

A Thousand Years of Non-Linear History – Part II : Flesh and Genes

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protevi@lsu.edu / [http://www.protevi.com/john/Postmodernity/PDF/ATY_\(Chap2\).pdf](http://www.protevi.com/john/Postmodernity/PDF/ATY_(Chap2).pdf)

Chapter 1: Biological History 1000-1700 AD (103-134)

I. Introductory concepts (103-108)

A. Non-organic life: self-organizing mechanisms and intense flows in physical and chemical as well as organic strata

B. Organic bodies as captures of biomass out of a food web

C. Solar energy as ultimate input (sugar as distillate of solar energy)

D. Ecosystems as succession of plant (and micro-organism) assemblages evolving by drift

E. DeLanda will look at cities

1. In relation to

a. Food webs (agriculture)

b. Micro-organisms (infectious diseases)

c. Climate change

2. As themselves ecosystems (patterns of circulation of biomass)

a. Surrounding countryside

b. Long distance supply zone

(1) Eastern Europe

(2) North America / Caribbean

F. Heterogeneity vs homogeneity in natural and urban ecosystems

1. Resilience vs stability

a. Resilience = ability to switch alternate stable states in response to triggers

b. Stability = ability to stay in a single stable state despite environmental change

c. [Drift = ability to evolve new stable states out of internal constraints]

2. Cities as heat islands and as homogenous in terms of species diversity

a. Shortening of food chains and focusing biomass flow on human consumption

(1) Attack on plant and animal “weeds”

(2) Use of animals as biomass converters and storage devices (cattle, pigs)

b. That is, changing [heterogenous] meshwork into [homogenous] hierarchy

II. Biomass flows (109-111)

A. Humans as prey (as supplying biomass to others)

1. Large predators (wolves and bears) in low population times

2. Micro-predators: different nonlinear dynamics (human-germ meshwork)

a. Low population density

(1) explosive epidemic

(2) cycle through nonhuman host

b. High population density

(1) stable endemic

(2) direct contagion of human to human

(3) mutual accommodation

(a) survivors become immune

(b) micro-organisms lose virulence

c. Cities as “epidemiological laboratories”: transfer from animals to humans

B. Famine (drop in nutritional value of biomass flow to humans)

1. Causes breakdown in cultural codes of proper biomass

2. [MDL neglects anti-production here: produced lack to reproduce social system]

III. Genetic flows (111-115)

A. Anti-essentialism: species as historical constructions [bio-genealogy]

B. Non-genetic reductionism: genes constrain processes of material self-organization (n. 18)

C. Variation in gene pool

1. Phenotypic variation only in external appearance (although sickle cell, etc.)

2. Basis for cultural coding

3. In-group difference greater than between-group differences

D. Gene pool mixing via migration / invasion

1. Extermination vs subjugation

- 2. Agriculture carried by invaders rather than cultural diffusion
- 3. Mixing of pools: genealogy: example of Britons
- IV. Demographics (116-120)
 - A. Higher death rates in cities than countryside requires urban immigration
 - B. Hierarchical social structure affects biomass / genetic flows and birth / death rates
 - 1. Social niches: biomass variation / number of offspring
 - 2. Demographic transition: urban wealth means low offspring
 - C. Role of women
 - 1. Social stratification as simply that, stratification (no metaphor)
 - 2. 2nd sex characteristics: population distributions conflict with binary gender codes
 - 3. Hence homogeneity of roles is result of sorting and consolidation by culture codes
 - 4. Example of fighting
 - a. Privilege of upper body strength (only certain types of warfare)
 - b. Exclusion from training
 - 5. Male guardianship as gene flow control
 - 6. Changes in women's roles: Germanic vs Christian/Roman codes
 - a. Commercial independence
 - b. [Later re-territorialization on home labor: anti-progress narrative]
 - D. Urban immigration: town freedom attracting runaway serfs
- V. 14th century crises: ecological / epidemiological (121-126)
 - A. Famine
 - 1. Deforestation, slope cultivation, soil erosion
 - 2. Tightened nutrient cycles [use of cattle manure as fertilizer] lead to non-resilience
 - B. "Little Ice Age" [17th C: Quebec / furs vs Virginia / tobacco vs Jamaica / sugar]
 - C. Contagious diseases
 - 1. Increased trade creating a single disease pool
 - 2. Social effects of plague
 - a. Labor shortages
 - b. Increased wages for survivors
 - c. Prestige difference: increased for secular; decreased for [ineffective] Church
 - d. Lowering citizenship standards for cities in need of repopulation
 - D. Deforestation
 - 1. Central Place: clearing forest for agriculture
 - 2. Gateway: clearing forest for wood for ships (along with salt and fish)
- VI. Central Place vs Gateway / Network (126-129)
 - A. Central Place capitals also turn outward to tap nutrient bases:
 - 1. Invasion
 - 2. Colonies
 - B. Network seaports as eco-deprived
 - 1. Forced to turn outward (cf. Athens)
 - 2. Trade networks of metropolises on rocky outposts
 - 3. Naval power / control of flow of luxury goods
 - a. [Body politic effects: spices, etc.]
 - b. Creation of anti-market firms
 - C. Braudel and three levels of life
 - 1. Material life [basic foodstuffs / building materials / embodied skills]
 - 2. Markets and local commerce [money flow as catalyst]
 - 3. Anti-market / long-distance trade [free flow of money searching profit]
 - D. Metamorphosis of macroparasites
- VII. Colonization (130-134)
 - A. Eastern Europe as colony of West by 17th Century
 - B. Earlier failure of Crusades (lack of density / lack of resistance to micro-organisms)
 - C. Effect of micro-organisms in New World conquest as "pre-digestive enzymes"
 - 1. North American replacement of populations
 - 2. Central and South American cultural assimilation (with social stratification)
 - D. Total European invading assemblage must be thought (culture, genes, biomass, disease)
 - E. New World as supply zone for Europe
 - 1. Sugar (bio-material life: fuel for workers)
 - 2. Fur / wood (markets)

- 3. Silver / gold (anti-markets)
 - a. Money as entry into foreign markets: projection of European money
- F. Massive transfer of Euro-bio-cultural assemblage after establishing beachhead

Chapter 2: Species and Ecosystems (135-147)

- I. Introductory concepts (135-138)
 - A. Speciation as stratification
 - 1. Sorting and consolidation seen as
 - 2. Accumulation and reproductive isolation
 - a. External sources of isolation
 - b. Internal sources of isolation: mate recognition
 - 3. Yielding encapsulation of gene flow into separate packets
 - B. But such barriers are not absolute: plant hybridization, micro-organism gene exchange
 - C. Thus evolution is more meshwork than hierarchy (Margulis)
 - 1. Entire biosphere is one open gene pool
 - 2. Organisms as composing different rates of gene flow through entire biosphere
- II. Abstract machine of evolution (138-141)
 - A. "Probe head": variable replicator and sorting device
 - 1. Not just in organic life
 - a. A Life and cellular automata
 - b. Dawkins and memes
 - B. Co-evolution: variably changing phase space that probe head explores
 - 1. Against stable fitness landscapes
 - 2. And "survival of the fittest" Social Darwinists
 - a. Reaction to this was social constructivism
 - b. Danger of losing heuristic nature of this and positing no human nature
- III. Current interactionist paradigm: organic and cultural evolution considered together (141-5)
 - A. Direct relations as sorting devices
 - 1. Phenotypic selection on cultural materials (channeling of color words)
 - 2. Cultural selection of genes (e.g., raw milk consumption)
 - B. Indirect relations: self-selecting cultural materials are autonomous re: gene adaptation
 - a. Enhancement: culture helps biology: incest taboos
 - b. Neutral: culture neutral re: biology
 - c. Maladaptive: culture hurts biology:
 - (1) bad agricultural practices destroy eco-survival basis
 - (2) [but anti-production doesn't care about survival, only glory!]
 - (3) question of obedience to social codes [hierarchical or tribal]
- IV. Cultural evolution: kind and number of probe heads at work (145-146)
 - A. Direction of flow
 - 1. Vertical flows
 - a. One to one: parent / caregiver to child
 - b. Many to one: adult social behavior focused on child
 - 2. Horizontal flows
 - a. One to one: adult to adult
 - b. One to many: leader to followers
 - B. Type of learning
 - 1. Imitation of memes
 - 2. Enforced repetition of norms
 - 3. Embodied skill
 - C. Extent of learning
 - 1. Whole social package
 - 2. Individual institutional practices
 - a. Norms
 - b. Memes
- V. Conclusion: genes / memes / norms and biomass always go together (146-147)
 - A. Replicators are catalysts for constraining self-organizing processes of material flows
 - B. That is, catalysts merely choose between stable states generated in the flow

1. Variable phase space for search
2. Low energy catalytic process can unleash huge energy expenditure [e.g., order words unleashing war]

Chapter 3: Biological History 1700-2000 (149-179)

I. Introductory concepts (149-156)

A. Population explosions: usually cyclical: surplus population destroy previous base

B. Changes around 1750:

1. New relation to microbes
2. New agricultural techniques
3. New areas for emigration
 - a. Rest of world becomes supply zone for Europe (and transplanted Europeans)
 - b. Transplantation of entire European assemblage
 - (1) animals
 - (2) plants
 - (3) parasites
 - (4) institutions
 - c. Unprecedented scale of European migration

C. European conquests and transplantations reducing bio and cultural diversity

1. Temperate zone replication of European ecosystems
2. Replication of urban systems

D. Factors in success of European conquest

1. European weeds (clover, etc) took over and provided fodder for cattle
2. Feralization of domestic animals
3. Sheer size of migration and high fertility rates (vs. slave conditions)
4. Efficient exploitation institutions: e.g., sugar plantations
 - a. Provide industrial calories (bio-power)
 - b. Anti-market profits
 - c. Disciplinary techniques

II. New World effect on Europe (156-162)

A. Escape from *longue durée* of material life (famines and epidemics)

1. Food supply
2. Sanitation
3. Vaccination

B. New institutional ecologies (promotion of bio-power)

1. Hospital
2. Disciplinary spread: heterogenous practices interlocking into a meshwork:
 - a. "treating lepers like plague victims": separation and segmentation
 - b. Seeing: panoptical machines; Saying: discourses
 - c. Economies of scale in labor organization
 - (1) increased productivity (teamwork)
 - (2) decreased political cost (individuation; docility)

C. New disciplines allow for "digestion" of European minorities into nation-states

III. Organic homogenization via industrial, anti-market, agriculture (163-172)

A. English "Agrarian Revolution":

1. Animal genetic homogenization through pedigree regulation
2. New fodder crops and new crop rotations to tighten nutrient cycles [Flemish model]
3. "Norfolk System": economies of scale through anti-market investment

B. Neo-Europes implant this on much larger scale and w/ new machines

1. Commercial fertilizers as entry point for anti-market firms
 - a. Genetic engineering follows in this line
 - b. Role of land-grant universities in promoting "scientific" agriculture
2. Dangers of hyper-homogenized plants: corn example
3. "Eugenics" as gene control applied to humans
 - a. Immigration controls
 - b. IQ test as sorting device
 - c. Sterilization campaigns
4. Soma discipline on male body [but cf. Bartky and femininity analysis]
5. Reproductive discipline on female body: medicalization of child birth

IV. Biological meshwork enclosing human food web: relation to micro-organisms (172-179)

A. Cholera as “first industrial disease”:

1. Catalyzing public health institutions and sewage systems
2. Reached Europe quickly from India via steamship
3. Provoked first forms of international co-operation [bio-power beside state / war]

B. Command elements in micro-bio-meshwork

1. Public health measures allow cities to be self-reproductive
2. Military medicine allows European conquest of tropics
3. Antibiotics: provoking “arms race” w/ microbes
 - a. Meshwork of gene swapping in micro-biosphere
 - b. Hierarchies of human medicine
4. Control of gene splicing and gene-gluing enzymes allows new round of war by turning bacteria into

producers

C. Macro-parasite invasion of food chain (anti-market institutions)

1. Commodified inputs to agriculture (vs. self-sustaining cycles)
2. “Green Revolution” as toehold in traditional 3rd World agricultural practices
 - a. Commercial inputs produce economies of scale
 - b. Favoring large farmers and displacing peasants to cities (“globalization”)
 - c. Loss of bio-diversity
3. Corporate-driven genetic manipulation of crops and animals
 - a. Not for nutrition or taste but to withstand industrial processes
 - b. To implant proprietary genes to lock in need for commodified inputs

D. Human Genome Project: screening for insurance, as most genetic diseases have no cure