

Evolutionism in the Haeckelian shadow –

recapitulatory caterpillars of Harry Federley, the Father of the Finnish Genetics and Eugenics Legislation

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Introduction

Harry Federley (1869-1951) is the undisputed father of the Finnish genetics, and eugenics as applied human genetics. He started as a recapitulationist and tried to verify Ernst Haeckel's (1834-1919) Biogenetic Law, which claimed that ontogenesis was a recapitulation of phylogenesis. Embryology used to be called *Entwicklungslehre*, the developmental history of the organism. Federley travelled to Jena in 1910-1911 to conclude his studies and was introduced to Mendelian genetics. Organisms were supposed to retrace their evolution when the embryos "climbed their own family tree" but recapitulation was found wanting. Yet it was never properly depopularized and became an interdisciplinary myth from palaeontology to criminal anthropology and psychoanalysis. Hundreds of finely dressed colour drawings of Federley's "recapitulatory" flutterby caterpillars are now unarchived to Helsinki University Central Archive (HUCA).

Haeckel's Monism confessed evolutionism as scientific religion. Haeckel was a salesman of ideas and provided arsenal for materialism with the terms he coined: Ecology, phylum, phylogeny, ontogeny, heterochrony, profista, gastrula, blastula, and morula. Federley adapted a similar racistic *Welanschauung* and struggled against the one citizen one vote-principle of the new unicameral Parliament in a country of Finnish-speaking 'Mongolian' race. Federley acted as a vice-president of the 3rd international congress of eugenics in 1932, and was a member of the advisory board of the American Eugenical News. He was also a founding member of the government of the International Committee on Human Heredity.

We hypothesize that the early Finnish 'Darwinism' was virtually Haeckelian. Federley's post-WWII autobiography and discovered, unpublished memoirs, deny a close connection to recapitulation and Monism. Federley-Haeckel proceedings now unarchived from the Haeckel Haas Archive in Jena, eastern Germany, gives a different picture. Our source discovery covers the correspondence from Johan Axel Palmén, Harry Federley, Edward Westermarck, Erik Nordenskiöld, Henrik Ramsay, Enzio Reuter, Otto Schulman, Alexander Luther, Nicolai Kaulbars, Valio Korvenkontio, Jacob Sederholm and Onni Toikka to Ernst Haeckel.



Haeckelian drawings of faces of 'anthropods' (1898 ed. of *Natürliche Schöpfungs-Geschichte*, E. Haeckel).

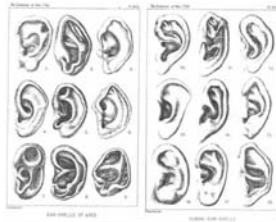
Iron Mendelian laws

Early Mendelism declared that evolution proceeds by discontinuous leaps, but early biometricians stressed natural selection operating on small variations. The A-B blood groups, hemophilia, varieties of eye colour etc. were found to be inherited in a Mendelian fashion by 1910. In excitement, also complex traits and even social behaviour like alcoholism, schizophrenia, manic depression, criminality, rebelliousness, artistic sense, pauperism, racial differences, feeble-mindedness etc. were claimed to be governed by one or two genes.

The recessivity and synergism of the genes were not underlined to public. Advertisements boldly assessed that the 'problems' could be done away within a few generations of 'selection'. Federley discussed the "seed of deficiency" with the clear-cut 3:1 and 2:1:1 Mendelian ratios. Proster strata, criminals, and idiots had the biggest families. The emerging social legislation of the 1920-1930s Finland prepared ground for social welfare. There was a surgical solution. Harry Federley is the father of our law on forced sterilizations. The Iron Mendelian laws were experimental and quantitative. Haeckel's followers put the slogan "politics is applied biology" to action in various countries and Federley represents a Finnish applicant.

The mainstream scientific community was collegial enough not to stop the legislation lobby. Only 14 members of the Parliament voted against the Sterilization Act (6 abstained, 35 were absent and 144 voted for), and the press paid very little attention to the compulsory nature of the law. There were 56,080 more or less forced sterilizations in Finland (1935-1970), 7530 of which took place on the grounds of eugenic, 3373 on social reasons.

Is there an analogy between the 1930's biolgislation and what is emerging today?
Are the individual haplotyping, genome sequencing and SNiPs as prone to neurogenetic determinism?



Haeckelian ears look categorically different (≠ the early embryos)

Adolf Hitler ordered the Ribbentrop's delegation to make observations on the ear of Josef Stalin during their negotiations in Moscow to make the judgement, whether Stalin was a Jew or not (5th ed. of *The Evolution of Man*, 1910, E. Haeckel).

Civil servant and a Civil War

Federley was nominated as the first professor of genetics in Finland in 1922. Parallel to Haeckel, he taught eugenics as an essential part of human heredity over quarter of a century (-1949). He was among the first Finnish scientists since the Revolution to give a lecture in Soviet Union (in 1929) and participated in every international conference in genetics and eugenics before 1950. Federley corresponded with the leading eugenicists abroad and sent 300 offprints of his articles.

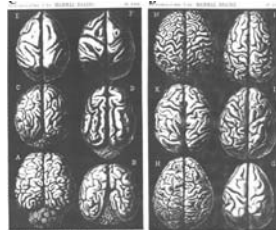
In contrast to the international norm, Finland did not have a chair in eugenics and there was no such society whose undertakings could be followed. Anthropology did not mix with race hygiene. It was not about a discourse on 'Lapps', 'Gypsies' or 'Jews', but on 'degenerate', 'feeble-minded', 'lunatics', 'alcoholics' and 'criminals'. Haeckel's laws served as paradigms of bio-political fascists: Inferior groups (races, sexes, social classes) were compared with the children of white males. At the top of the *unilinear* evolution were the Nordics, a tall race of blue-eyed blondes.

In 1920's Federley contributed to a massive attempt to discern German characteristics from the Finnish populace by assigning blood groups with anthropological data. This was at the time of monumental legislations (compulsory education, prohibition, freedom of religion, military service, land reforms) in the newborn republic. The Constitution from 1919 and a law from 1922 acknowledged also Finnish as an official language and Federley manifests the forgotten eugenic aspect of the 'language struggle'.

The difference between a Western statesman and an Australian aboriginal was greater than the gap between an ape and the native. Some did not rise above the men of the wild but were closer to primates. Industrialization happened in a sequence destined by the genotype, the worst scum surrendering to the factories first. The proletariat mass was passive, collective and genetically unable, so the general vote was unnatural and dangerous. The brains of a public servant weighed 1500 grams, whereas craftsman's brains weighed 1450 grams and hired men's 1400 grams. Even Haeckel's vocabulary ('Weddas', 'Accas' etc.) followed Haeckel's challenging *Wonders of Life* (1904). Natural selection did not function in the welfare system and the incapable mass was vulnerable to the revolutionary agitation in the 1918 Civil War.

Haeckel's materialism appealed to the fascists and socialists alike. The classic *The Riddle of the Universe* (Die Welträtself, 1899) was an unparalleled bestseller. During the first year after its appearance it sold more than 100,000 copies in Germany. It went through ten editions by 1919, and was translated into 30 'civilized' languages. The Finnish edition was published in 1912 by the Workers' institution, prior to Darwin's Origin & Struggle for Life (in 1913-1917). Federley complained to Haeckel (who was not aware of the translation), attacking the translator Väinö Jokinen, a Social Democrat.

In the Haeckelian shadow, WWI was a war of nations, WWII was a war of races. In the same vein, the victory of the Whites in the Civil War was a victory for the Western culture, in the eyes of the beholder of the Red herds. The 'Mongolian' slander against the country folk behind the rampant executions and concentration camps in the 1918 Finland is an open case. Federley did not take the gun but the pen.



Haeckelian drawings of mammalian brains (5th ed. of *The Evolution of Man*, 1910, E. Haeckel).

Finnish race hygiene

German eugenicists prepared ground during the Weimar years, but only when the Nazis assumed power did the *Rassenhygiene* become central to state policy. The Finnish eugenics followed the course abroad and a key feature to understand its practice was the esteem that professional experts such as medical doctors and scientists enjoyed in the society.

People were accustomed to relying on expert opinions, which echoes the conclusions of Paul Weindling in Germany. Federley belonged to the *Leistungsmenschen* - to the breed which can accomplish. Federley was the most enthusiastic correspondent of Haeckel from Finland.

The first race biological institution in the world was established in 1921 in Uppsala, Sweden, and Federley had lobbied it in the Swedish newspapers. In Finland, the extreme right *Patriotic People's Movement* (IKL) had only 8 representatives in the Parliament even by 1939 and neither was Federley's institute established.

But Finland had to survive the Winter War without any ally. In a vengeful spirit of the Continuation War, also many Finnish-speaking scientists and intellectuals accepted eugenic proposals. SSS (Suomalais-Saksalainen Seura; Finnish-German association) and SVL (Suomen Valtakunnan Liitto; Der Reichsbund Finland) with their striking number of heavy weight Professors had ambitious political goals. In Finland, Professors recruited men to the unofficial SS-troops abroad.

In the face of archive declassifications, the post-war presidency of the National Board of Health, the Honorary Presidency of the Finnish Cultural Fund etc. for these opportunists is offending. Was there, indeed, a plan to file the complete population and to start the elimination of the handicapped in Finland, too?

Endemic wartime eugenicists were never put on trial and so the greatest annual number of eugenic sterilizations was performed in 1960 (514 cases). At the same time when the German collaborators in T4-project were prosecuted, the World Medical Association's ethical statement for medical research on human subjects was codified in the 1964 as *The Declaration of Helsinki*. A poor country paid all its war indemnities to Soviet Union and was striving to be that welfare state.

We should acknowledge new 'riddles' in the next round of algene. Are we prepared for the corporate pressure? Or are we just jammed to the old scenario of state pressure? Supranational employers leave a country and switches the gears if a country tries to harness it. *Pecunia non olet*.



The frontpiece to the *Evolution of Man* presents a skull labelled 'Austrian Negro' as an intervening evolutionary stage between the "mediterranean" skull and those of the lower primates (1891 ed. of the *Anthropogenie*).

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Haeckelian figures in the Finnish textbooks

From the past 120 years:
www.helsinki.fi/~pojala/Koukirjart.html

- 1) historical cross-sections (impact), 2) pseudoscientific status, and 3) social effect of the story of "gills", "mucus", "tail", "amniotic fluid" and "fur" of human embryos.

www.helsinki.fi/~pojala/Haeckel/Staattit.html

When is 'schematic' illustration a fraud?

Apart from the embryos, the celebrated *Anthropogenie* contained also this illustration of evolution (1874 ed., E. Haeckel). Darwin's *Descent of Man* appeared in 1871. Anthropogenie in 1868.



Recapitulation – a theory found wanting

Federley worked on the assumption of recapitulation in moth larvae since his masters' thesis, but extensive comparison of *Pygaera* larvae could not provide for the phylogenetic deduction. In frustration, Federley investigated the mere impact of the ambient temperature to make full use of his huge butterfly collections.

Federley's dissertation *Lepidopterologische Temperatur-Experimente* in 1905-6 was the first Finnish doctoral thesis, where purely experimental means were applied to a zoological problem. In Hetta Tiranen Interview Archive (HITA), Federley states it came to him as "an absolute surprise" that his article to a congratulatory book in honor of J.A. Palmén was accepted as a doctoral thesis - with the prerequisite that nothing in it will be changed!

The young Harry Federley collected insects and drew. Later on he was acquainted with the artists Louis Sparre (1863-1964) and Albert Edelrök (1854-1905) (who painted not only Louis Pasteur (1822-1895) with his sterile tubes but also the congratulatory to Ernst Haeckel, 1845-1919). 130 finely dressed colour drawings of butterfly caterpillars a la Harry Federley have been preserved to HUCA by Eero Vallisaari.

Federley's contribution to the *Vererbungslehre* began by hybridization experiments on *Pygaera anachoreta*, *cutula* and *pigra*. The data could not be harmonized with the Mendelian law before the Biogenetic law was discarded. Enzio Reuter (1867-1951), entomologist, acarologist and the Professor of Zoology, seems to have given the hint to study the chromosomes. Reuter was another correspondent of Ernst Haeckel and a successor of J. A. Palmén, whose letters to Haeckel are now unarchived from the Haeckel Haas, too. Reuter had studied chromosomes in various insects and mites, but the individuality and permanence in the chromosomes still remained a mystery.

Federley came across to note the significance of chromosomes in heredity. The data for the classic paper on *Pygaera* was harvested while Federley stayed in Jena although it was not published until 1913, in the annual volume of a leading genetical journal *Zeitschrift für induktive Abstammungs- und Vererbungslehre*.



The most recycled theme in the 20th century Finnish textbooks of biology?

Haeckel's view of a conserved state in the embryonic development of fish, amphibian, reptile, bird and human. Adapted from Alberts et al. *Molecular biology of the cell* (1994, p.33).

Bottom panel: A corresponding sample of the reproduced outline of the embryos (the fish, the salamander, the turtle, the chicken, the rabbit and the human embryo). Adapted from Richardson et al (1997) There is so highly conserved embryonic stage in the vertebrates: implications for current theories of evolution and development. *Anat. Embryol.* 196:91-106. Copyrights Springer-Verlag.

Is the stem cell-type at the ethical tangent of the branitized human embryos a modern day panacea?

The recycled embryonic distortions include

- *Ontosis and insertion of somites - which can be explained neither by the quality of the day's microscopes (the Zeiss camera was founded in Jena) nor hand motorics (Haeckel even published an book)
- *The difference in size across species (0.7-9.25 mm) has often been hidden, as well as the actual age of the embryos. (The first of the three lanes is certainly not the earliest phase of ontogenesis, as implied, and the differences are most evident before the disputed "phylogenic" stages)
- *Of the seven class of vertebrates, five at most are included, apparently because the taxonomic level of greatest resemblance among vertebrate embryos seems to be below the subphylum.
- *After omission of common species, even the nonmember of the selectively chosen ones (like salamander as a representative instead of a frog) are sometimes skewed. The original and the replicas alike typically fail to give scientific names, stages or source of the specimens illustrated.
- *The number of units in repeating series such as somites are claimed to be practically invariant, although actually it ranges from 11 to over 60 (and to over 500 in the case of snakes). The infamous visceral or pharyngeal pouches (referred to by more professional ontogenists: gonopore(s) at pill sites or gills) at the tubed stage look strikingly different in Richardson's sample of schemes, and range from 1 to 6 in number.
- *Lastly, there seems to be changes in pattern (allometry) and timing (heterochrony) of growth in limbs or paired fins, lens buds, liver buds, or heart in the mid-stage of the Haeckel's concept of phylum ("phylogenic" stage).
- *In reality, the "gills" (as originally discussed) develop into some glands, structures in our inner ear, jaw, throte etc.