

WHAT IS NATURAL AND WHAT IS UN-NATURAL IN CANCER?

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Biocosmology and cancer
Krakow
14-15 July 2017

The common perception of **cancer**

“Other diseases may be cured – but not cancer”

- The most **terrifying** /extreme illness – because of its irreversibility/menace of **irreversibility** – **imminence** of **death**
- The **criterion** towards which other diseases are “measured”
- The **model** of illnesses – a sudden, unexpected and never expected state, interrupting the sweet routine of life (model – the most radical illness)
- A **limit situation** brutally pushing people to think to the meanings of life when they can no longer change the projects and course

Cancer as a natural phenomenon

- The natural character of (non-traumatic) diseases – a “modern” (philosophical and scientific) idea → **cancer** too – natural
 - (because “cooking assumes the form of medicine, and pretends to know what foods are best for the body” [Plato, *Gorgias*, 464d] and thus “cooking is flattery disguised as medicine” [idem, 465b], “Doctors, too, are something whose services we shall be much more likely to require if we live thus than as before” [*Republic*, 373c-d])
- Plato and Aristotle (Hippocrates) spoke about a general state of the body **and** soul: a **general** state generated naturally **from within** and treated with **both local interventions** (“expects his physician to give him a drug which will operate as an emetic on the disease, or to get rid of it by purging or the use of cautery or the knife” [*Republic*, 406d]) and **general prophylaxis** (temperance in diet, gymnastics, see music and gymnastics „not for the soul and the body except incidentally, but for the harmonious adjustment of these two principles by the proper degree of tension and relaxation of each” [idem, 411e-412a])
- Natural character = the causes (of cancer) are **from within** the organism, the remedies are **both from within** and **from without**
- Aristotle (the four causes – **telos** – and **form/sunolon**, see Bazac 2015, 2016): disease – **both from within**, generated by the internal act (energy/*energheia*) or constitution of the peculiar **telos** of the organism, *entelecheia* (*Metaph.*1050a), and **from without** : as a concrete form/**sunolon** – the concrete state of the organism –

– is both the result of the **telos** of the organism, i.e. the act/the becoming of the organism according to its pattern/form, and to the **efficient** causes of health or illness (diet, gymnastics, walking)

(“all potencies are either innate, like the senses, or acquired by practice”; “not only things which are inherent in an object are its causes, but also certain external things, e.g. the moving cause”, “Health, disease, body; and the moving cause is the art of medicine“, [*Metaph.* 1047b32-33; 1070b23-25, and 30-31])

- **Today:**

- diseases/**cancer** – natural, causes **from within** and **from without** and must be analysed **both from within** and **from without** (some ones neglect I or II)
- Concerning the internal causes: some ones – physico-chemical causes, others – the teleological ones **too**) (“mechanism” vs. teleology); in fact, childish opposition: see demonstration of teleology in [Bechtel and Abrahamsen, 260] *mechanisms* (as structures with functions) and *dynamics*, thus mechanisms in real time emphasising their manifestations as cyclic organisations with oscillations, are autonomous “far from equilibrium and must maintain themselves as such or die”; and that cells as interactions between molecules/molecular structures [Pebay-Peyroula et al.] are results of dissipative/irreversible processes where the internal information is part of/helps the energy transfer **ultimately from without** [Baverstock and Rönkkö]; this external environment – both internal to the organism (from organs/structures of cells, organism as such) and external
- The teleological: the intertwining of the **teloi** of different levels (organism, organs, cells), including of the mind and psychic (teleological – result of n “mechanical”)

Life – internal *telos* (*conatus*) and functioning (internal *telos* – the maintaining of internal stability [Claude Bernard 1865; Cannon 1939, homeostasis] that works at every level of the complex

“The living system, due to its circular organization, is an inductive system and functions always in a predictive manner: what occurred once will occur again. Its organization (both genetic and otherwise) is conservative and repeats only that which works” [Maturana, 1970, in Glasersfeld, 1997]

- **There are purposes (*teloi*) and functioning of “entities” [molecules, cells, membranes, synapses, *organs* (as in Ukhtomsky, a dynamical mechanism leading to the same results in constant conditions; see Ugolev and Ivashkin’s *elementary functional blocks* where “complex functions could be reached due to the recombination and transposition of a large though limited set of molecular machines realizing elementary biological operations”, 1992, in Chapouthier 2012], (ex. concentration of sugar in the blood, liver, pancreas) tissues, organism] at every level; all *teloi* and functioning influence each other, in a hierarchy of levels (where ↓, but ↑), but having a relative autonomy; the functioning controls i-o [ex. transport of ions; perceptions; Powers, in Mansel and Carey 2015], including, in an indirect manner, the inter-influence of *teloi***

Life – a multi-level multi-controlling combined mechanism or reorganisation (functions – signaled by the biochemical level of molecules) (!!! understandable in an **integrative** Newtonian and **telic** view; not only in a **telic** view, as Cziko asserts)

Cells - attractors – stable states toward which cells tend to evolve (**telos**) / all initial states converge (region of convergence – basin of attraction): cells – dynamic attractors (“young” state/proliferative; apoptotic) important – as intermediary level – for the biochemical **processes** and organic **processes** → all **telic**

Life – network of n networks at all the levels of the organism, where all the living **processes** (**telic**) have an i-o “Newtonian” c-e type of relations; all **processes** are at the same time **conservative**, **attractive/telic**, and **creative** [Sabelli 2001]

Creative processes – and with all the triunity/intermediary states/unity of opposites (Khroutski) – create **opposite** (bifurcation cascades) [Sabelli] (\leftrightarrow): patterns and their transformation, diversification, complexification at all levels, imbricating in “mosaic”, “where at each and every level, the properties of the whole allow a large degree of autonomy to the component parts [Chapouthier, 9]

- create **complementary** opposites, acting in synergy (Jaros)
- **teleonomic systems** [Jaros and Baker] having telentropy – measure of the likelihood of success to reach their **telos**; interaction of systems = transfer of telentropy (advantageous/disadvantageous)

When there are “*contradictions of systemic divergence*” [Bogdanov (1921) 1980] in the organism/between the levels of control / when the integrative **process** does not balance/compensate the differentiation/variability / there is less complementarity than opposition – the diseases of **old age** and **cancer** occur

Cancer – occurs at the level of cells, but – according to the level of health of the organism – its **telos** may counter, at least for a while the **process** at the lowest level (the fact that for a while one does not perceive the signals of disease is significant)

Cancer – when feedback loops do not preserve stability, plasticity, robustness

Cancer – occurs when the organisation/re-organisation, thus adaptation and learning, thus autopoiesis [Maturana 2002], face disturbing (repeated) processes of disadvantageous transfer of telentropy (from cancerous cell →)

Cancer – occurs when the biochemical reactions inside cells communicate with other cells and the networks of intercellular reactions generate heterogeneity and differentiation which respond to noise/information from harmful tendencies [see Koseska and Bastiaens]; **cancer** –cognitive process, as **life** is)

Cancer – occurs as a shift in cells [Chu, Lee, Cho] but as a result of combined environmental stress [Baverstock]

Cancer occurs at local level, but it is enemy of the **whole** organism
Death happens when the **whole** organism is defeated by **cancer**

When **life** is tired, **cancer** – a new life, but parasitic

Un-naturalness of cancer

If **cancer** is a natural phenomenon from the viewpoint of **life** processes, it is **un-natural from the standpoint of humans**

Cancer – un-natural from a **cultural** point of view (**culture** –specific difference of man)

- ontologically: **life** – criterion of naturalness, and health – *sine qua non* condition of **life/creativity** → **cancer** – un-natural obstacle, monstrous deviant living destroying the normal **life**

MODES TO FIGHT **CANCER** – **CULTURAL** (scientific research)

- Since **cancer** – a new “life”, parasiting the original / normal / natural one, it has its own **telos** (its own “form”)
- It opposes to the **telos** of the de-formed organ, and to the **telos** of the organism → this does not mean to reduce the problem of **cancer** to local reparations, because it is the enemy of the organism (universe?), and not only of local organs
- Fighting **cancer**, the focus on the internal local points must be completed with the focus on the organism-environment system (change of matter-energy-information – is multi-layers organism-environment system)
- (causes of carcinogenic disorder/difference/variability/non-viability may be stored in the memory of cells, this genetic presence being in its turn a possible, not mandatory, cause of **cancer**; **the most probable causes – are the actual ones** (Aristotle))

MODES TO FIGHT **CANCER** – **CULTURAL** (**dialectic of the individual and the species**)

- The individual has **cancer**: he want not die (The five stages of cancer grief: denial, anger, bargaining, depression and acceptance, Kübler-Ross)
- He is an **individual**, he fights as an **individual** only (with the help of others)
- !!! He is **also** member of the **human species**, he is **responsible** for the **human species**, he is the mirror of the **human species**, as he behaves, the **species** behaves (depression, resignation ≠ specific to the **human species**)
- The **human species** – **cultural** = to create **meanings** of **life**
- In order to create **meanings** – a rich **content** of **life** is needed
- To assume the membership of the **human species**, to live as a member of the **human species** = to be **responsible** for his actions as a member of the **human species**
- His struggle with **cancer** – the struggle of the **human species**
- How to assume the membership of the **human species**, how to struggle as a **human species**? To have a **social ideal**, altruistic view about the necessity of the development of conditions for the manifestation of creativity of every human being and all of them

The **social ideal** – as a means to fight (not only) **cancer**

- To fight against the **irreversibility** (signaled by **cancer**) – to fight for a rich and human **content** of **life**
- Historically, not the **content** of life, but **death** was the end of the human preoccupation
- premodernity: imagination of individual continuity in the afterworld; Heidegger - beings-toward-death = little *everyday care* and *anxiety*; Nietzsche – solution: the moral transformation; it is not enough, Marx; Bergson – joy of life
- Joy of life – unique for every **individual**, but it does not concern only individual ends

- The care for the **content** of **life** – care for **rich experiences and meanings enriching the species**

- the individual – **species being** because “*he makes the fate and fortune of the entire species his object*” (Margolis, 332): he behaves as the **species** (**responsible** for the **species**)
- When the individual thinks and acts only as an **individual**, and not at the same time as a **species being**, he brings out the *koinonia*/community from his universe of thoughts = he is narrowing his **content** of **life**, as well as his struggle with the **irreversibility** of the **individual** death
- To assume the appurtenance to the **human species** – to know that the **individual** continue to exist in the **human species**
- The dialectic individual – species involves **mutuality**: the individual must behave in such a way as to respect the **humanity** of the species and to assure its development; but society must respect the **uniqueness** of the human individual
- To behave as a species: to be aware of this (Brăzdău)

If people consider themselves as members of the **human species** – they know that they will not fully die: they *will survive as/within the human community*

- the more they were preoccupied for its issues, the more they fought the factors limiting the humanity of *all the human persons*, the more they feel as future survivors
- To have as a beacon the **social ideal** follows Aristotle's thinking that *justice* is the best or even the whole of Virtue because it means to practice virtue "towards others", not towards oneself (*N.E.*, 1130)
- The individual ↔ the human species /society: as the individual (behaves, is the mirror of) cares for the species, as society has to treat the individual as a **unique** being (respect the **uniqueness**)
- To have as a permanent **priority** the **social ideal** allows both the enrichment of the **content** of **life** and **resources to fight the suffering of a final illness**. My solution is to transform every healthy and ill person in a fighter not only against one's own health, but also for social justice and bright future of humanity

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