century: culturing human minds

A good way to read that text:
Geertz's enemies
Enlightenment view of humanity
Classical anthropology's theory of culture, or, 'stratigraphic' approach
Cultural relativism

Enlightenment view: he was wholly of a piece with nature and shared in the general uniformity of composition which natural science, under Bacon's urging, and Newton's guidance, had discovered there.
However, image of a constant human nature independent of time, place and circumstance of studies and professions, transient fashions and temporary opinions, may be an illusoin.

This led to the rise of culture.
It is firm in the conviction that men modified by the customs of particular places do not exist. There is no 'real persons' lounging around in street clothes, disengaged from the parts they play.

Contrast that to Geertz: Talking about Balinese trance: They aren't peculiar, but that anthropology has attempted to find a way in which culture and the variability of culture would be taken into account rather than written off as caprice and prejudice.

Diversity of custom across time and over space is not a mere matter of garb and appearance, of stage settings and comedic masques.
Seek in culture patterns themselves the defining elements of a human existence, which, although not constant in expression, are yet distinctive in character

Tldr: enlightenment seeks to strip away culture to find the common man; Geertz seeks to use culture to explain human behavior
Classical 'stratigraphic' conception of relations:
As one analyzes man, one peels off layer after layer of levels underpinning each other.
Strip off the motley forms of culture and one finds structural and functional regularities of social organization
Below that; psychological factors: basic needs
Biological requirements below that

Advantage: "guaranteed the established academic disciplines their independence and sovereignty"

Cultural facts could be interpreted against the background of noncultural facts without dissolving them into that background.
'superimpose findings from the various relevant sciences -- anthropology, sociology, psychology, biology -- upon one another;
The man who appeared once he took his cultural costumes off -> hunt for universals in culture; for empirical uniformities that in the face of diversity of customs around the world," relate such universals, once found to the established constants of human biology, psychology, and social organization.

Geertz objections: dualism between empirically universal aspects of culture rooted in subcultural realities and empirically variable aspects not so rooted can be established and sustained

1. Universals proposed be susbstantial ones and not empty categories
    i. It cannot be. There is a logical conflict between asserting that say 'religion' are empirical universals and giving them very much in the way of specific content, for to say that they are empirical universals is to say they have the same content.
    ii. They are obviously not.
2. That they can be specifically grounded in particular biological, psychological, or sociological processes
    i. But there is more to it
    ii. Once culture, psyche, society, and organism have been converted into separate scientific levels, complete
3. Convincingly be defended as core elements in a definition of humanity in comparison with which the much more numerous cultural particularities are of clearly secondary importance.
4. No such generalizations that can be made about man as man.

Review by Lyle

1. Enlightenment view
    1. Born with immutable
    2. Human = not modified by different customs
    3. We see all these differences, these are masks that are false. Real humans do not need that masks
    4. We see humans being in different ways. These are just clothing on top of the human. That could be removed and you could find the real human
    5. Treats differences between people as being not incidental. The problem with that humans are modified by customs, there are no humans that aren't modified by customs.
    6. No 'backstage', where there is no place that we take off the culture to show that we are a human without culture.
2. There are different layers in the 'stratigraphic' theory of culture.
    1. Classical anthropology never really broke from anthropology
    2. Essentially, they have the same kind of biological cultures
    3. Different ways of culture are responding to different biological problems.
    4. They believe biological humans are complete, and that culture is an add-on
    5. Instead of culture developing after biology, but biology cultivated together with culture.
    6. They are trying to explain the differences in cultures in some core same problems that all humans face. Like we try to use the category religion. We can find a religion in every different culture. When we try to define what is religion. We can define that all religion, has some connection to after life. When you compare actual religions, you get into different kinds of beliefs.
    7. Is it really the same to think about reincarnation about heaven.

What is Geertz's proposal?

Stratigraphic Error: 'There is no such thing as a human nature independent of culture" (26). Like layers in a cake, you can't take away differences in culture, you can't find the common human nature underneath.

The evolution of the human

Traditional theory: humans developed biologically to complete homo sapiens. That enabled them to develop culture. The development of a full-brain, that was a precondition for the development of culture.

Current evolutionary evidence shows: development of the brain. We have some of the aspects of cultural traits, like tool use, family, language. People believe it's a co process. Use of tools led to change in natural selection process that lets the evolution of the brain.

Humans are different from animals. We are non-functional. It's not that you take away culture, and you have the simple verbal agreements? If you take away culture, humans can't function.

In a way, this is like a domestication process.

Humans have created cultural institutions that are kind of takeaway and replace the need for innate instinctive behaviors
We have learnt those behaviors, if we don't, we have a gap where we are non-functional.
Parable with finches. Wild birds sing the same songs and they are born able to develop the ability to sing that song. Domesticated birds don't sing that, they can sing any song that is taught to them.
They expanded their repertoir of different songs, but lost the ability to instinctively learn that one song. There are different ways of being, but we lost the innate ability to be in a certain way.

We have cultural symbols to shape our behavior. For example, building a home or dam. Beavers are born able to build dams. They don't have to be with their parents to build dams.
A lot of animals are able to build nests; the ability to have that behavior to do that structure.

We need to live in a shelter; we can't survive, but we have no innate ability to build a shelter. But we are able to build a wide range of different kinds of cultures. We can innovate new ways of building shelters. That ability to have that behavior: it has to have something that learns and shares. It is encoded in what he calls programs which are symbols.

The importance of symbols

"words for the most part but also gestures, drawings, musical sounds, mechanical devices like clocks, or natural objects like jewels -- anything, in fact that is disengaged from its mere actuality and used to impose meaning up on experience (24).

Most symbols are there before we are born, there after we die. They are public and shared.
Many of those symbols are from a long time ago, how does it become like a publicly shared symbol?

Contemporary pieces: invention of new symbols. Through the process of symbols, they are created in more ways. Convention established by an authority.

Memes? They keep creating them, our society now, there is a lot of creation of new symbols. Because of new media. Become something that people can relate to. Emojis. What is accepted meaning, what is not.

When we use symbols, we mobilize them in a way that can change some of the meaning

through the ways that they are used. There are accepted meaning, playing with the meaning leads to changes in the accepted meanings.

Evolutionary aspect: chicken and egg problem. Biology and culture are happening together. There must be some interplay. Ppl are still doing research on how language evolves. How the development of that holds. People are saying it's co-evolutionary process.

In terms of domestication processes, syndromes, dogs, when you take away some of the natural selection forces. Through the creation of cultural institutions that support our life. That's actually reading as to lose certain capacities. Changes our evolutionary processes. We are externalizing aspects of the traits and functions and behaviors that are needed for us to live; by changing the environmental conditions in which we live, our evolution changes.

Geertz says: we lose instinctive functions because we externalize them into things like hunting rules, or tools.
Think about food: how these symbols shape or govern behavior.
Did these symbols include some kind of behavior, about society.

Monday

Monday, February 11, 2019 4:49 PM

How do we typically think of environment?

Environment as a physical surrounding?

Natural environment? In our society, how we normally think about it?

Good environment vs Bad environment?

Protect the environment

Climate change

Natural Environment Agency?

On Image search, you get pictures like this:

Google associates pictures of the environment and it's pretty green.

Picture of UN and global environment: Tree on top of the globe.

That kind of environment that you see in UN Sustainable goals.

As we saw in the text, this Uxohall: there's something not quite right about the environment that we usually have.

Let's look at the environment of the tick.

In order to understand the different environment:

Three factors that it makes in response to perceptions?

The first one that he mentions is Butylic Acid? Which they can smell.

General sensitivity to light in the skin

Sense of heat

But they are blind and deaf.

What does the environment like for a tick?

Dark and cold. They don't have a nose. They can only sense this one particular smell.

Do ticks have the same environments as humans?

Ticks have a different perception compared to humans and thus perception figures differently in the environment.

By distinguishing two different concepts.

Surroundings (umbegung) and Environment (umwelt)

This is for a honey bee, but the pictures depicted show that the honey bee, in all of these stuff, that's in a field like flowers, grass, other insects, trees. But this is the environment of the honey bee. It's only the things that are recognizable to the perceptors of the Honey Bee.

Not only is a lot of things bracketed out; there's a crucial difference between flowers that has already bloomed (shapes) and buds that have not yet bloomed (X marks)

Umwelt -- surrounds (um) and world (welt)

All organisms having their own world. Whereas umbegung -- the objective space in which we see animals and their interactions.

Machine or machine operator?

He makes a distinction between organisms as a scientific study and a physical way of understanding.

"For the physiologist, every living thing is an object that is located in his human world. He investigates the organs of living things and the way they work together just as a technician would examine an unfamiliar machine. The biologist, on the other hand, takes into accounts that each and every living thing is a subject that lives in its own world, of which it is the center. It cannot therefore, be compared to a machine, only a machine operator who guides the machine"

In most physiologists, insects are treated as models of the machine.
His explanation on the whole process of the nerves.

Fairly convincing?
All the parts of the animal work just like a machine.
There's one big difference between machine and organisms? All the functional parts of the train, and a dog has functional parts that operate in the same way, they are biological, and they still have mechanical functions.
He is interested in relationship of organism to the object. He decntralized focus on organism as a machine, to a decentered focus to the relationship of organism to the environment. Those functional cycles -- interaction of the tick with the butylic acid in the environment.

He groups them into effect cells and perception cells, but that is different in a machine. There is some configuration in the organism that is different from machine; that it is different in the brain. He talks about some organisms that have higher brain function. The difference here is that machines have operators. That's why he phrases machines as operators. Trains function in the same ways as the dog, the dog is self-operating while the train is operated by someone.

Organisms have an operator whereas machines don't. That's true of a train, but some machines don't have operators. So possibly like autonomous machines, AI derived things, making his argument more blurry. In the original formulation, it makes sense. It talks about the parts of the organism, that they operate according to mechanical laws. The fact of life and operation and self-operation that things have seem to be different until recently.

He is more interested in the interaction with the environment than with the machine.
A lot of people argue that umbegung -> surrounding of the organism, rather than perceived environment, that's just the human environment. The problem that a lot of other life sciences have is that they extend their own vision of the environment as if this was the environment of other organisms.

If BG pairs, are we seeking the same functional needs? We will discuss of the intersection of culture with the environment because culture probably confuses the human interaction of the environment. But for this Uxohall guy, even the tick has this operator. It's strictly for us to see where that is. A machine has to have someone starting it, turning it on, but for organisms, it's all that inside.

Viruses? They don't have environment. They are limited by their perceptions.

How can we understand or study about the organisms when their forms of perception is so different from others.
How their environment is different? For whales, it's on the sides. They are looking at two different things at once.

The Challenge of studying or describing or representing the organisms. To what extent could humans access the environments of other organisms, or are we trapped within our own umwelt.
Different colored flowers? Dissecting the birds? Whether it's flowers or some other materials that stand for flowers, and the other example would be analyzing the structure of the organisms.
If we have tools, would we have this model of examining our environment? Though we can't be in the place of those animals, but we could use different mechanisms to figure out what their environment is.

"We begin such a stroll on a sunny day… make a bubble around each of the animals living in the meadow" All insects have their environment, contains the features respecting to that subject "previous surroundings of the subject are completely reconfigured. Many qualities of the colorful meadows vanish completely." You see the space in a different way of that organism. All of these

organisms are interacting altogether at the same time.

How would the environments interact?

Spider and the fly: the structure of the fly's eye is different, the web is so small that they can't tell the difference. They are interacting in terms of the perceptions of the environment in other organisms.

Thursday

Thursday, February 14, 2019 4:40 PM

Just darkness.

Concept of environment? Based on the different examples of environment that Uxehall delivers us:

Perceptors and effectors
You imagine the scene in a meadow. Each organism would have a bubble around it because each organism has its own effector of an effective environment.
It's this bubble of what the organism can interact with. That's going to be the surrounding around the organism. Those surroundings might be bigger in some, smaller in some, but it's still surroundings.

I started with this idea of the environment. Which is like nature, green stuff. The whole glow. It's understood as the environment. But there's something different.

The depiction of this difference between Ingold, where we can understand the environment as a life world (Uxehall) which surrounds us in terms of perception.
Or as a globe, where we survey. What you see is different in terms of the position of the organisms or humans in these two different environment.

By definition, you are always at the center of the environment. We are not part of it, we are outside it.

As a way to improve human-environment interactions?

When we think about what Uxehall was talking about to humans, we get into the question where human environments = non-human environments? Like for example, culture and technology.

Culture is best not seen as complexes of concrete behavior patterns -- customs, usages, traditions, habit clusters -- but as a set of control mechanisms -- plans, recipes, rules, instructions (what computer engineers call geeks)

Not stressing empirical commonalities in his behavior, but rather the mechanisms by whose agency the breadth and indeterminateness of his inherent capacities are reduced to the narrowness and specificity of his actual accomplishments

e.g. We have to eat food
But what we understand as palatable and good food, is widely variable.
Once you have some ideas about it, it's not so easy to shift and change.

We shouldn't trying to map cultures on geographic areas or African cultures, Chinese cultures. That's the way we're trying to move away from. All Chinese people behaved in the same way -> That's chinese culture.

Human Behavior

What are the ways in which cultural artefacts govern behavior as a control mechanism.

Something like this:

Cultural symbols.

We learn models of how to live, and that guides how we act. And there is a feedback loop.
In another text, models of and models for. Models of our behavior, but also models for how we should have.

Non-human behavior

Governed by perception and effect marks.

Von Uexkull: signs and marks, perceptions and effects

What is similar and different about human and non-human organism-environment interactions?

Geertz: a symbol is "words for the most part but also gestures, drawings, musical sounds, mechanical devices like clocks, or natural objects like jewels -- anything, in fact, that is disengaged from its mere actuality and used to impose meaning upon existence.

One way we can think about this broadly:

Understood as information communication systems.

Another theory about signs that can encompass the way that we use symbols that is different from non-humans. It enables us to bring about specific behavioral environments

Charles Sanders Peirce: -> He invented the study of Signs (Semiotics) == The idea of sign is much broader than a board, it is a signal of information. "Something which stands to somebody for something in some respect or capacity"

1. Icon
2. Index
3. Symbol

Anything that communicates some kind of information to somebody else.
He distinguishes between different types of signs.
Iconic signs, indexical signs, symbolic signs. Which is not what Geertz describes.

Definition of an Icon

1. Resemblance, likeness.
2. Isomorphic to the limit of identical The reproduction of the same thing
3. Requires 'forgetting' or 'ignoring' of aspects of non-identity
    a. Disabled sign resembles that person
    b. That resemblance is only very partial, it's a lot different from handicapped person
    c. To read it, we forget all the ways it does not resemble the idea. Like not blind, not walking stick.
    d. Read the similarity to something.

    e. Ignore the way it's not similar.
4. Words like 'buzz', 猫

Indexical sign definition

1. Literally 'pointing' towards something
2. 'whose relation to their objects consists in a correspondence in 'fact'
3. There's some connection to the two things, that allows you to see it as something
4. Weathercock_ the way that a wind blows: It turns this in the direction, allowing you to read the direction that the wind is coming from as being behind it.

When you see smoke, it means that's fire.
Signs don't need to be human cause. Smoke is a sign of fire.
It's an indexical sign because it does not resemble fire, it's connected causically to the fire.

Symbol

1. Arbitrary relation to reference
2. Conventional within community
3. "refer to the object indirectly by virtue of the ways in which they relate systematically to other such symbols
4. It's a highly signed form of signifying them.
5. The words like "sheep" or "capitalism"
6. It is arbitrary, there's no relationship. That word got designated to mean sheep. Or capitalism is a more abstract center.

The word in a language may not be reference directly, but relation to other words.

In French: We have the word sheep.
In French they have the word Mouton. We also have the word Mutton. For them it means the same word. The meat = the animal while English divides the words into two.

The reference of this word is not in relationship to what it depicts, and depends on other words in the language that take up other space.

If you think of a word in that language, but in another language, there's another word that comes in the same area.

There are some words that are not just symbols, but icons like buzz. Buzz: A bee buzzes. The word is related to the certain word.

Icons: No smoking sign in the subway.
Chinese characters like mountain. That raises a good point: signs don't necessary have one aspect. When Pierce was talking about this, he has this order. It has this increasing complexity of the way signs work. This level of symbol have to be built on the other levels of symbol. Chinese characters are a good example. Like the character for mountain, but operating symbolically and within the linguistic system. So it has this symbnolic reference.

Iconic signs are the most straightforward.

Emojis? It's an iconic emoji. When we go that to the sign. Why did you think about the emoji

Black clouds would lead to rain.
Tissue paper -> Chope! Indexes preference. Or someone who places their umbrella down on the table.
Not always referring to directional things. Through some kind of material and causal relationship? This thing I am looking at refers to other things. Rain or Storm.
Arrows are indexes?

Whether we read something as a sign, is not an inherent aspect of an image or sign.
If you're able to understand what I mean, it's not because of the symbolic aspect.
If you see an actual human bone, then you know it's something dangerous.
The way numbers look have no relationship to their value.

Hieroglyphs? Icons + symbols. But they are mobilized in one way. Chinese words are symbolic, but the relationship between the two is iconic.

Turkey: Indexical _> Points towards something in the past. But US think it's real. We see turkey and it stands for that event.

Fireworks for celebration for war?

What we call cuts of meat are variable from culture or tradition from one place to another. You can talk about those symbolic.

The same piece of the animal has a very different name in America or in France.
How we read signs are not necesasrily inherent. It becomes established over time. Semiotic ideology. We are trained through power relations. Told to read things traditionally. A good example of this that shows how arbitrary it is: If you seen the color red. In Chinese, prosperity. Western tradition? Red is associated with blood. So stop signs are red. Those relationships are iconic, but go in another direction. That is arbitrary.

Then it has interesting consequences.
Taxis are red and green when they are booked.

Food taboos:
Cows? In India
Dogs? Don't eat them? Tell Guangdong!

What's the difference between human and non-human environment?

In terms of the issues of science, what people are talking about in this area, is that Animals utilize iconic and indexical signs in their interaction with the environment? Probably humans use symbolic forms of signs.

If we go back to the Tick example, you can see it in the tick's interaction
Butylic acid -> indexical sign.
Uniquely assigned to species. The smell that is perceived is linked positively to the animal producing it.

Warmth and butylic acid are indexical signs for the tick.

All living organisms use iconic and indexical but only humans use symbolic signs
That could be significant to how differently we interact with our environments.

Monday

Monday, February 18, 2019 4:41 PM

Some of the things people don't eat can be explained by the fact that these are not digestible. We don't have the right kind of stomachs for it. But that doesn't mean some of the things that we don't eat. For example, insects, some people don't eat insects.

So in the Introduction to the book (10 different chapters about puzzles) "Why are human food ways so diverse? Can anthropologists explain why specific food preferences and avoidances are found in one culture and not in another?"

Last week, we were looking at different kinds of symbols and signs. Humans are specific to other kinds of animals. People use symbols as a reference. Martin Harrison is not into symbols.
"For my part, I do not wish to deny that foods convey messages and have symbolic meanings. But which came first, the messages and meanings or the preferences and aversions?"

"I hold that whether they are good or bad to think depends on whether they are good or bad to eat. Food must nourish the collective stomach before it can feed the collective mind". Is the meaning an add-on? Which came first?

Hypothesis 1: Nutritional Adequacy
The human cuisine that we have, are actually a consequence of nutritional adds. The biological needs we have.
Did gastronomic traditions and food cultures develop to meet nutritional needs? Can we explain the foods that we eat, are the reasons that they are there, because of nutrition?

One Pattern: the core-fringe hypothesis
Chinese meal: Rice (Fan) + (dishes/vegetables)Cai.
Cai is known as relish. There's a core staple food that's grains, or tubers, or corns. Forms the core and add on are fringe elements that are small side dishes. For example, the pizza, margharita, can be the same phenomena. 80% is the wheat dough of the pizza.
Can we explain that pattern as being nutritional needs? Is that the reason why we have that pattern?

This was the method to explore if this could be an explanation

1. Start with standard for daily allowances of nutrients (here, young adult men standard)
2. Calculate nutrients in each component of the diet
3. Assume that Core = 2/3 of calories (here 1650 kcalout of 2500)
4. 1/3 (850) = 850 'fringe'

This is with wheat as a core. Meets this nutritional needs? Wheat doesn't have Vitamin C and Vitamin A, protein is met by eating all the grains.

By doing that, you make up most of the Vitamin A, and C, but not so much of the calcium once you add in the Grains + Fringe.

Fringe - 150 g of leafy vegetables

The percentages met by: corn is slightly different in the nutrients it provides.
But here's the case? We see that since it meets nutrition needs, how do we arrive on this nutritional elements. How does it know what the human body needs without a tests?

If you have this core diet, imagine you are a farmer, and you eat the grain. That will fill you up, but you're missing these necessary nutrients.
If we can think of cuisines that have this supplementing of grains with leafy vegetables. We don't understand why people thought it was nutritionally adequate. This is some kind of supporting evidence because it shows that the core fringe pattern achieves a balance. And that the fringe dishes are specifically compensating for what's missing in the core dishes.

There's some specificity for what people eat at core dishes to compensate.

Then you look at Tubers. Which is like potato, yam. What is missing from tubers as a core? Vitamin C is there, but Vitamin A and Calcium. So she looks at some European societies that ate potatoes instead of wheat. And what they eat with potatoes? They ate cheese. So you have dishes like boiled potatoes with cream and cheese on it.

Evidence that when you shift the core, you shift the fringe that accompanies it. People are quite resistant to switching the core that they eat. Through some processes of Globalization and grain to substitute for tubers. And people are resisting to these staples, because that would mean switching different parts of the cuisine automatically.

When you see that these meals meet this, they tend to be more traditional.
What do you think could explain how this developed.
People did nutritional research. Laboratory experiments.

Why do you think people choose core-fringe? Maybe trial and error? Or maybe individual: how people developed cultural cuisines?
Taste and nutritional content.
What do the fringe dishes tend to be like? They are strong in flavour? Cores are very bland. So there's an interesting taste balance? Is there correlation between table.

The emergence of this core-fringe pattern is not just for nutritional reasons. The shift to settled agriculture focused on monocropping and single grain. This was not just done for nutritional reasons. There was social-political reasons. There was a process that led to the shift from hunting and gathering to a specific grain cuisine.

Hypothesis 2: Environmental Advantage.
Why we eat or don't eat foods? Not just about nutritional adequacies.
Marvin Harris; cultural materialism, Became very controversial.

"Preferred foods (good to eat) are foods that have a more favorable balance of practical benefits over costs than foods that are avoided (bad to eat)" Marvin Harris "Good to eat or good to think?"

Nutritional cost and benefits
Time and effort to produce
Adverse effects on soils, animal and plant life and environment

"Ecological restraints and opportunities which differ from one region to another."
At a broad level, we can look between herders and cultivations.
They tend to be low density populations, lands not suitable for agriculture. Those people have cuisines are high in meat eating.

Agrarian civilizations like this have high density populations, available water for crop cultivation, and low meat consumption.

Food Prohibitions: Between Hinduism and Buddhism.
Because at the outset, seems like this is all lost in nutrition, not a benefit? What exactly is his argument emerge?

1. Cows give out a lot more
    a. Dung- Fertilizers
    b. More valuable economically alive than dead (Meat vs milk, calves)
    c. Better as a driver for plough than other species (due to Indian soil)
    d. Promoted by the ruling class
    e. Execution of cows by other races (only possible if heterogenous)
    f. Buddhism failed because it did not accommodate for tastes
    g. Feeding is cheaper than using technology (tractors)
    h. Protect the poorest of the landholding class

The origin of these prohibitions can be found in some economic, ecological needs of the society. The value of cattle for agriculture production of cattle is higher than for the meat of cattle.
It's different, but still trying to make a material argument for why people eat.

What do you think Harris more generally saying about the relationship between culture and material environment?
Material needs give rise to culture.
He tries to apply to many food prohibitions.

Lyle: Fairly simplistic argument, linking subsistence needs to values and beliefs.

When you have practices that to one culture seem not nice, or barbaric, but to another culture, they don't deal with it as the case. Animal rights, often have specific groups that value those things.

Dogs is a great example. Why Americans are so obsessed with dogs? The argument is: against Marvin Harris. Why the Americans have an obsession with loving and protecting dogs have nothing to do with material.

Thursday

Thursday, February 21, 2019 4:34 PM

Why do we eat rice?

Both of those could be broadened under a theory called cultural materialism, which attempts to understand beliefs, traits, based on material roots or needs, like nutritional needs or environmental advantages.
Why do we eat rice? How can we use that hypothesis to explain?

"Rice always arrived to stay" -- Francesca Bray, the Rice Economies
When rice spread to certain areas in Asia, it almost always arrived to stay.
People in different parts of Asia didn't keep rice originally, but rice replaced other staple foods such as millet, wheat, taro and other things like that.
And also another interesting one-> sago?

Why do so many Asian societies eat rice as a staple food?
Consult the reading from week 1 --> The rice plant
Consider both the nutritional adequacy or environmental advantage --> hypothesize
Which makes the most sense?
What evidence can you draw on to support the hypothesis?

What's environmental advantage?
Nutritional adequacy -> Core-fringe patterns -> not covered in core in terms of nutritional needs is supplemented in the fringe.
Cheese and potato vs Chinese cuisine to demonstrate this hypothesis.
The fringes tend to be things like green vegetables to cover the lack of vitamin A and C
If you were to switch the core -> it has a lot of Vitamin C, people tend to eat potatoes with cheese which fulfills the need for Vitamin A but not for Vitamin C.
The test case -> pattern of eating can be explained. The reason why people eat in that pattern is because of the nutritional balance.
The more general argument is that we eat what we eat because it fulfills nutritional needs

We eat to become full so we are not hungry anymore.
What's remarkable is that the older cuisines from different parts of the world that patterned this food met the core needs.

Environmental advantage -> We were looking at why Hindus made the cow sacred. So there was a prohibition on cattle consumption and slaughter.
Cows are needed for farming work.
Why not prohibition on horses? Because this kind of cattle is suited to that environment
    Rise in population
There's an environmental context.
The amount of nutritional food that comes out of cattle takes more in consumption of grain to feed the cow, then from getting the grain on its own.
    Arbitrarily, you can get 2 meals out of the cow, but the amount of grain to derive is 10 meals.
    Lifestock is not as efficient use of resources compared to agrarian/crops.
Cattle vs tractors -> except for very large farmers
    You can constantly hear about the desire to improve the technology of farming
    Where farms are small, it's not as efficient to use tractors. -. Capital cost of the tractors is pretty high.
Practical aspect of it?
    The different areas, and thus the different kinds.
    There are some practical needs that are derived from the specific environment.
    Costs and benefits associated with environmental conditions led to the prohibition on eating them.

Herders - eat large amounts of meat
Settled farming cultures -eg. China and Java -> eat less meat
The explanation?
    Herders -> deserts and mountains are suited for livestock but not crops
    Cultivation -> Advantage in greater density of population from eating more grain than raising animals

What is some evidence for rice being suitable?
- Can grow in wide varieties of environments
- Can tailor to the environment
    - Use the diversity of the rice to adapt to the environments
- High-yielding, can support rice.
- Have a longer shelf life compared to potatoes
- Rice as tribute
    - Twice per year etc
    - Easy to tax them to grow rice rather than underground tubers
    - Like mixed forest environments? Difficult to tell how much you are growing there
- Politics? Not strictly about the environment advantage
- Soil fertility -> It doesn't need to have animal dung / compost

Nutritional
- Eat very little, and get a lot of energy out of it
- Some of the mountain dwellers prefer higher-starch content. Glutinous rice. Choosing which variety of rice to produce.
- White Rice -> Why people prefer?

People prefer white rice although it's not better at any nutritional level.
- Rice tastes better?
- Brought up tasting rice
- Addresses issue of luxury --> Edo
- Does not meet nutritional adequacy
- This is briefly mentioned -> Rice polisher -> First commercial rice polisher patented by Samson Moore (1861).
- Traditional ways of creating rice would not be as white as this now.
- The whiteness of the rice came from this polishers.

People were eating rice, and this led to beri beri
- On one hand, people weren't eating the fringe, because not enough money
- On the other hand, unpolished rice, it has the bran still attached, and that would meet their needs, but with polished rice, it no longer was.
- They found out when you remove the rice grains,
- 1890s -> research make empirical connection between polished rice and beri beri
- 1901: Gerrit Grijns (Netherlands East indies) -> hypothesis that removal of outer bran contains essential nutrient
- 1926: Dutch researchers isolate and crystallize the active agent
- 1934: Americans name the agent, Thiamine

Choose an item of food culture: a dish, a food tradition, or a food prohibition. In this short paper, your aim is to explain the content and form of this item of food culture. You must explore both the material content and context and the cultural symbolism, signs and meanings associated with the item of food culture.

What hypothesis best explains why people eat (or don't eat) this item of food culture

Answering this question will require:
1) Conducting some research : for example, finding out what this dish is made of, its nutritional qualities, its sources, how the food is produced; also cultural ideas, symbols, values that are associated with this item of food culture, how it is eaten, who eats it.

This research can also include: reading sources such as texts or newspapers , asking people (e.g. vendors at wet market chefs, etc.) and participant observation (eating the dish)

2) Engaging with some of the theoretical hypotheses put forward in the readings thus far, especially in Week 4 and Week 5.

Paper should be minimum 2 and maximum 4 pages, single-spaced, normal (1" margins)
Due Friday, March 15
Submit via Edimension

Warning: Answering it tastes good is not sufficient.

I'm going to put Pizza.

Both of these arguments show that food cuisine is shaped by cultural and environment needs, but there are some food that are not shaped by material needs at all.

Thursday

Thursday, February 28, 2019 4:40 PM

"Humans do not merely 'survive'. They survive in a definite way".
Cultural materialism -> broader adaptation to an environment or society survival

But Sahlin disagrees-> not just the fact that we survive, but we have to study what people do with food, and it's not just about our survival.

This is a picture of an American Meal. What about this meal sort of goes against, or refutes this hypothesis that we were looking at last week.

Core fringe? This core fringe pattern which is common to many different societies.
Core seems to be this large steak, and the potatoes would be the fringe.
Why might that be a problem for nutritional needs?
This is lacking in vitamins because it's a tiny amount of vegetable, and vast amounts of protein.

You see in the US that people are eating patterns of food that does not meet nutritional needs. In fact, they are not healthy.
The number of calories you need to survive as a human, is a lot smaller than what the average American eats.

So we turn back to Marshall Sahlins, in discussing food taboos.
"the tabu on horses and dogs thus renders unthinkable the consumption of a set of animals whose production is practically feasible and which are nutritionally not to be despised."

Americans, he says, are really disturbed by the idea of eating dogs, and they are pretty unlikely to eat horse, but they see it as more potential. So he tries to argue that based on the social closedness. We use the example of kinship. How does he try to demonstrate this close relationship to dogs and horses.

They name their dogs. And the dogs are part of their family. It's not right to eat someone you introduce yourself to. They are spoken to, they have names, and they go into the house. They go onto chairs and people's beds, and this creates a kinship-like relationship.

What about horses-> horses are slightly less closed.

Then there's the category of the edible animals -> pigs and cattle are edible, but horses and dogs are not. Cattle is preferred over pigs.

How does this challenge the two hypothesis from last week? We have nutritional adequacy?
- It's all meat. All of these are equally good as resources.

Environmental advantage
- We defined that as how the society is able to adapt to an environment that efficiently uses resources
- The argument -> prohibition of consumption of cattle in India. Why was that prohibition? To the environmental advantage of society
- It was more economical and efficient to use cattle as labor than to use cattle as meat.
- You can have a larger population for the same amount of basic gradient if you use cattle for labor and dairy rather than for using meat.
- Keeping a pet costs a lot -> cost benefit analysis -> They are not doing any work, and they are fed, you have to provide resources to them. Yet they are not providing meat and flavor
- Cattle is the most inefficient for raising, because you need huge amount of land and space as

compared to chickens and pigs that raise in confined spaces, yet the cattle is much more preferred.

If we think about it? American food taboos, what would you say is his hypothesis is why people would eat what they eat.
People eat what is popular. Something that the rest of societies also consume.
Something that possesses desirable characteristics
Societal elements -> like religion.

We can get behind that. Like last week, Hindu religion? Could be explained by the fact that it was necessary for survival, and environmental advantage.
If he is arguing against the previous two? What is he putting in this place, that we refuse to eat dogs.
It's more like emotional relationship with the food.

There's a symbolic association. Cultural vs symbolic relationship that is formed by society, which is arbitrary, that these ideas are something that emerged in the society or culture, that does not have its roots in material needs for survival, either nutritionally or environmentally.

Because of those symbolic associations, you have emotional investments in dogs or in cattle. That's why religion has certain kind of values.

Let's get a clear idea of what that means? Which is about eating Rice in Japan.
How food could be a symbol of group identity, but more broadly, that food comes in symbolic associations.
Ehniko-Tierney : "A staple food is indeed a powerful and evocative symbol of the collective self of a people" -> These food items come to symbolize the difference between the groups.
Pasta -> Italian
Fast food is American

In Japan, they think of Japanese Rice vs Chinese Rice, short-grain vs long-grain.

The idea of symbolic equivalence. What do you think that means?
There's a reason why they choose the staple?
They would say it's very white, so the ideal is really bright. Imagine them like pearls (zhen zhu mi)
That's a symbolic equivalence. Why they think about rice standing for the Japanese people, so they can have associations between quality of rice and quality of the people.

The idea of symbol and itself could mean something that stands for something?

For example, we could say that rice = Japanese people
That means that rice is a symbol for the Japanese people, so you can make this equivalence between them.

How is equivalence made?

1. Diagram the symbolic equivalents of rice in Japan
    a. Jinmu Emperor, the so-called "first emperor is the son of the grain soul or the grandson of the Sun Goddess
    b. Deity of the Rice Paddy -> only peaceful soul. The drought is caused by Water Deity, not by him.
        i. So it looks like it's peaceful
    c. Rice paddies represent our land and the primordial Japanese identity, uncontaminated by modernity and foreign influences as represented by the city.
    d. Transition of seasonal cycles
    e. The most important characteristics are the related qualities of luster, purity and whiteness.

    a. Rice being associated with money
    b. Rice fields = traditional, agrarian Japan
    c. Different stages of what the rice represents.

d. Rice as Japan's self identity
e. Rice as togetherness, as it is the only thing represented

2. What ensures that the equivalents are read or understood as equivalent.
    a. Japanese imperial rituals are all about rice -- planting to harvesting rituals.
    b. Sake rice wine -> People take turns pouring sake into one another's cups in a never-ending series. Drinking alone is shamed.
    c. Art being made.

E.g. -> We can see rice eaten as togetherness, but we can also ask, how does that symbol is expressed > Rice is put in one bowl, and it would be shared among the family members.
The rice bowl expresses a symbolic relationship between rice and togetherness.
Rice is represented as money -> rice stalks are golden in color, so it represents money.
Rice fields = traditional Japan due to the difference in landscape. Artwork from Hokusai.

When we looked at the difference between icons vs index vs symbol.
Icons -> the icon, the gold color, provides equivalence
Index -> agrarian rice fields in Japan. There's also a real connection that is the basis for that symbolic representation.
Symbolic -> rays of the sun goddess? Any plant would be eating rays of the sun goddess.

One of the interesting understanding of symbolic anthropology -> these are interrelated to each other.
In the text, we see how each symbol reinforces the symbolic relationships, add different kind of depths and relationships to it.

Rice = money = Japanese people = togetherness
You're not saying that Rice represents Japanese people. And this money one -> sets up contradiction between source of corruption, and not about togetherness. It means that it stands for pure money in opposition to other kinds of money.

Now we go back to Sahlins' case. That's this arbitrary cultural symbolic associations.
In this case, looking at Japan, we've shown how those symbolic associations are formed. Why rice, a food in Japan, has developed symbolic associations that developed through cultural history, they are not founded in nutritional advantages to eating rice.

Symbols = tenuous, no basis. Just a common association

Rice as a symbol of the king to people.
People coming in to collect the seeds afterwards.

Hypothesis 3:
Rice symbols in Singapore

Identify our food practice, tradition, ritual or idea in which rice is made a symbolic equivalent of something else.
That pimple story

Culinary triangle -> structuralism
The phonemes have a fundamental structure which is true of all.
Sounds like a, u, i, or k, p t.

These are basic phonemic oppositions.
If you think about sounds itself. It's just a continuum possibility of sounds.
We have to make distinguishments between different phonemes
Sound has to be made into distinct components, breaking apart sounds, is the precondition to have language.

We can do the same thing with food. Food cultures are completely different.

We are looking at what is called the culinary triangle. These are the fundamental conditions in food. Raw, cooked rotted. They will have this opposition between cooked.

Then roasted is closer to the side of raw side of cooking. While boiled is more like rotten.
Roasted is an interruption of fire.
If you roast something, you must have fire.
When you make soup, the nutrients tend to go into the soup. The disintegration, the texture of these things wither and mixes them all together. Whereas roasting, like grilling, kind of pushes these things interchangeably. Often, the inside is actually raw.

If you ever grilled vegetables, you can peel it off, and getting it raw in the middle.
Pot purri-> a rotten pot. "meat rotted from cooking"

So maybe outside in rather than inside out for cooked.

In America, men grilling outside, and the woman baking. But this was the iconic version of gender, it was associated with different kinds of Gender.
In two different occasions -> BBQ and Hotpot. Hotpot is more intimate, gathering around the people with others and friends. Hotpot is boiled BBQ would be roasted.

Boiled is cooked within a reptacle, and roasted is out.
Boiled is endo cuisine -> to a small group
Roasted -> offers to guests.

Monday

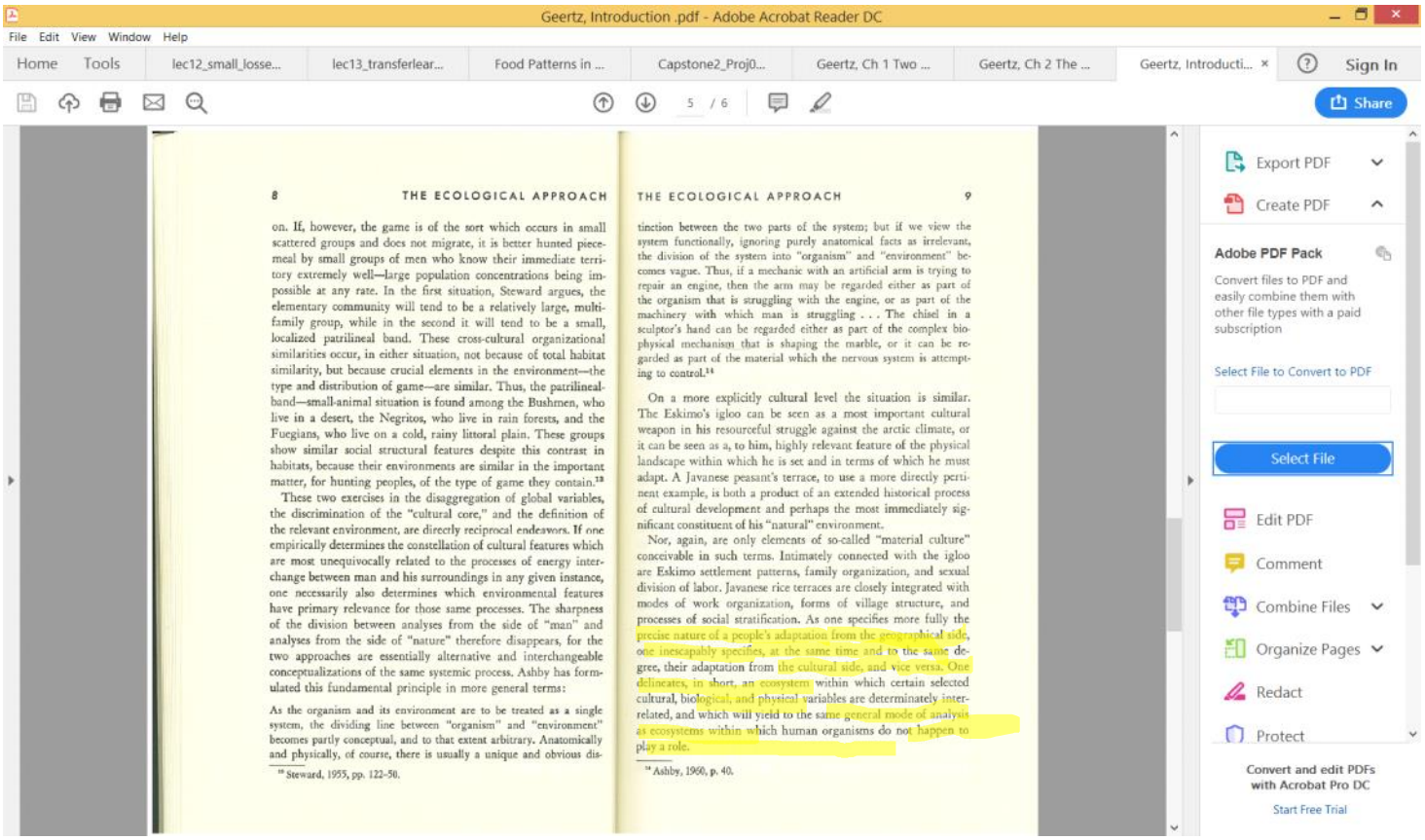
Monday, March 4, 2019 4:38 PM

1) What does Geertz think is wrong with 'traditional approaches' to human - env relationships

Personally -> Limitations exist due to geographic factors being a focus, and artificially dividing the man and nature into two different spheres and trying to analyze the relationship between the two.

However, the ecological approach has one big system and these two are players.

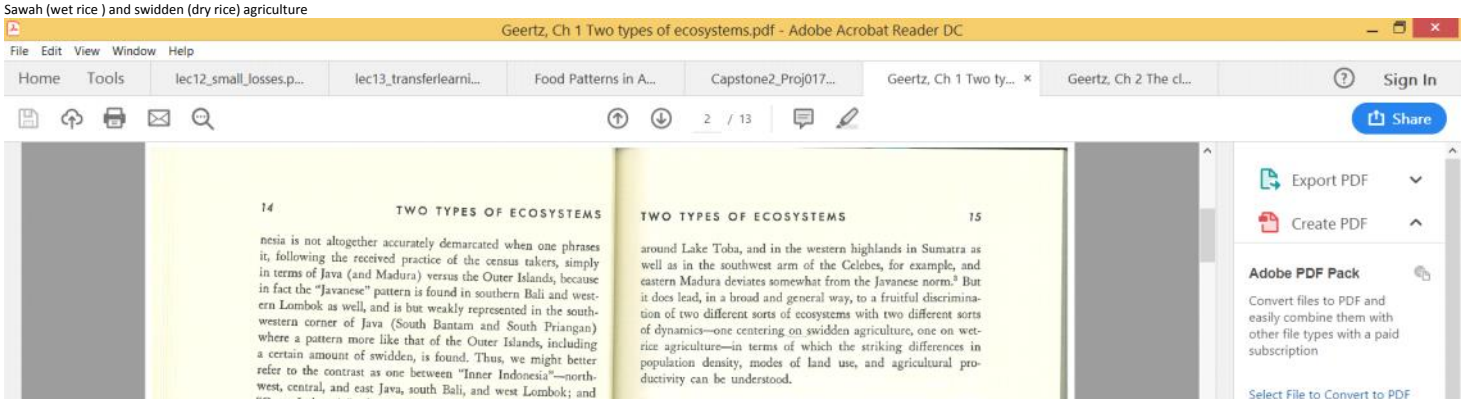
A) Environmental Determinism -> traditional approach to understanding human cultures and relationships in the natural environment.
   a. It argues that some aspect of the environment shape the human cultures.
   b. The environmental conditions of India led the cow to be chosen as the sacred animal because that was necessary for persistenc e.
B) Possibilism -> boundary or setting of limits in environment on human cultures, but doesn't determine what human culture does.
   a. Corn/Rice can only grow in certain kinds of climates, therefore, society that grows rice in this kind of climate.
   b. But doesn't mean that in that kind of climate, you would definitely grow rice.
C) Both separate the man from the natural processes? It questions how these two independent spheres are related to each other, rather than trying to question the system as a role
   a. Way of asking a question is the problem. The whole way of asking the relationship between natural environment and human cultu re
   b. Setting them up is human culture here. Trying to understand the relationship, like environment determines culture, but sets l imits on the culture. That's starting with these things that's separate. Interesting to see that they are analyzed as one system.
   c. Talking about an ecological approach -> analyzing as one interactive system, aspects of environment and aspects of culture.
2) How does an 'ecological' approach differs from these two traditional approaches?
A) Trying to use that idea of ecology in anthropology -> how humans actually fit into ecosystems
   a. The term oekologie was coined by Ernest Haeckel
      i. The economy, the household of animal organisms
   b. Relationship between organisms and environment
   c. Material interdependencies among group of organisms which form a community and the relvant features of the setting in which t hey are found
      i. A patterned interchange of energy
B) How do we put humans into the future? Not just biological, but also culture elements?
C) Analyzing how that maintains and balances -> achieves that.
   a. What is he looking for when presenting these examples? What is Geertz describing?
      It's about the dynamical interactions between the different actors, it's a system analysis rather than looking at one thing determining another.
   b. A kind of corollary of that -> what you end up with is not a big theory about environment determines human cultures all the time. That's like a big theory between relationship and environment
   c. Analyze patterns of interactions in specific situations. A pattern of the interactions in a system involving humans and the n atural environment.
   d. The goal of this is quite different.
D) You can study this kind of patterns, and develop certain predictions and models, understanding how things relate to each other within a system rather than these abstract theories.

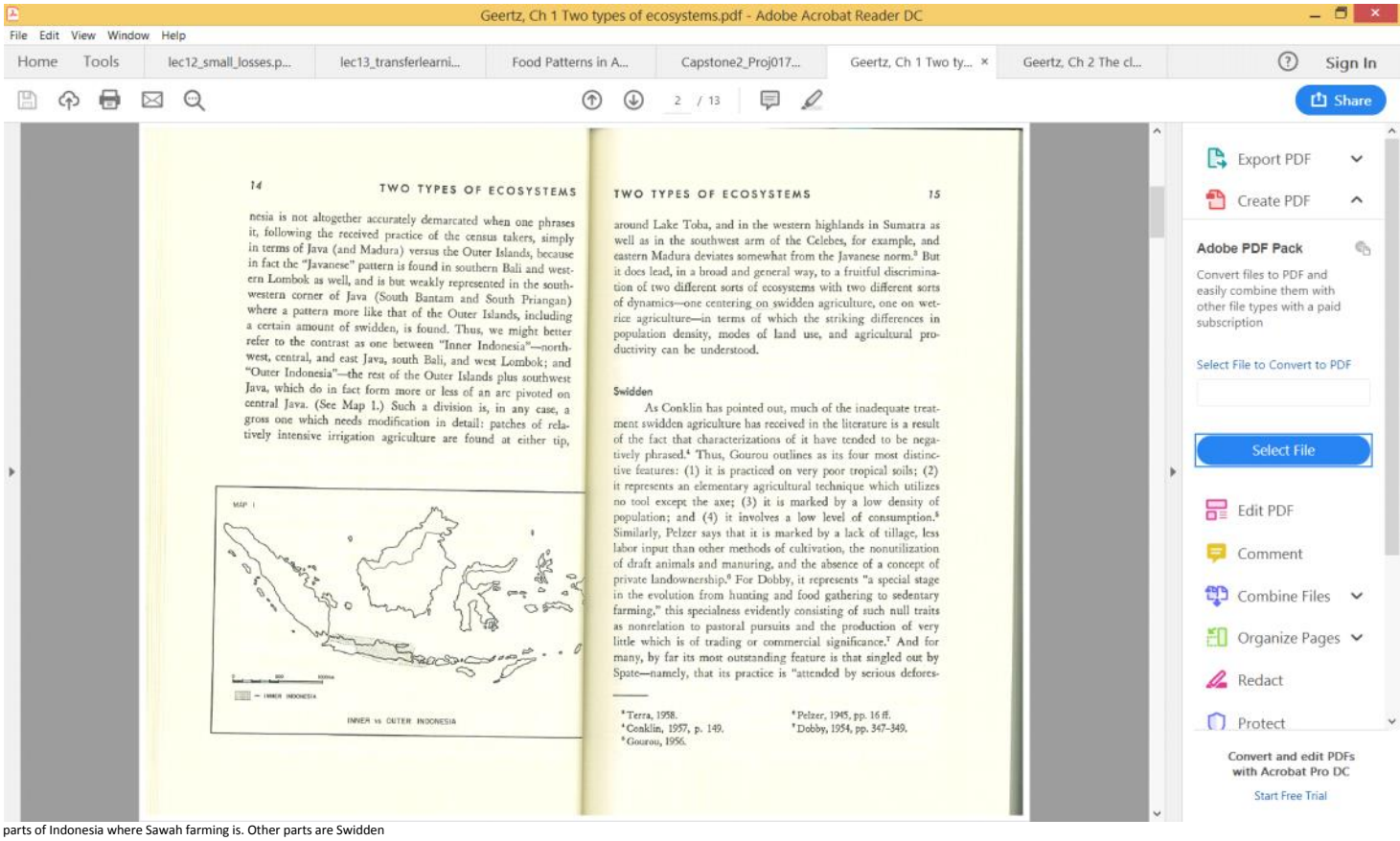


It's not obvious where you draw the line between humans and the environment.
Rice terrace is both a development of culture (i.e. determining the best shape) and physical development (in terms of how he has shaped the land)

Mapped the patterns of interactions between the systematic relationships.

In the next chapter, he looks at Indonesia -> rice farming in Indonesia and two different ecosystems.
Two types of ecosystems -> two patterns of interactions
Sawah (wet rice) and swidden (dry rice) agriculture





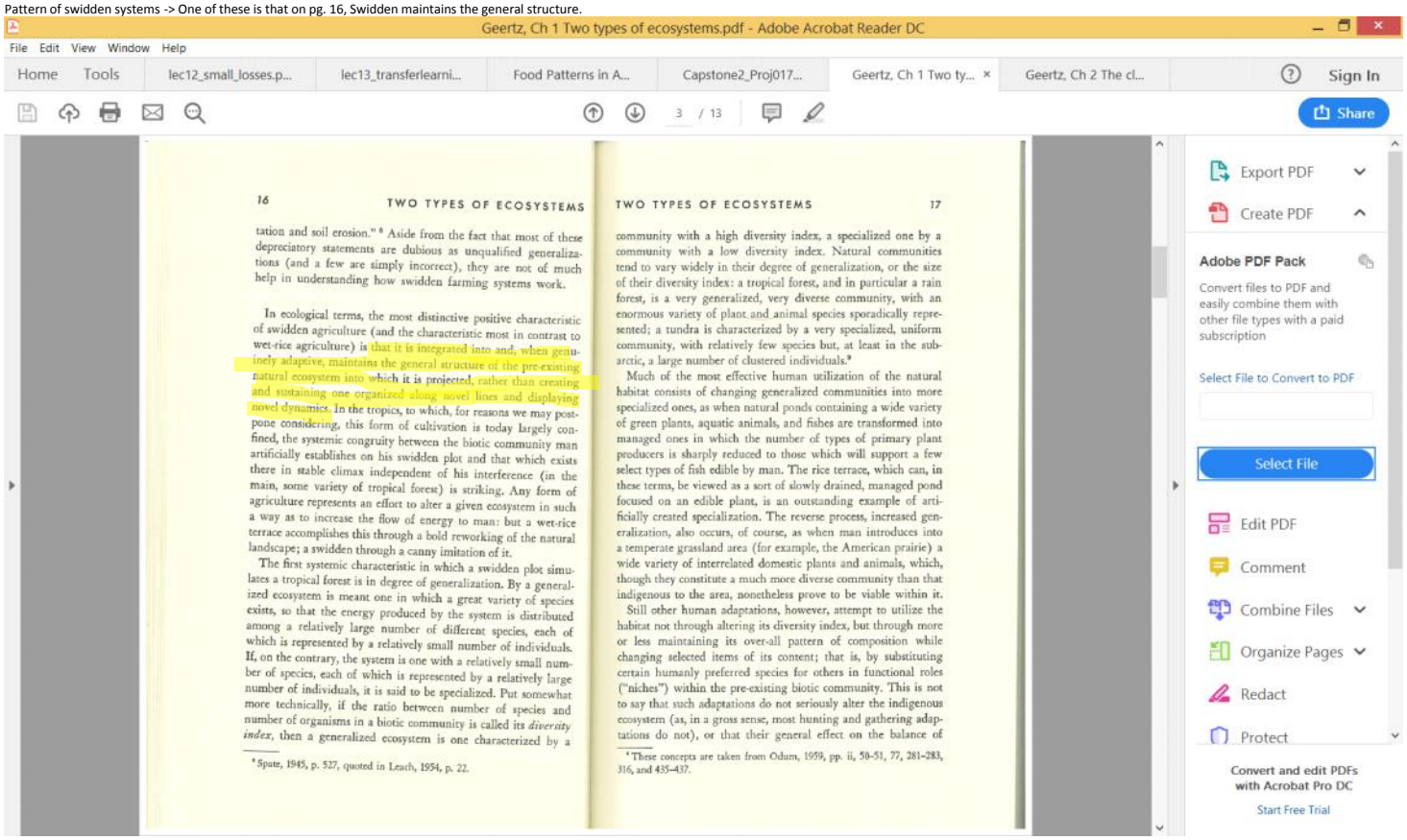
Inner parts of Indonesia where Sawah farming is. Other parts are Swidden

Swidden -> burn crops -> ashes are absorbed as nutrients-> Farmers want to grow rice faster
When you burn the vegetation -> energy is lost out of the system.

What is the role of humans? In burning? -> energy is lost in the system -> is it sustainable or not sustainable -> The crops won't grow as much as possible -> rapid transfer of energy from forest at large to the top soil -> crops that grow not just rice. -

It depends on population -> Slash and burn swidden -> shifting agriculture -> When a new field is cleared, it's done like this -> burn the forest to turn to agricultural area -> loss of energy from the system -> crops won't grow as well -> groups move to a new site -> after a certain number of years, they eventually return back to the original place. It's sustainable if they have a low pop ulation, and if you leave it for along enough in the fallow period and don't return too quickly (which is not only dependent on population)

Pattern of swidden systems -> One of these is that on pg. 16, Swidden maintains the general structure.



It's same system as general decomposition -> it's been sped up.

Diversity index of the plants is high, which is similar to pre-existing rainforest -> described as imitation of a rainforest

It's same system as general decomposition -> it's been sped up.

Diversity index of the plants is high, which is similar to pre -existing rainforest -> described as imitation of a rainforest.
They have different crops -> similar in the natural rainforest.

Energy used up quicker -> because of runoff, smoke and heat.
The soil is not very fertile in rainforest areas to begin with.

Sawah -> different ecological pattern -> Ecological system 0> the water from the irrigation system enriches -> Will go to the plants -> nitrogen nutrients and algae that will feed them. -> it's monocrop. Very low diversity index, compared to swidden.
It's water, and the water is the source of all these nutrients that enrich the soil.
Larger population would need more rice -> swidden will lead to degradation of the environment, and possibly loss of the ability to survive.
Sawah-> sustain a higher density of population -> work the land much harder given the same amount of space, as opposed to swidden if it is overworked.

The increase in population does not lead to negative feedback (because of consumption) but more labour input to the same spac e of land, which leads to more population.
Able to support dense populations, without having loss of productivity of the soil and the rice. You can increase the labour, increase the input, output of the rice would then increase.

Monday

Monday, March 18, 2019 4:45 PM

Inner Indonesia -> Swidden
Outer Indonesia -> Sawah

What is the major differences in the patterns of fighting between swidden and sawah.
Sawah
-> Lower diversity, basically a monocrop of just rice
-> Relies on water irrigation
-> Supports high density population.
-> Fixed fields
-> more destructive to the natural habitat
-> It actually retains energy.

Swidden
-> high diversity of crops -> swidden farms are not only growing rice but growing a large range of crops
-> imitation of a rainforest -> Rainforest as compared to plain or a meadow -> A rainforest has a huge diversity of plants.
-> Swidden farming mimics that. It's an imitation of the rainforest.
-> Shifting cultivation
-> supports a lower density population
-> tries to weave itself between
-> planting a lot of crops, keeping plants that were pre-existing in the field.
-> Energy is used up quickly.

If I were to ask you what is the dynamics of change between the ecosystems -> What kind of process and change seems to happen to this kind of system.
-> Swidden -> If the population gets too high, or if other people decided to stay on the plots, this leads to deterioration of the environment -> there's a threshold where if you use it too quickly or too much, it will decline beyond the point.
-> What about for sawah -> There's a positive feedback with population and rice without expanding the amount of space that is being farmed. You have increased production of rice, which in the end have more rice and more population. But it doesn't cause deterioration in the fields, but input into technology -> increase in rice production.

It's also why you have association of paddy rice farming.
These are the dynamics of change internal to these ecosystems.
We've also talked about how both these systems include human and natural environments -> it's trying to combine human cultural aspects with the natural environment as part of one unit. What we'll be talking about in the next part of this week is how other kinds of human intervention and interaction might interplay

I'm describing this as political ecology -> How is it that human intervention like history, war, invasion, development of civilizations. How do those intervene and interact with these ecosystems.
0> Humans have history
0> History = Change over time driven by human action
0> Power, inequality, domination

So how does history interact with cultural ecosystems.
Farmers decide to kill the wolves, have the sheep. It then ate the grass and the sheep died. Those

are examples of human intervention that was unstable with the ecosystem.

Both of these models of sawah and swidden, they're stable, and keep operating according to these patterns, but human history develop in different ways.

One model is the idea of Modernization -> These are Max Weber and Durkheim from our Freshmore course. These are classic social science. They were trying to understand transition to modern society. What do you think you can remember from their classes -> What would be characterizing modernization?
-> Specialization
-> Struggle of classes
-> Industrialization
-> You might have increasing centralization of inputs.
-> Capital as an input -> increase efficiency of production. Management is not just everyone doing their own thing, but has the capital to organize that.
Geertz is trying to understand how the process of modernization might interact with sawah and swidden farming. Why the interaction with sawah farming was problematic. May not be just sawah though?

Sort of a model of modernization -> There's one theory in 1959. It was right when Geertz was writing agricultural revolution
-> It shows how it becomes a modern society from agricultural society
-> Walt Rostow 0> non communist manifesto
This is essentially from an American point of view. You can see that in Marx, but how to develop that from a non-communist way

1. Traditional Society
2. Transitional Stage
3. Take-off
4. Drive to maturity
5. High stage consumption

This is a model of modernization -> society goes through this process to become a traditional society. ->
What's a traditional society like?
-> It's one developed with limited production capabilities, done before science is very advanced (limited science)
-> What about agricultural and farming? A large proportion has to work in agriculture to support themselves.
-> There's a hierarchical social structure.
-> So production is very low, there's a scientific knowledge use which is limited
-> Most of the workforce is in agriculture, it's hierarchical society.

Of course, you can see -> skeptical about this model -> This model has problems, but popular in which Geertz is writing, and he's engaging with that. You can see that there's a diversity of societies which not match that.

How does a society go from this to that modernizing, developing? It's this transition stage?
-> Introduced to new ideas, new technology and new science.
-> Ideas spread not just for economic process, but other purposes such as welfare, better life quality,
-> Scientists say it's good to embrace these ideas, and develop foundation for society to takeoff.
-> new ideas is the key difference.
-> Less focus on agriculture.
-> The idea of economic progress or enterprise -> You can imagine it as being people trying to start different kinds of enterprise. -> Maybe develop other kinds of enterprise other than agriculture.
-> The stage of preconditions does not arise from within society but intrusions from other society.

Takeoff
-Growth becomes the natural condition
-> There's a surge of technological development in industry and agriculture.
-> There's emergence of political power, that regards modernization as a higher order business -> they treat it seriously.
-> It becomes a project of the political government to increase economic growth.
Modernization is about overcoming restrictions/constraints on growth.
That becomes the problem we try to understand as social scientist. What becomes obstacles to growth.

Drive to maturity
-> They don't have the same diversity (Australia) as compared to US and China
-> Society extended its range into more refined and technologically often more complex processes.
-> "We can define maturity as the stage in which an economy demonstrates the capacity to move beyond the original industries which powered its take0off and to absorb and to apply efficiently over a wide range of its resources

High Mass consumption
-> Shift of population to offices and skilled factory jobs
-> Real income rose such that a large number of persons gained a command over consumption beyond basic needs
-> shift towards durable consumer's goods and services.
-> The consumer society emerges

You see some things that comes familiar -> This model was influential not just for societies, but governments in trying to implement plans (FYP).

In this, when he wrote the book, he says that you can put every society onto that stage. He put several different countries, showing when they had this takeoff at different times.
In the 1950s, social welfare was very common as a policy within the capitalist section. -> they were strong advocates for social welfare. They develop social security. Poor people put in small amount, and it gets redistributed. -> It's what you call residual -> Except for social security, the others in the US, poverty welfare -> It's only for the very poor people .Other people don't get anything.

In modernization theory -> every country goes through this process -> It comes from this takeoff, reach high growth. You might see this in Singapore today.

In the past ->Weber (1900s) Talking about modernization, he's questioning why modern industrial societies develop in Europe and not in India and China. -> In Geertz time, he's asking a bit of a different questions. Why had Indonesia not reached takeoff in the 1960s but Japan did.

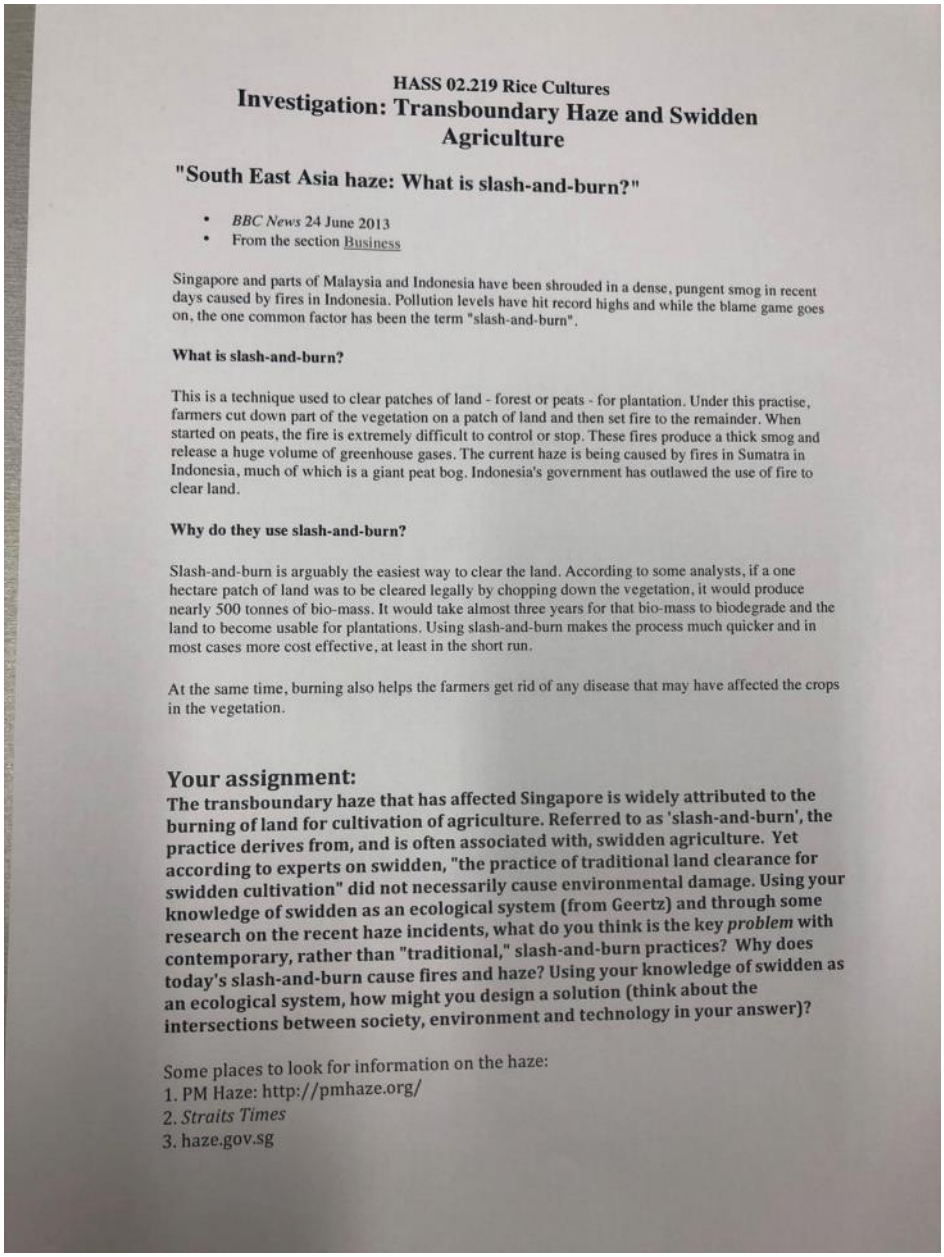
Try to think about how Geertz is trying to answer this question. Why isn't Indonesia entering growth? It has to do with ecosystems, and what parts have to do with other things.

UN was kickstarting according to the model -> But it wasn't very successful. -> The very idea of society as being grouped as undeveloped, and developed, it comes from these models we're trying to look at. How society goes to growth and modernization.

What happens to agriculture as you get to these later stages -> It's reduced. It's not very significant in the model. If we lose track of agriculture -> agriculture is a large part of the problem as it consumes much of labor. This modernization process leads to fewer people in agriculture. How do you get society to change that way. That becomes part of the problem.

UN doing development programmes, trying to kickstart.

If it was operating in the stable way he was describing, it shouldn't create the great transboundary haze. (For Geertz on Swidden)
What about it that ecosystem has changed. 0> What's leading ot the standard haze problem.



HASS 02.219 Rice Cultures

Investigation: Transboundary Haze and Swidden Agriculture

"South East Asia haze: What is slash-and-burn?"

- *BBC News* 24 June 2013
- From the section Business

Singapore and parts of Malaysia and Indonesia have been shrouded in a dense, pungent smog in recent days caused by fires in Indonesia. Pollution levels have hit record highs and while the blame game goes on, the one common factor has been the term "slash-and-burn".

What is slash-and-burn?

This is a technique used to clear patches of land - forest or peats - for plantation. Under this practise, farmers cut down part of the vegetation on a patch of land and then set fire to the remainder. When started on peats, the fire is extremely difficult to control or stop. These fires produce a thick smog and release a huge volume of greenhouse gases. The current haze is being caused by fires in Sumatra in Indonesia, much of which is a giant peat bog. Indonesia's government has outlawed the use of fire to clear land.

Why do they use slash-and-burn?

Slash-and-burn is arguably the easiest way to clear the land. According to some analysts, if a one hectare patch of land was to be cleared legally by chopping down the vegetation, it would produce nearly 500 tonnes of bio-mass. It would take almost three years for that bio-mass to biodegrade and the land to become usable for plantations. Using slash-and-burn makes the process much quicker and in most cases more cost effective, at least in the short run.

At the same time, burning also helps the farmers get rid of any disease that may have affected the crops in the vegetation.

Your assignment:

The transboundary haze that has affected Singapore is widely attributed to the burning of land for cultivation of agriculture. Referred to as 'slash-and-burn', the practice derives from, and is often associated with, swidden agriculture. Yet according to experts on swidden, "the practice of traditional land clearance for swidden cultivation" did not necessarily cause environmental damage. Using your knowledge of swidden as an ecological system (from Geertz) and through some research on the recent haze incidents, what do you think is the key *problem* with contemporary, rather than "traditional," slash-and-burn practices? Why does today's slash-and-burn cause fires and haze? Using your knowledge of swidden as an ecological system, how might you design a solution (think about the intersections between society, environment and technology in your answer)?

Some places to look for information on the haze:
1. PM Haze: http://pmhaze.org/
2. *Straits Times*
3. haze.gov.sg

First, the natural characteristics of fire are such that its use for clearing land can be masked, because it “does not depend upon humans for ignition, it is self-propagating and can do its work in the absence of people, it is easily lit anonymously, it can accomplish multiple purposes simultaneously, and the link between cause and effect is rarely straightforward or predictable” (Kull 2002: 10). Second, the allocation of responsibility is further complicated by village solidarity vis-à-vis the state. Motivated by the perceived legitimacy of fire and a desire to avoid being governed by an outside authority, villagers upheld a moral code of not testifying against one another. Third, the peasants took advantage of the state’s limited reach, internal diversity, and moments of distraction.

From <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5906483/>

Whereas people within the national government blamed swidden for deforestation and initiated programmes to eradicate it, district governments tolerated swidden because the farmers were located in border areas and could be relied upon to maintain national security.

From <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5906483/>

First, he proposes that a *subsistence ethic* explains the "indignation and rage" (Scott 1977: 3) that motivated the failed peasant rebellions in Southeast Asia in the 1930s. Because peasant life is so precarious, peasants prioritise acquiring the minimum resources required for survival and believe that everyone has a right to these resources (ibid., 55, 167). Scott argues that the commoditisation of agriculture was unacceptable to peasants because it eliminated institutions that increased subsistence security

From <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5906483/>

state-led development projects structurally fail because the state acts on models of the world that do not express the complexities of locally developed social and ecological systems.

From <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5906483/>

Third, the concept of *everyday resistance* (Scott 1985) highlights resistance outside collective, delineated events such as rebellions and revolutions. Everyday resistance is characterised by a 'quiet evasion' rather than 'open defiance', and is often 'masked with symbolic conformity' to avoid retaliation

From <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5906483/>

In contrast to the broad agreement on the connection between fire and subsistence, stakeholders disagreed on who was accountable for the haze crisis. The police and the environmental NGOs deemed the use of fire, which naturally contributed to haze, a sufficient sign of culpability. Villagers, indigenous rights NGOs, and district government officials disputed the problem definition for being simplistic. They countered that fire in swidden agriculture should be distinguished from fire used to clear peatlands for oil palm. They asserted that the use of fire on swidden went back to the 'time of their ancestors' (*dari nenek moyang*) and had always been controlled well. These fires were short-lived, small, and well contained. They said that the size of swidden plots in the village was typically below 1 or 2 ha, that villagers used fire breaks and sprayed water where necessary to stop spreading. At worst, it damaged a few meters of forest or some rubber trees – and customary law held the wrongdoers accountable. Moreover, shifting cultivators would only burn on mineral soils, so that fires lasted only a few hours. They didn't burn peat, because peat was unsuitable for rice cultivation. In contrast, oil palm plantations were blamed with using fire on peatland, which can burn for weeks and is hard to contain or put out. In support, a district government official on August 11th pointed out there was already some haze in Pontianak while the swidden communities in Kapuas Hulu had not even started burning. The police and the environmental NGO deplored what they saw as the inability of swidden communities to understand the impact of fire on other people.

From <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5906483/>

Swidden has been carried out on a larger space -> swidden agriculture tells you to space the amount of times.
With large populations and companies -> They burn larger amounts of land in contrast to smaller land owners
-> Therefore contributing to large amounts of haze

- Rate of burning is faster -> They reburn it -> They are burning larger areas of land and more frequently.
- Smaller landholders vs large corporations
- Industrial crop -> Palm oil is for industrial use
- Rubber tree -> lower cost
- Export vs subsistence farming
- Cash crops vs subsistence crops
- Could be for industrial side, or for crops. People are growing it for sale as cash rather than for their own consumption.

Remember we said that Swidden has high diversity of crops -> Certain lands become monocrops (because plantations) and that has a very different ecosystem compared to the rainforest like view.

In these different ways, swidden farming, even though some of the same techniques are created for the fertile soil, but these adjustments to that ecosystem are given to these new kinds of problem.

Do larger corporations to make permanent plantations?

It is. It's for clearing the forest. It's the only feasible to clear forests economically, because using machinery is difficult.

They might use fertilizers probably. All they move and just leave. In the Brazilian rainforest, the encroachment goes further in. The land behind becomes deserted. You can't do the same kind of rubber plantations. I don't know if that's the case.

This transition as you can see is a successful example of the takeoff. The transition to takeoff -> You see that the environmental cost of that are…

Thursday

Thursday, March 21, 2019 4:43 PM

As you can see, people compare between different countries. Evolution is one, explanation is for why development isn't happening.
I want to answer the question what do you think it is holding Indonesia back.

1. Colonialism -> Dutch imposition
    a. Geertz mentioned for certain methods for infrastructure that caused the culture to change.
    b. Force certain societies to text in terms of rice.
    c. Increase the population and staying in that area due to sawah.
    d. They mainly continued in a proto-modern agricultural society
2. Volcanic Eruptions and other disasters
    a. Mount Merapi

What is colonialism?
"The colonial period consists from the economic point of view, of one long attempt to bring Indonesia's crop into the modern world, but not her people." Pg. 48
Exploitation of Indonesia -> Focus of the system was to bring the produce out of trade, but not on forming institutions, infrastructure for stable government.

Colonialism is a practice of domination, which involves the subjugation of one people to another" - Source: Stanford Infopedia.
Indonesia is the crucial colony of the British.
The way he talks about colonialism , in an interaction with this ecological system.
There are so many stories about colonial exploitation -> but this talks about the intersection between sawah farming and colonialism.

Sawah is
- Monocrop
- Sustains high density population
- Positive feedback -> more labour, more rice

The growing population -> puts more rice -> can hold a higher population.

Why does Geertz describe Indonesia under Dutch colonialism as a 'dual society'
Talking about the Dutch administrative capitalism and the Javanese family culture.
You have this dual economy-> administrative capitalism and family unit agriculture.
It means that this could be developed in the same area, the same villages that you would have the kind of dual economy taking place.

Coffee	Sugar
Perennial	Yearly/Seasonal
Prefers highland environment	Flat fields
Requires a larger labour force	
Wasteland	Grown in rotation with rice (same ecological conditions)

It's the perfect environment already setup -> the idea you can add sugar in, and it can't change anything about how rice is farmed.
The introduction of sugar into these areas -> the areas with the highest sugar production didn't

detract -> they still have the highest rice production.
What could be the reason -> They built more irrigation systems, pump in more labor. Dutch investing forced labor. So they are putting more investment in infrastructure to increase sugar production, which feeds back into increasing rice production.

All this doesn't sound bad -> getting sugar production.
It doesn't force them off the land into industrial work. Doesn't enable them to become entrepreneurial farms.
What's happening here is the exploitation of the Dutch, if we think about classic exploitation, it's about how your labor is being put in. You're only getting a small percentage in your wage. So we can see that in some sense, there's some exploitation of the labor.
But Geertz is almost saying that the situation is even worse than the exploitation of labor -? Because by maintaining subsistence and increasing production of rice, it's not allowing societies to perform that transformation.

In other words, if the Dutch had come in and forced everyone off the land to turn it into sugar, while it might be exploitative, but it would drive modernization.
They actually maintain the small family unit agriculture, subsistence farming, while adding onto it, intensive sugar production.

So the workers are the Indonesians -> the land is primarily small family unit lands. They don't take over huge areas, but have this rent system.
Dutch set the land tax, and in exchange of some tax, can remit back as sugar.
At any one point of time, the same fields are being cropped differently. Sugar cane, and sugar cane, and dry crops. And in the wet season, wet rice and dry rice and sugar cane.
The land is being leased to the sugar company in this complicated arrangements. They do whatever they want with the sugar, but you provide the labor. So there's employment through labor.

There's quite similar
People have to set up the whole operation on their own, which is quite risky, and they might not have the capital to use them. The result is that there's no possibility to transition out of wage level farming into a different kind of business or entrepreneurship farming.

Involution -> Discussion about art
He actually takes it from this kind of patterns -> Mauri patterns, decorative patterns with a lot of curls
It's intent -> society has become much more complicated, like sugar cash crops, and complicated cash arrangements. These complex patterns -> but the result is that the farmer involved in this activity, is the society, the farmer's life, is no different when they were farming just rice crops.

Social position, and what they get out of it, is the same. But it's become more convoluted
Dutch are getting all these sugar and all the profits from there.

Whereas coffee can grow in these environments, is perennial.
The people who grew coffee -> they were small holders who were growing their cash crops, who transitioned into it.
They are mostly coming from outer Indonesia.
Coffee was interacting with the swidden ecosystem, rather than the sawah ecosystem.

Thursday

Thursday, March 28, 2019 4:39 PM

Last week, we drew ecological models of sawah (wet-rice) and swidden (dry rice) based on Clifford Geertz's analysis
We discussed how Dutch colonial politics influenced…

"You are free to conjure up an ecology, a demography, and a geography that would be most favorable to the state and its ruler. What, in those circumstances, would you design?
-> You are ruling over this territory. How would you design the space in the way to best serve the interests of the ruler? (James Scott)
State space

- Taxation
- Food
- Enforcement -> Manpower for military/ police
- Ease of access -> Low land area
- Property
  - Rice paddies is a key feature
  - It stays put, and fixed. The investment to making your rice paddy suitable for agriculture -> irrigation, lasts for a long time. The investment is so high that it prevents people from moving on.
  - You can get access to food and manpower.
  - Population support -> Rice paddies can support a large increase in population
  - Also the positive feedback.
  - Historically, there's a correlation between the agro-ecology of wet rice paddies, low land areas, and the emergence of states. At the scale of small kingdoms to large empires.
  - He uses a specific term -> elective affinity. This term comes from Max Weber -> it's not the agricultural ecology that causes states to form, and states can cause it to be shape that well. They tend to correlate with each other. It has to do with these specific advantages that comes from the state.

- Irrigated wet rice -> gives us a new view about the significance of irrigated rice. It has a political significance.

Zomia -> the book as a whole is about trying to analyze this region, of upland southeast Asia. (Actually covers part of China).

- This area crosses lots of national borders. If you are familiar with travelling in that regions.
- There are characteristics of the highlands that are different from the low lands.
- There are so many different minority groups. They are small in terms of population, and diverse between the small areas. In the mountain areas, within one small region, they may have four or five minority groups. That differs from all the low land areas. They are associated with long term ancient civilizations. Within the region, they are relatively homogenous, in diversity.

His argument here, difference between low land and upland minority groups and their cultural practices. -> It's very difficult to extend the state or government into the upland areas.
And he uses the idea -> friction of distance -> talk about certain kinds of terrain, by different friction, or difficulty for movement. In terms of transport technology in the 14th, 15th century technology. How do you move across land when you reach? The movement slows down, difficult to have the army or to conduct tax collection.

The author's interest -> What are these areas that are in the upland areas? The interesting thing ->

we know much less about those areas. Most history books have been written about low land civilizations. Most of archaeological records you would have is from the low land areas. It's more difficult to study these areas. These questions: what perspective would you take when thinking about this areas?

He argues that most history books, history of civilizations -> usually depicts things along the upland, swidden farming, exemplifying the past. That was the primitive past of civilizations. Which developed into civilized areas, with states and cities and wet rice and agriculture being one feature of that.
Argument he's making here? The distance in space, like swidden being the margins, to this core of the rice paddies. Difference in space is also difference in time, those areas are more primitive, underdeveloped than old land areas with big cities, ancient civilizations.

When we think about Angkor Wat, the complex, developed architecture and religions, it's coming from lowland areas.
His argument is from the state's perspective. So it is written from 'civilized' area. Kind of like glorifying itself, saying we are more advanced, history is developed towards us, and history is written from this biased perspective.

Could talk about the concentration of manpower and grain. It leads to our benefit of the rulers of the state. When you look at swidden farmers, in the upland areas. The actual story of why they are there might be different.

Basically, the primary point he tries to make is that there's two things

1. The state is a real minority among human systems
    a. Those state civilizations are a tiny percent of human existence.
    b. The history books, and archaeological evidence we have, about Angkor Wat. It takes a prominent position within History stories, but it's small. Vast majority, we've learnt, is at the margins
    c. The vast history occurred even before human domestication. From 200 000 BC to 10 000 BC. States only existed from 2000 bc. States were only able to rule over small areas.
    d. Kingdom in Chiang Mai -> histories that were talked about -> the king and how the relationship was spread. He was ruling over the tiny area, there were people living out of the city, living in exchange, but not under direct rule.
    e. Joke about NY -> New Yorkers are self-obsessed, think it being New York. Out there, it's getting less significant. New Jersey is across the river, but it's even less significant.
    f. The center where the king is is documented carefully. But if we look above view, where people are doing, the King's power is only in a small area.
2. People at the margins, in the highland areas, are not left behind. They chose to live
    a. Many people fled to the margins
    b. History of interchanges and mutual co-development between lowlands and highlands
    c. The small minority groups are not left behind by social evolution, they chose to leave. To escape taxation and war; it's not that low land areas developed more quickly

Why is swidden farming associated with state escape

1. Elevation -> Leads to the friction of distance that he's talking about
2. Not in the interest of the state, to find every group, because it's so difficult to get there.
3. These communities tend to move quite often, so it leads to the difficulty in reaching them. It's about agricultural techniques that move from one place to another.
4. It's really difficult to find them.
5. Taro -> not only underground, you can leave them there. You don't have to harvest them. You can actually run away, you can come to raid the village, and they can still dig it up.
6. Do state people chase after villagers? The state is in a long civil war.

There are social developments that resist the state -> balanced duelling power between different groups, so there's no centralized ruler. Karen and other groups in Myanmar -> politics in highland Burma. Tendency of some groups to imitate the lowland states, to develop to mini-states. But in other cases, they resist the centralization of power.

"Shifting cultivation was a fiscally sterile form of agriculture: diverse, dispersed, hard to monitor, hard to tax or confiscate"
-> difficult to calculate a tax assessment. This much space = this much product, worth this amount. But 40 different crops? State the value of that.

About the people themselves -> it's hard to locate.
Then different kind of crops that made it difficult to have them?
You can say this is how much land, I can access how much that's worth.
While it's in the ripening period, you know how much there's going to. It's not the case with these other crops.

The book is talking about pre-20th century, pre 21st century situation.

But because of new kinds of technology, like GPS, remote sensing, all weather roads, mobile telephones, drones and other technologies, Zomia is no longer posing the friction of distance it did in the past. It's no longer inaccessible to states, then you have these inaccessible mountains, but not so much inaccessible.

Thinking about the area of design - > How would you design the state space? How would you design a non-state space? What kind of terrain, Geography, what kind of features would a place have, that would make it have some features, that resist state appropriation.
Premodern states have this mandala system. They have rule radiating from this area. So modern states run to the border. But pre-modern states, they rule from the center out, and it gets deeper and deeper. People in the overlapping area will be paying tributes, and they will get benefits from area

Monday

Monday, April 1, 2019 4:38 PM

Bali was in the middle of the Green Revolution -> programmes to modernize rice production.
Stephen Lansing got interested in ways of farming rice. (Initially went to Bali to study religious temples)
Lansing learnt that ostensibly religious water temples play an unexpected role in regulating the irrigated water flow into the farms
Yet these old regulatory systems were being bypassed by Green Revolution planners
-> Want to talk about the background of the Green Revolution.
Ideas how technology works. And what that kind of technology can give you.

The use of GM -> gene editing technology didn't come into play.
Original Green Revolution -> intervention developed in the 1960s.
What kinds of changes is bringing
If you recall a few weeks back -> idea of modernization. The ease of modern societies.
If you recall, the definition of the tradition of societies . There was a ceiling on the level of output per head.
There's low levels of science and technology. Majority of population engaged in agricultural labor.
It's through to standing to that state of takeoff.
-> Production of labor is stagnant.
"Pre-Newtonian" science and technology
High yielding varieties of seeds, schemes to get technology to increase productivity. Move people out of farm-housing.

Term applied to interventions in wheat farming -> founded by Rockefeller foundation.
In Rice -> ppl usually associate GR in rice with International Rice Research Institute in the Philippines.
What they started doing : developing varieties of seeds that could produce higher outputs. When they were combined with fertilizers and other kinds of technology.

IRRI's History -> Founded in 1960 in the Philippines, based on funding from USA based Rockefeller Foundation and Ford Foundation
1966 -> IR8 (High yielding variety, gets that production due to the use of chemical fertilizer.)
The type of plant they were trying to breed for was the short variety. The problem with taller rices-> You get high production from it. It ends up falling over. So they ended up breeding short. And that's important for the amount of output you'll get overall. They were breeding to the response of chemicals overall.

What kind of the role of technology was presented in this gentleman's vision.
What do you think he sees as being the role of technology in agriculture -> increase in productivity.
Respond well to fertilizers. What is the relationship between technology and environment in the interview conducted by Norman Borlaug and Robert Chandler.
Technology is changing the environment.
You can see where the experimental fields are. This type they are breeding for is very low.
What we can also see is that they are developing these new rice in a lab environment. They can test and control the conditions, how the rice grows. The effects are 10 times greater than what people were traditionally getting in the same area. They are hoping to distribute the technology out. They start to distribute the rice varieties out to Indonesia, India, Philippines. These rice from the International Rice Institute.

It's a top-down mode where these small group of researchers develop this new variety of seeds, and extend out to farmers across the whole region. The same kind of production they got -> large increase in productivity -> that will extend to people, which will lead to increase in productivity everywhere.

How does rice move from the laboratory conditions to people's fields.
How that's happening:
1. Nitrogen (Leaf Growth)
2. Phosphorus
3. Potassium

Nitrogen fixation.
You also need to control Pests, and you need water and Sun. That would make rice grow. Obviously rice grows in this kind of environment. What you need to do is to control the environment with other kinds of inputs.
Industrial Fertilizers-> to control the amount of phosphates and potassium.
Irrigation to control water
and Herbicides and Pesticides to control pests.

There were huge increases in production, when these rice varieties were distributed across Asia.
Explosion in pests -> pesticide resistant pests
1) Due to non-consistent use of pesticides
2) The rice planting schedule. To conserve water, you had to plant the rice at different times. And different communities. But for pest control to be achieved, they had to be planted at the same time. So it's a tradeoff.
3) With GR, they changed the rice planting schedule, and by planting a large area at the same time, you increase the vulnerability to pests.
4) Greater increase of mono-cropping. (which is related to the previous point) which would lead to more pests.
5) At first, they're very productive, but because they offer these features, the increase in monocropping and planting at the same time over large areas. And people using not at the same time.

How do Balinese rice farming methods differ from Green Revolution.
1. Utilized planting cycles. Production cycles, governed by temples, which maintain controls streams flowing downstream. They would space out the cycles, so that there won't be pest control problems, and water usage. This was opposed to the GR, there was only one crop, there was no regard for the planting cycles. They completely screwed up the societal benefits.
2. The focus is the role of religious temples in managing how water is distributed to different villages and different fields. That system creates different patterning of water use than what you had in the Green Revolution. Look into more about why that might be a better way.

He has a key concept to what you might think about, the role of the temples -> Ritual Technologies.

What's interesting about this -> If we were to take our status quo in understanding. Science and Technology in one side, rituals are opposed to each other? He's trying to argue that rituals can be functional technologies. Rituals can play functional technical roles in production. This case in agricultural production. The question is, why does that work? Rituals, we would think of it as being symbolic and beautiful and spiritual, full of values, for understanding life, but not technical. But he's understanding that rituals are technologies.

First of it, from anthropology, what actually is a ritual?

At a basic level, a ritual is rites and ceremonies, things that are prescribed to form borders.

An anthropological theory of ritual
- Symbolic statements about a social order, organization or "identity"
- "a commentary on the production process"
- Rituals "express the social and cosmological role of the temple"(52)
- The symbolic of temple rituals is sociogenic.

Definition of *sociogenic*

: produced or determined by society or social forces

From <https://www.merriam-webster.com/dictionary/sociogenic>

Need to go through the ceremony, as having recognized as completing the graduation.
Changed your social role from being a student to a graduate. It is a 'rite of passage', by going through the process, you changed your social role. There's no intermediary position, either a student or a graduate with a degree. Ceremony accomplishes a social role. Rituals are sort of commenting that this role has changed.

Weddings? "Different rituals, same social meaning"
When they get married, people in Myanmar get a different kind of hat. When others get married, they get a wedding ring. Those are totally different rituals and symbols, but they are making a similar kind of commentary about the social role. That tells you something about the social position, because you had this ritual. In this actual wedding ritual, it's about uniting the two people It comments on the state and social change that happens.

That could be also how we understand the idea of being socio-genic.

Let's bring that back to agriculture. In the case of Bali, how are the temples, altars and rituals sociogenic?
It describes the social hierarchy of the region?
Those in upstream have more pure water, so those lower temples would get sample of purer water from upstream. So they value the possession of higher standing.
This is through the way that holy water is passed between different temples. It's just a religious rituals. If people value holy water, consider people to have better water at different positions. The effects are that it's socio-genic. For genesis of social groups. Producing social groups. Specifically, creating this hierarchy between different social groups.

He discusses what's interesting about this. Chapters 2 and 3, one is called "powers of water", one is called "waters of power"
Rituals related to water temples. And the other, how water is regulated for agriculture.
You would see that those two hierarchies are interrelated.
Diagram the irrigation system. (in Chapter 2 or 3.) and what are the relationships between different villagers.

Water is coming from the top (which is believed to be holier) and brought to another temple. And then passed into Sebak (different rice paddies)

There is always a dam (weir) which can go to a smaller temple, or a river. And the ultimate destination is sebak. Different temples have different varieties. Temples with higher power interact with the water first.
If we take it from the hydrological point of view as irrigation, what can you say about these relationships?

Because water is flowing from top to down, the interdependency is hierarchical. If you were in upper level agent in charge of the weirs higher up. You can close it off and it affects everyone below. Or maybe in a distributive manner. If the main source is from the South Ocean. So the North part of the island is farther away. It is easier to distribute equally? (if from central). Like the river is flowing down. So from a purely technological point of view, they have hierarchical dependency.

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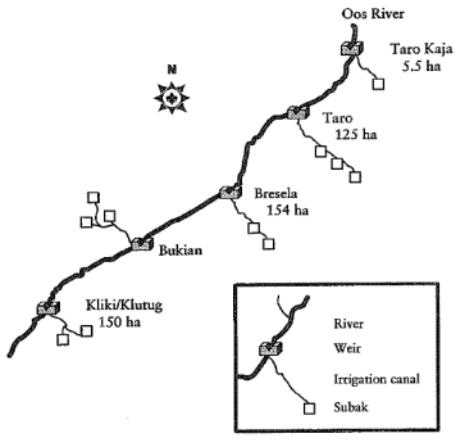

Figure 2.1. Irrigation along the Upper East Fork of the Oos River

terraces. River flow and irrigation requirements for Taro are given in table 2.1.

The variation in the river flow is five-fold from January through August. During the rainy season (roughly November through April), the problem is not water shortage but overabundance: fields and irrigation works must be protected from damage by flooding. During the dry season, Taro usually has enough water. But if excess water is not returned to the irrigation system feeding the villages downstream, they may suffer a shortage during the dry season. As shown in table 2.2, there would be a shortage of irrigation water from May through July, were it not for the release from the Taro irrigation system.

Thus from May through August, the flow from the Bresela weir would be inadequate to meet the irrigation demands of Bresela without the surplus water released from the Taro *subaks* upstream. The same story is repeated downstream in the *subaks* of Kliki and Klutug, which receive an

TABLE 2.1
Taro Irrigation (flow × 10,000 m³)

Month	Inflow	Actual Intakes	Irrigation Demand
January	268	9.2	8.0
February	220	7.4	6.5
March	257	22.0	19.2
April	190	47.8	41.6
May	115	55.0	47.9
June	104	38.5	33.5
July	54	27.4	23.9
August	47	13.1	11.4
September	73	14.7	12.8
October	115	9.5	8.3
November	195	29.9	26.0
December	223	30.8	26.8
Totals	1,861	305.3	265.9

Source: Department of Public Works, Irrigation Division, Sangglah, Bali.

TABLE 2.2
Bresela Irrigation (flow × 10,000 m³)

Month	Release from Taro Irrigation	Inflow from Bresela Weir	Total Flow	Irrigation Demand	Deficit
January	258.9	112.5	317.4	13.1	0
February	212.2	92.2	304.4	10.6	0
March	234.8	111.7	346.5	31.6	0
April	142.0	79.7	221.7	68.1	0
May	60.3	48.5	108.8	78.6	−30.1
June	65.7	43.8	109.5	55.0	−11.2
July	26.5	22.7	49.2	39.3	−16.6
August	33.4	19.5	52.9	17.3	0
September	57.8	30.5	88.3	13.4	0
October	105.9	48.5	154.4	9.0	0
November	165.5	82.1	247.6	42.6	0
December	192.5	93.8	286.3	44.2	0

Source: Department of Public Works, Taro Irrigation Project in Taro, Gianyar, Bali.

important share of their water from Bresela (and thus indirectly from Taro).

The release from the Bresela weir is the principal component of the total flow for the irrigation systems of Kliki and Klutug. Altogether, four separate weirs provide irrigation for three villages, and there is also an

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The flows that get to the bottom from the lower level sebaks -> you get the water that's taken down from theouter level, it would go down to the lower level, So you have this hierarcical dependency. It is better to say that the cleanliness is better in the higher region, it may not be a problem. Pesticides would cumulate down into the lower levels.

The way that each field is located in the system is not 1 - 2 - 3 - 4.
But it's dendritic, branching off.

Temples -> to coordinate across many fields. The temples are where people go out to find their schedule. It is managerial. Each temple would have their own pure water. The higher the status, the more powerful the deity. Gods that take care of the earth come first, and slower ones would have less powerful gods.

Religious relationships between the different temples.
RNN, Inception,
Why would a religious system would be more for the technical water distribution.

Temples have religious authority, Water has religious importance because it sustains their food source. Why could that be important for the technical foundation.
Why not just have king and different political instructors.

Religious authority -> playing a role to adjudicate water regulation. On the one hand, people find it safer, or best access to water themselves. The best access for each individual would not be the best in the system. How to get people to coordinate their use of water. Religious authority is an effective way.

Monday

Monday, April 8, 2019 4:39 PM

Last week, we talked about the idea of two different kinds of technology.
Skill oriented technology and mechanical technology distinction
This distinction comes from Francesca Bray

Skill-oriented technology	**'mechanical' technology**
'tend towards the development and use of human skills, both practical and managerial	**Development of equipment and machinery as substitute for human labor**
Efficiency based on quality of labor	**Economies of scale**
Allows units of management to remain small	**High capital investment**
Intensification of land productivity, without reduction in labor inputs	**Reduction of laboring population in agriculture, leading to urbanization and 'modernization' (Rostow)**

How we look at development of technology in rice cultures, without considering them to be backward and stagnant. A different way in which technology developed.
Instead of having household scaled farmers, you have farmers and owners -> polarized society.
The reason why this is difficult, why interested in introducing this idea, we think of technology as looking like modern technology, like tractors and combined harvesters. While low-tech is rice planting by hand.

The other thing is mechanical vs skill-oriented, other ways of assessing productivity, in a different way. Without that hierarchy of high vs low.

When watching the film, what are the technologies that were involved, thinking about this: what kind of technologies are there, how can we describe them.

They are trying very hard to get a computer.
There's the tunnel building.
Computer.
The argument -> It's just a map on the screen. But they are running simulation models of the differences between the patterns of irrigation.
There's a possibility to try out the actual models that they use.
What they were trying to do was utilize simulation modelling to assess whether the optimal balances between waterflow, and pest control.
What were they trying to do about the technological intervention.
It takes into account the sociological and ecological needs.
Bali isn't completely ready for computers, they were hoping for integratoin.

Question is that do they even need to .

Lansing -> it would integrate irrigation
Convincing the public works department -> to understand the water temple systems is beneficial way of irrigation.
The computer system -> whether it would be useful. It's a demonstration of the traditional system.
In other words, the Green Revolution idea, was to reroute, redesign how water was regulated to maximize production. Those plants did not count for the system of water regulation already in place.
Those systems already in place often don't look very technological or effective. No way to see the effectiveness. How that dam already brings in the water. The idea before here

Idea behind it -> existing systems, that have a complexity, that isn't captured by some of the planning for agricultural development. Today -> we are way beyond this level of computers and

models. Arguably, we have the tools to create models of existing or potential irrigation systems at a high complexity. What kinds of technology, or intervention should we do to have the agricultural systems?

The Green Revolution -> model of technological intervention into agriculture. What we can model and develop much more complex interventions than what GR is based on. You might be able to do improvements, working with the existing system. Making targeted improvements that would be much more effective. Than the replacing of the dams.

You could do skill-oriented technology, on how your irrigation system is managed. Rather than the physical technology that was there.
The question is also, whether they might have more control. More likely, it's an issue where there are two levels of control, that don't necessarily come into conflict. There might be problems in the interaction. They don't have to ask the priest then.

The government builds dams, but at a larger scale. Whether existing systems take place outside of Bali.

He mentions at the end cooperate

Thursday

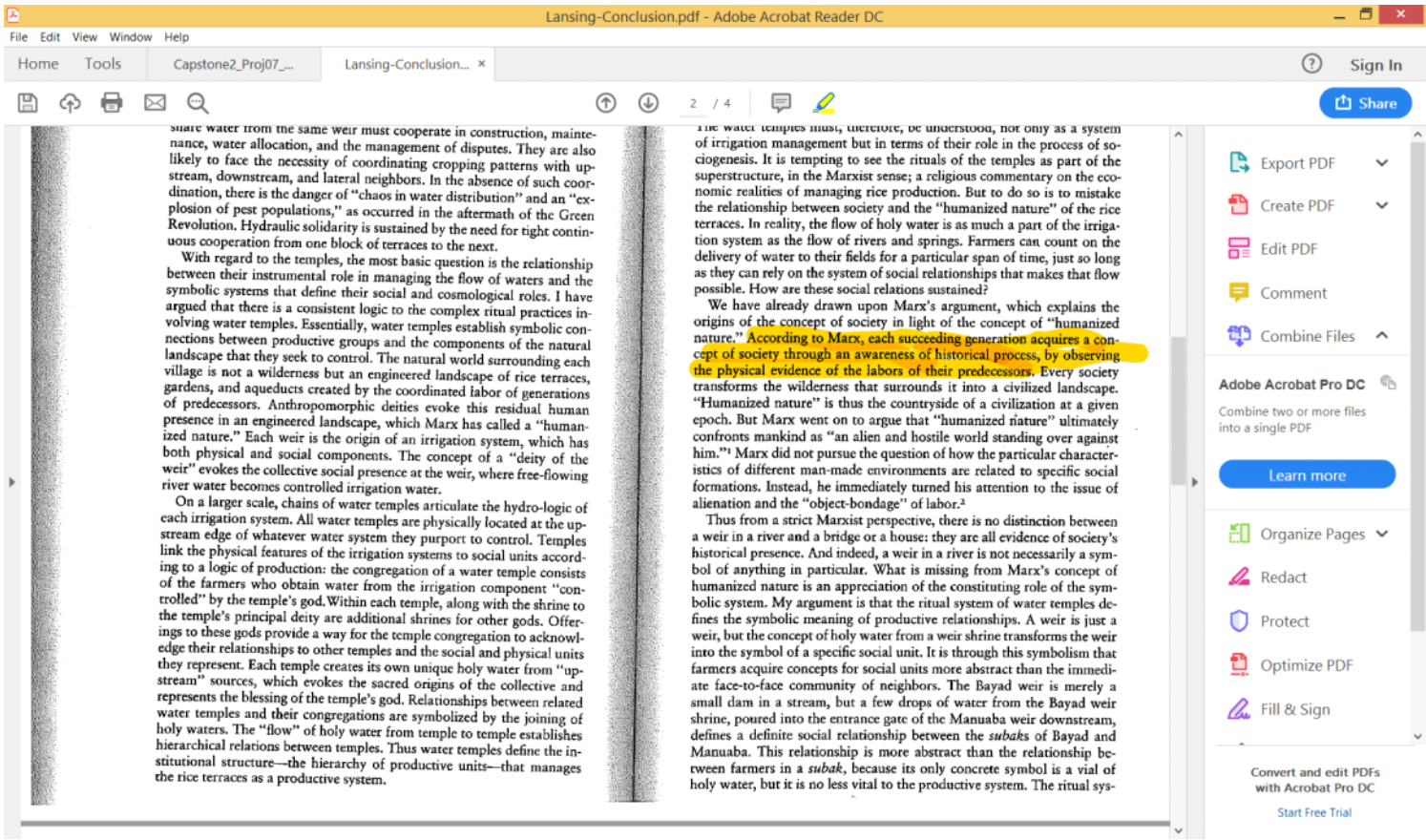
Thursday, April 11, 2019 5:26 PM

From Geertz, we've been looking at relationship between culture and the environment. In Lansing, he puts across this idea called humanized nature:

How has humans changed their natural environment

But he takes a certain perspective -> what are some of the theoretical ideas that he's trying to say. Why is it something we should be looking at?

Marx did not appreciate the symbolic relationship. For Marx, each



We have to look at the role of symbols, in the way human relationship to the human environment
How is it that symbolism is organizing the way in which humans interact with the environment.
The symbolic relationship of the king with divinity gives greater authority. How it creates the productive relationship.
How does symbolism create production.
The symbolic holy water -> agriculture irrigation system depends on water, so there would be an effective production of crop and farming activity.
They want their crops to be blessed, to make full use of what they could get. Holy water makes the water more valued, but what about the social relationships. It creates a way of hierarchy, where the temples in the higher state has more holy water, so it creates a platform where those who live on the upper side, are closer to this holy thing. The way that holy water is passed from one temple to another. It creates a hierarchical social ordering, and even though that's a ritual relationship. Social relationships last longer, and enable the regulation of water. And shape how regulation occurs.

For Marx, nature is humanized through economics and production, but is in an economic relationship. But we have to pay attention to the religion, how Balinese society is organized in a way through symbolism.

Marx sees the natural environment that we face. It's already been shaped by human economic activities. Maybe remote places, in the wilderness, but most nature that we confront is a consequence of human interventions. But for Marx, those interventions are understood as based in economics. And essentially, from Marx's evolutionary, human nature is evolutionary through different forms of economic production, which would shape nature to the economic system. Marx is not paying attention to cultural symbols in shaping how we interact with nature. For Marx, those religious symbols are considered to be super-structure. Bali is not there in the relationship, to make or change by this symbolic relationship. It's shaped by society, that results in a way that nature is developed.

Example, if we look at the rice terraces that are complex, that natural environment, that humanized nature of the rice terraces, is not a consequence of economic relationship, but of symbolic relationships.

If you think about Balinese rice terraces, and a reflection of Balinese society, if you were to look at the Singapore landscape, what does it tell you about the symbolic dimensions. Economics was how they achieve other objectives, Singapore's economic objectives are the objectives.

Monday

Monday, April 15, 2019 4:53 PM

Lansing -> Daisies -> grow best at 22.5 degrees celsius.
It's a fact that they grow optimally at the temperature 22.5. degrees celsius. What is wrong with the argument that they adapted to grow best at that temperature

Both black and white daisies grow optimally at 22.5 degrees Celsius. Each daisy is going to achieve its own self-interest. If a scientist is on the planet, if temperature grows well
But actually, the temperature depends on the population distribution of the daisies. The daisies are controlling the temperature. They did not adapt to the temperature of the planet, but adapt the temperature to themselves.
Self-organization. The idea is that this planet can achieve like a stable temperature, but it's not because there's any overarching setup. For example, either very low and high, and fluctuates. No one sets it up that way, no regulation of the temperature. Each of this daisies grow according to certain conditions, change the growth conditions of the other daisies, and creates this overaching organization.

"Gaia" developed by James Lovelock. He has this idea called
Emergence of human beings created the environment we are living in. Because different living organisms, interacted differently, and created this self-organization.

Can we apply this idea to social reasons. How to get the correct regulation of other kinds of resources. The question being asked by Lansing -> what kind of regulation needs to happen for there to be optimal resource use. Is it possible, it could come through self-organization. Can it come through the way the agents interact with each other.

Part of the model -> each subak, after each harvest year, they looked to the subaks around it, find the one with the highest harvest, and copy that cropping pattern. What happens to the pattern of croping patterns _> the one with the most profit. So they group into a certain skill. But they would never achieve the same cropping pattern.

Essentially, every time, with 21 or 6 different cropping patterns. And it ends up achieving a pattern similar to the temple grouping system.

Like the optimal global pattern -> overarching harvest is achieved through this partial synchronization. That's what is trying to show there.
The synchronized grouping of the cropping patterns, was much more optimal for reducing pests and therefore for increasing crop yields as compared to Green Revolution.

Now looking at Franchesca Bray -> The green revolution's idea of agricultural modernization. Rather than being in Bali alone, if you look at capacity as of quality using wet rice. The formula of a different process. It happens much more widely in China and many areas that you look at.

Western model -> universal model, but does not apply to western farming areas.
You don't use manure to fertilize land in Eastern lands. You have a relationship between animal raising and crop raising in this western model. That is part of the reason for machinery -> to using livestock and manure as aids to harvest.

Larger profits to put into farmland -> background to capitalism as well. Because the key to the emergence of capitalism -> stratification of society into landless labourers and landowners. Feudalism starts happening -> gets larger and larger spaces of land. With new tools and mechianical machines. You have this process of larger lands. And as a result, you have people being pushed off land. Or labourers moving into cities.

It's a theory of how modern society develops. And agricultural monetization, in the way that technology can build into that development.
Whether that really applies to rice farming societies. Like the 14th century, Song Dynasty -> introduction of technologies, and increasing agricultural production, that developed differently from that model.

Social way that rice production developed -> The issue of technology transfer and the role of gender.

Technology Transfer

Thursday, April 18, 2019 5:35 PM

What technology transfer is about -> technology being brought about from one society to another.
So the systematic change from a technology being introduced.
Talk about some of the idea about technology transfer -. It's almost in the language of communication -> sending society and receiving society
What we're presuming, is that men and women have different roles.

What's the difference between gender and sex?
Sex is a biological difference whereas gender is something that comes from the society or filter
So those of you, who's we've now changed HASS social science, By simon Beauvoir. One is not born a woman.
We are born with different biologies, but society might define you differently.

In terms of being a man or a woman. But this is important about when thinking of technology and technology transfer.

If men and women do different things, affect the role of men and women differently. If men and women have different characteristics, that are associated with that gender. Then a new technology is invented, and introduced to the society -> affects men and women in different way.
We could think of in a Marxist language. Would it affect capitalists differently, would it affect workers?

For example, you guys just talked about new rice cropping regimes, new GR technologies. But how did that affect men and women differently. How they would relate to rice farming. Or new technology that will affect how rice farming is done. When technologies is transferred, the impact of men and women be different than that ascending country.

Another way to think about this: Technologies have codes that come with them. Social Political and Cultural codes. There's other aspects that come with the technology.
What we're going to do next ->

I have 3 samples from the text, getting the idea of technology transfer. Five different ways that technology will impact the society.
5 categories of Impact :

1. Doer of the productive activity:
    a. Talking about how the technology that's brought about impacts the person doing the activity or the producer.
    b. This is technology which affects the person.
    c. One example would be when rice mills were introduced, and women whose monetary income source was milling the rice, they were displaced because there was milling done in the factories.
    d. Initially, it was women milling the rice, now they could use machinery, these were displaced and the men were taking over the machinery.
2. Location
    a. Textiles, independence of income
3. Timing
    a. Using solar panels, they cook in mid-day -> the idea was to put in solar stoves, to reduce time. People were also cutting down trees
    b. Now you have to cook in the day, it's extremely hot, there may be other impacts. Talking about shifting the time and how people experience.
4. Skills needed for productive activity.

a. More male to get schooling than females -> easier to get education
b. More opportunity for the males as compared to the females
c. Bringing new technology requires specialized skills. Because male children have more access to training, these new technologies would benefit men disproportionately.
d. Technological advance is not going to be mutual, would affect society in different ways

5. It's about related attributes of activity while doing the productive task
    a. When women traditionally fetched water, they are going in groups, so they would engage in social organization.
    b. The Asian women received literacy training while waiting in line
    c. Or getting nutritional training

When women went to collect water, created social networks among women. You reintroduce running water, but disrupts social networks that you'll have otherwise.

How to think about this to human environment relationships, and the impact of the technology.

Announcements:

1. It will be in this room, Monday the 29th, 2 hours from 3 - 5. There's just

2 Essay questions to choose from -> Choose only one of those
Materials from week 6 - 12.
When we started reading about Geertz.
Short answers -> This will be concepts or terms. It could include some of the things in presentation.
And you have to define them and provide an example.
This would be 3 out of 6.

Monday

Thursday, April 18, 2019 5:35 PM

Classic original definition of sustainability from the UN. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.
However, it's in the abstract:

> And then you might have seen about the idea of sustainable design -> IDC about sustainable built environment. Designing things for sustainability. The idea is not that clear sometimes.
> What I want to ask you to think about is what is something we learnt from rice cultures that could be a model for sustainable design.

Stand: It is necessary for the introduction of modern tech for Bali to be a modern society but these tech need to be evaluated for compatibility with the local lands

There are aspects of technology that can fit with technological change because they are divisible. i.e. seeds, capital you have, which you can get. If you defined mechanical you can discuss what it is. Substituting technology for labor, and skill oriented is to improve quality of labour

Movement from un sustainable to sustainable. And a higher variety of crops et ce
How can you support that argument of the shift from Asian to Western, that becomes unsustainable. What is it the implementation of a new technology does, that causes the system to change.

> Balinese example -> why introduce new seeds? What would it mean about the irrigation system traditionally.
> When we introduce these new seeds, different growth requirements.
> This changes the way it was organized.
>
> When you introduce the high yield varieties, which is these new seeds, you can see in the Franchesca Bray and the Lansing book. They come as a "package", it's not the only thing in the GR, but comes with the need of certain kinds of fertilizers and pesticides, and new kinds of irrigation schemes. Introduction of a new productive seed -> that technology led to the changing of the whole irrigation system.
>
> You can also look at what we talked about "technology transfer" and what the argument is, it doesn't come as an isolated thing, but comes with a lot of packages with it. And that leads to the overall system changing.
> You need to show why that change led from unsustainable to sustainable system.
>
> How would you define human-env relationship ->
>
> > That's a question with different theories -> Geertz calls the ecological approach (introduction) and he talks about the ecosystem to understand what human environment interactions are.

Cultures impact society itself

> When outside society _> change the policy from the culture. If the policies try to impact the culture -> Jero Gede's culture.
> Take the specific example _> Jero Gede and try to draw that to answer the question -> because it's very large scale, you can narrow it down, and I can talk about this case.

Geertz has a broad definition of symbol
“words for the most part but also gestures, drawings, musical sounds, mechanical devices like clocks, or natural objects like jewels—anything, in fact, that is disengaged from its mere

actuality and used to impose meaning upon experience.” (45).

Like I can have these objects, which is a tool I'm using. If I use it as a symbol, we're using it as a means of something else, but using them to erase them. But it might incorporate that use as part of a wave of that symbolic meaning.
Symbol in rice -> help us understand -> rice as a symbol of wealth. It helps us understand our definition -> what we're growing for food. But we're taking it out of its actuality to symbolize wealth. For example, people might give the golden colored rice, that they want that person to be having wealth, and they might see it on paintings. Maybe on money.

Or Japanese rice as a symbol for the Japanese nation. Eating locally produced rice, becomes a demonstration of national patriotism

Definition -> (not in the same words in the text, just phrase it in your own words), providing the one example and using that example to show this definition.

Essay Questions!

Monday, April 29, 2019 9:58 PM

Worth 55 points, choose 1 out of 2.

1) Drawing on both James Scott and Clifford Geertz, compare 'wet rice' (paddy, sawah) with dry rice (swidden) farming. How do the different 'ecosystems' (as Geertz describes them) of wet and dry rice interact with the politics and power of state government?
2) Drawing on concepts and examples from both Francesca Bray and Stephen Lansing, explain why the histories of wet-rice agriculture in Asia have differed from 'Western' (European and North American) models of agricultural, economic or historic development. To conclude, elucidate the significance or importance of this difference

Short Answer Questions: 3 out of 6, worth 15 points each
Provide a definition of the concept, idea, or term and then explain the concept through application to one of the rice cultures we have studied.

1. Ritual Technology
2. Rice as self
3. Index
4. State space
5. Core-fringe hypothesis
6. Ecological approach in anthropology

Extra Credit (3 points)
Describe something you learned about the rice plant from the rice growing experiment. How does this specific biological quality of rice plants contribute to the "specificity" (Bray) of social, political, cultural or economic conditions in rice cultures?