

Notes on Subsistence (P&B Chap.6)

Habitat* (the natural environment, including ecotype and its various ecological niches)

Natural Resources* (elements that people harness to meet their material* and spiritual needs)

Cultural Ecology & Geography (how that habitat is **envisioned**, and the resources in it both **recognized** and **utilized** (not a self-evident process, but a cultural one, ex., the Caribbean)

Adaptation*

- a.) genetic (ex., immunology or high altitude)
- b.) physiologically (ex., increasing red blood cell count after exposure to high altitude)
- c.) culturally (via technology=**extrasomatic** extensions of human physical capabilities (aids)

Production* (acquiring **energy** and **materials** from the environment)

Factors [or **Elements**] of Production*

- a.) time & energy (work [voluntary] or labor*=druggery [involuntary]) + **leisure** [rest + "preferred work", as in "hobbies" or sports)
- b.) technology (tools & knowledge* [of environment & of technical **processes**])
- c.) natural [and cultural] resources

Tools:

- a.) naturefacts [ecofacts=via a cognitive transformation] & transforms=via physical alteration of placement or shape
- b.) artifacts
 - i.) weapons (active prey)
 - ii.) implements (inactive resources)
 - iii.) facilities (indirect tech., to produce something else)
- c.) associations=productive co-occurrence & features=remnants of co-occurrence
- d.) techno-tasks (technology & science)
- e.) psycho-tasks (art & sports)

Organization of Production (who will do what, when and how*)

- a.) [sexual] division of labor
 - i.) Segregation of tasks via rewards & sanctions
 - ii.) Segregation of technology ("Sexist Tech.")
 - iii.) Complementarity of tasks
- b.) Patterns of Cooperation* (work groups)
- c.) Rights to Resources*
 - i.) Use Rights* (Usufruct)-cannot **alienate** (trade, sell)

- ii.) Ownership Rights*
 - 1.) Individual Ownership*
 - 2.) Group* [Joint] Ownership

(Subsistence Types):

- a.) Hunting and Gathering (Foraging)*[today on **marginal habitats** only]
 - i.) May do some modification of environment--such as lighting fires to replenish grass for game*
 - ii.) Oldest adaptation,95% of our time as a species spent in
 - iii.) Often nomadic--sedentary nature depends on environment
N.W.Coast Indians could be sedentary due to availability of salmon
 - iv.) May have **seasonal mobility** that leads to a pattern of **dispersal** and **congregation** as in rainy/dry season
 - v.) Size is now small, less than 1 person per square mile, but was larger in earlier times
 - vi.) Social type: currently the **band**, 50 or less, smaller groups don't exhaust their sustaining areas as rapidly and therefore don't have to move as often. Individuals aren't attached **permanently** to any one band but may move between=**maximum flexibility**
 - vii.) Complexity, again variable, now simple, complex in early times. Now little warfare, just **avoidance**, since can't afford losses (but that changes--early Eskimo battles)
 - viii.) Classic studied society !Kung Bushmen of southern Africa Kalahari desert + savannah, hunted 50 kinds of animals, gathered more than 100 species of plants
 - ix.) **Reciprocal Sharing** [reciprocity], only 2 out of 5 hunts yields food sufficient to be brought back to camp. The original **egalitarian** society, and also the original **leisure society**.
 - x.) The original **Leisure Society** !Kung only worked 2.5 days a week for food, with daily diet of 2,355 cal. 96 grams of protein. So why change?-Earth filled up at low density
- b.) Horticulture (Digging Stick or Hoe-Human Body-powered tools)
 - i.) **Domestication** of Plants (Cultigens=**food crops***) and Animals (Domesticates=**livestock***). It was a gradual process by 8,000 B.C. in Middle East, 7,000 B.C. in Asia, 5,000 B.C. in Mexico & 4,000 B.C. in **Ecuador & Peru**, since both cultigens & domesticates often came to early HGs, plants as "disturbed habitat" volunteers & animals (like dog) the same. **Artificial Selection**.

- ii.) They are all **neotonous monsters**, dependent upon people ex. Corn and Dogs & Sheep- "Frankenfoods" are not new!
- iii.) Not always domesticated initially for what they are utilized now, i.e., sheep & goats 1st for their **hair**, not **meat**!
- iv.) Humans control not only their appearance, but their **reproduction** (can tell early domesticates by high proportion of young males culled) + (like humans) their **gracility**.
- v.) In New World many farmers continued to get protein from wild animals, not in Middle East or in Asia
- vi.) Domestication made **sedentary** life more possible, as it did for **larger settlements**, especially **villages** emerge out of **camp**s and more definite joint property concepts emerge--an investment in the land for the 1st time.
- vii.) **Old World Crops**=Wheat [Beer], Barley, Lentils, Peas, Carrots, Figs, Almonds, Pistachios, Dates & Grapes [Wine] in Middle East; Oats, Cabbages, Lettuce, Beets & Asparagus in Mediterranean; Sorghum, finger millet, watermelons & African dry rice in West Africa, Coffee in Ethiopia, East Africa. Oriental rice, eggplants, cucumbers, bananas & plantains, taro & coconuts in South & S.E. Asia; Soybeans, Citrus fruits and tea in China; sugarcane in Melanesia.
- viii.) **New World Crops**=Corn [Maize], tomato, squash (including pumpkins) in Mexico; potatoes, sweet potatoes, avocados and Lima Beans in Peru; in the lowlands manioc [tapioca] peanuts, pineapple and cashews.
- ix.) **Old World Domesticates**=Sheep, goats, camels, cattle & pigs from Middle East, horse from Eurasian grasslands; asian pigs, chickens, yaks and water buffalo from Asia, many **draft animals** hence wheel & plow possible=agricul.
- x.) **New World Domesticates**=far less & no draft animals among them, hence no ag. & no wheel save as toys. Llama Alpaca, guinea pigs, white Mexican turkeys and Muscovy ducks. Most big animals had become extinct-dogs eaten!
- xi.) Common type of horticulture in the tropics is **shifting cultivation*** or **slash-and-burn** (extensive) + **fallow**
- xii.) In desert or temperate regions use **dry land gardening*** [often first in new alluvial easily worked soils that are self-irrigating] along rivers

c.) Agriculture (Plow-pulled by a draft animal)*

d.) Pastoralism (Herding, can be cattle, camels, horses, sheep, etc.)*

The Columbian Exchange=most important event since the original agricultural revolutions! Led to population increases in Europe (Irish potato famine) and in Asia as well as South Pacific (sweet potatoes in New Guinea). Similarly, wheat and plantains in New World (Yanomamö).

The "Pyramid of Numbers" & descent of "trophic levels"

a.) Esther Boserup & **Agricultural Intensification** tied to population increase & **pro-natalism**, a positive-feedback system

i.) Convert **non-arable land** into **arable land** via massive labor inputs, best supplied by large populations

aa.) Irrigation transforms deserts

bb.) Ridged fields drain swamps

cc.) Terraces modify mountains

ii.) can all be compounded in most intensive of all, wet rice paddy agriculture! cite Bali

b.) Clifford Geertz & **Agricultural Involution** is a further result that spins vast numbers off land into swollen cities and then into immigration and migration to distant shores.