Physiologie du risque face à l'Histoire, or, Health, Culture and Society

The possibilities of anthropology and policy

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Abstract

This review of published research (*Health, Culture and Society* – Rawat Publications, India, 2000) seeks to introduce the reader to the driving themes of a work establishing the link between human physiological functions and social represetations. In doing so the author articulates the topic of prevention within a broad and complex social, historical and anthropological framework.

Keywords: Physiology; Anthropology; System Building

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I. Society and EOPs

The democratic, industrial, scientific and technological revolution well known to the Western world for three centuries presents the following paradox, urging us to rethink the question of social regulation : while the safety of individuals has never been greater (lower infant mortality, increased life expectancy, health systems, insurance and solidarity, defence and security ...), Western development has at the same time presented humanity with increased risks (nuclear fire, environmental degradation, depletion of natural resources ...), threatening its short-term survival.

It is possible to distinguish between (1) "low-risk societies" in which individuals are at considerable risk, but lack the means to sufficiently change the physicochemical conditions prevailing on earth to compromise the survival of the human species, and (2) "high-risk societies" whose technological and industrial achievements throw collective survival in the balance through disruptive events beyond the capabilities of human physiological adaptation to the new environments they can potentially create. Collectively, we depend on things that depend on us, and the question is what control mechanisms we can implement to ensure a sustainable and viable balance.

Based on a review of physiological properties that allow living things to maintain states of dynamic equilibrium (homeostasis), this research offers a model, as well as numerous hypotheses, that seek to establish links between physiology and social organization. The premise of our study is man's time-honored dream to increase his functional abilities, that is to say, the increase in his capacity for action. For this reason, humanity creates extra-organic prostheses (EOP) and around these, social groups evolve and gravitate. The extra-organic prostheses to which we refer are functional extensions in society of the four major physiological functions of the organism, going far beyond the limits of the organism itself. These are: (1) the metabolic function, (2) the neurological and neurosensory function, (3) the immunological function and (4) the function of removing waste. Each function corresponds to specific actions which often permit the relation between the organism[2] and its environment : for the metabolic function it is to mobilize; for the neurological function it is to think, imagine, create, design, memorize ; for neurosensory prostheses it is to hear and communicate remotely, to see beyond that which is naturally visible; for immunological prostheses it is to protect and defend; for the prostheses of elimination and removal it is to

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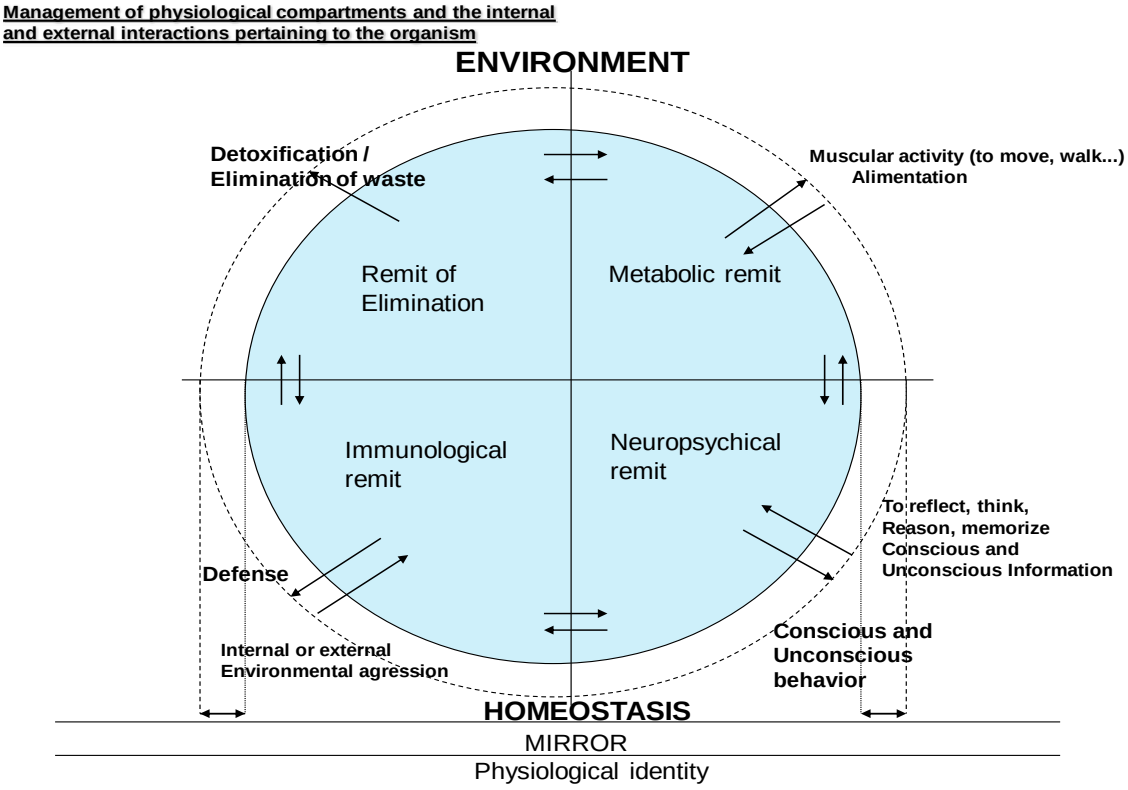
[2] i.e., the individual or social group in terms of EOP

detoxicate, retreat and regulate. In other words, these extra-organic prostheses are not tools such as a hammer is, requiring the organism for its utility, but rather functional systems built and instituted by man himself. And as they provide a function, these systems both have a certain degree of autonomy and a necessary coordination. The published research proposes these to be "applications" for new modes of social regulation, with professions as the vehicles for extra-organic processes.

Let us take several examples to clarify: the metabolic function has two properties (1) to transform food into energy (anabolic function) and (2) to eliminate waste product through the breakdown of food stuffs (catabolic function). Where the metabolic function is related to mobility (the verb "to mobilize"), the EOP has as its objective the extension and continuance of function, which is in fact, to increase mobility. The car, the train, the boat, the plane, the space shuttle are extra-organic processes for it is precisely the utilization of energy which enables functionability. The construction and life of these prostheses is, however, limited, and their elimination will generate waste which, if unchecked, presents the risk of serious physiological disequilibrium. Let's choose further clarification on the prostheses-individual relation: there are today eight million individuals who own mobile phones – try and prise a phone out of someone's hand and you will see the reaction – do it at your own risk! It is as if the phone is an integral part of the person; let us call it a neuro-sensory prosthesis. Likewise, the computer increases capacity for memorization and is therefore a neurological EOP. Thus, each function can be extended and developed by extra-organic prostheses which give a new dimension to man and indeed to humanity?[3]



[3]Certain policies have also understood this and it would be interesting to study their use in the context of terrorist actions.

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This thesis is not particularly new if we remember the anthropological works of André Leroi-Gourhan (1911-1986) demonstrating the role of the "technical" in processes of hominization.[4] It does, however, warrant renewed attention when we consider (1) the almost forgotten question of the technical by Western philosophy, and, (2) our epoch in which the technical and its systems are in full fruition, reconfiguring the science-technical-society relation.

In terms of social regulation, there is what we call the tri-partition of traditional societies (the model of Georges Dumezil, 1898-1986)[5] like that which existed before the French Revolution, where the Third Estate, the Nobility and the Clergy were analogous to functions of production, defense and intellectual activity (the neurological and neurosensory function). This re-partition in turn evolved into the quadri-partitioning of the Industrial Revolution which individualized the function of production. This was, moreover, representative of the function of the elimination of waste (these two functions were initially misconstrued in the Third State before the French Revolution. The notion of elimination is one that is central to physiology and the maintenance of cellular and pluricellular homeostasis. Yet despite its presence and existence in historical and social reality, it remains to be formalized in our contemporary society. What is clear is that both the collective and individual human dimension has undergone dramatic, historical modification, generating risks which have hitherto been ignored. Our research therefore underlines the contemporary necessity of socially legitimating professions which are responsible for the sorting and industrial recycling of waste. Similar claims are made throughout the milieu of ecological movements, and we have to recognize the relative autonomy of this eliminative function in relation to production. We are indeed living within a period of renaissance where humanity needs to learn how to live with what it invented and produced for man's well-being.

II. Physiology, Society and Regulation

In the social and philosophical context, our research draws upon an important hypothesis, namely that we find in India, as with China, the blueprint for such an organization of social roles – one which can urge the West to rethink its development in "durable" and lasting terms. Thus, the sociological and functional system of the Indian varna can be split into the quadripartite divisions of Brahmins, Ksatriyas, Vaisyas, and Shudras. These will later derive into castes. It is also possible that those referred to as "untouchables" are the descendants of professions dedicated to environmental management and waste treatment. Their social recognition as such, however, would have become lost over the centuries. But, what factors triggered this Indian quadripartition? And what is its significance in terms of social regulation? Does it occur in the wake of a post-catastrophic renewal, the memory of which, although lost, nevertheless survived in the form of the Dharma – that socio-cosmological order governing the logic of the four Varna, from which all subsequent castes stem?

Our study raises the question as to what "prevention" actually means. These hypotheses inspire us to reflect on what the West can learn from both physiology and Asian wisdom in order to deal with some of the obstacles humanity faces on its particular course of development. In fact, whether in a context of the Chinese or Indian social system, both continents share a common, historical relation. Where India sought to prevent social and energetic imbalances by establishing a social system envisioning the functional (homeostatic) human in its environment

[4] Hominization refers to the process of becoming human

[5] Georges Dumézil, *Mythes et dieux des indo-européens* (*Myths and Gods of the Indo-European*), Editions Flammarion, 1992.

(Dharma), China adopted a highly abstract and metaphorical vision of the energy-matter equilibrium represented by yin and yang. But what exactly were the socio-historical fissures spurring the design of such a system?

Let us now consider how our research can be applied in certain areas of social regulation and policies of industrialized societies. In the political sciences and professional sociology new perspectives can indeed be created, although less successfully so than in the field of health. One set of findings from the study of Indian social quadripartition reveals that the functions performed by extra organic prostheses are assigned to social groups that can in fact go towards building more systematically structured professions. To these functions are associated responsibilities in dynamic equilibrium and the evolving capacities of developed societies (with respect to individual and collective homeostasis). Consequently, it is important to consider the political representation [value] of these professions and their structural organization (ethics, training, internal regulators, external representative bodies).

Organized professions already exist, in particular the judicial and medical, which have been delegated a degree of social responsibility as well as autonomous, internal organization (ethics, the Bar Council, the definition of training programs etc.,). These professions and their remit of responsibility / activity could, however, be enhanced by clarifying the roles of each of the major professions vis-à-vis the system of social quadripartition. Let us consider, for example, the emerging autonomy and social recognition of professional groups responsible for production, environmental management and waste treatment (metabolic functions and elimination: engineers, technicians, manufacturers, etc.. keeping in mind that entire professions are likely to be invented on the side of the removal function), as well as those responsible for "knowledge " (the neuropsychological function: teachers, intellectuals, researchers, journalists, areas of culture, etc.) in economies that increasingly identify with this term. The burning question of terrorism and underlying socio-geopolitical issues [facing modern humanity] also forces us to re-examine the role of occupational safety and defence (the immunological function) where there is probably too much subordination to centralized (and often indecisive) political power.

In short, the issue is twofold. Firstly, in not being restricted to labor-value and economic power relations, we need to recognize the social utility of “professional investment” and how it can serve the major functions listed above. These functions, which are socially and professionally organized, can allow for societies to evolve out of tradition (and therefore destined to evolve), at the same time considering the social inertia without which any society is doomed to disorganized chaos. Secondly, we are dealing with the question of effectively coordinating these functions for the benefit and overall development of humanity and society. With this notion of coordination, there is also the concern (according to our scheme which is based on physiological work) to ensure the circulation of information and systemic control as in cybernetics. To this is attributing a pressing social urgency, that is, of avoiding the excessive dominance of one or more professional groups over others. Our study suggests that such coordination is through self-regulated professional groups devoted to each holder of extra-organic implants that are not directly, but indirectly, dependent on political power, via intermediary representative bodies already boasting a degree of coordination and working cohesion. This would create “transversal” jurisdictions based on the equilibrium of social groups which could, as consequence, evoke the socio-cosmology of the Dharma. By studying the terms and conditions of this representation of occupations and their coordination we have the possibility of shedding new light on the contemporary crisis of professional expertise facing political decision-making in increasingly complex and democratic societies.[6]

[6]taking everyone's opinion into account whatever the so-called complexity

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Instead of reducing sociology or political science to a biological study restricting behavioural readings, our research confronts the fact that human behavior, both individual and collective, is conditioned by physiological interactions composing a contingent history at (individual and collective) ecological level. It is here that we find the question of freedom and the uncertainty of social evolution. The particular course of development unique to Western societies – one which is gradually imposed upon the world – imbues professional or collective investment with a freedom and effective action. This is not obtained by voting for an abstract and distant political power whose action poses problems in modern democracies. The investment drive in which everyone can participate, is defined by a personal and collective effort, one not contesting the right to vote or minimizing the importance of regular elections, but sooner enriching political life by supplementing it with other modes of regulation and representation.

The sector which the author has most contributed to is naturally the one corresponding to his field of specialization, namely, health – a field which continues to be a major concern for developed societies. Vast sums are invested in this sector and chronic deficits will continue to increase with ageing population through lack of proper prevention, lack of concomitant predictability of major societal changes (the change in eating habits, physical inactivity , changing patterns of work organization, developing chemicals, pollution, industrial disasters, etc.) and legitimate claims (pain-relief, medication use, treatment of addiction, etc.,). While many countries still today oppose the preventive and curative, it is knowledge acquired since the 19th century which shows us that the human body has regulatory mechanisms pertaining to a real deterrent system, whatever the health condition. Thus, a physiological definition of prevention highlighting the regulatory mechanisms of the body can enrich the health system and the tailoring of treatments according to each respective level. This said, our study owes much to the precursors of modern physiology, whether a Claude Bernard, a Louis Pasteur in the 19th century, a Walter Cannon in the 20th century and all subsequent researchers who adhere to the same reasoning by studying the regulatory mechanisms of the body.

By opting for a circular model as schematic representation, it is possible to understand how all physiological functions are integrated, thereby demonstrating their interaction, globalizing all of the information. Such a model demonstrates the organism's regularity, consistency, its divisibility into functional remits and how it is systemically defined in its environment. This in turn provides support for enquiry which seeks to explain the specific role of each functional remit. Such a systemic approach, furthermore, allows us to propose in a very logical manner, the administration of an integrated whole and the management of the patient, whether behavioral or therapeutic. Assuming that our organism is a system of prevention, curative treatment (whose content varies depending on the condition) can be understood as integrating all levels of prevention regardless of the health condition.

In 1999, our initial project on prevention was presented to the Academy of Medicine in Paris, co-signed by Mr. Claude Hagège, Professor of Linguistic Theory at the Collège de France. Further support was gained through Mr. Pierre Corvol, MD, Professor of Experimental Medicine, Member of the Academy of Science, and Mr. Grogogeat, Professor of Cardiology and Member of the Academy of Medicine. Asserted, was the following:

> Traditional training has meant that the practice of today's medicine is inspired by a dualism separating the preventive and curative. With this opposition it is important to remember that prevention is first and foremost what our body effectuates in a natural autonomous manner. This provides clues as to the state of the organism's equilibrium, namely that there is another form of prevention – voluntary prevention – and it is precisely here that medicine intervenes. But voluntary prevention, given the fact that it is the order of intervention at the service of the natural, necessarily implies behavior, and consequently, it is situated in an

> essentially social and ethical framework, that of the well-being of human societies.[7]

As Mr. Jacques Chirac, then President of the French Republic, respectfully expressed in a letter dated 24th October 2002, following the presentation of this project at the Palais de l'Elysée to Madame Marie-Claire Carrère-Gée, Social advisor to the presidency of the Republic:

> By establishing the curative dimension of prevention, you have managed to put the latter in the heart of health policy and the health care system [...].Madame Marie-Claire Carrère-Gée, […] brought to my attention the [importance] consistency of your project […]

The physiological perspective of prevention presents the possibilities of "establishing the curative dimension of prevention". Physiology is the result of the organism's regulatory mechanisms, it is the synthesis of autonomous and voluntary prevention. This defines a state of stable equilibrium and, concordantly, the dynamic prevention of the organism. If our politicians can better understand the issues of "primary preventive medicine" in the physiological sense of the term, they could then better manage the therapeutics of primary prevention and certain medications declared unnecessary for the prevention of acute and chronic diseases.

At an organizational level, the management of states of health can reveal the existence of three levels of prevention. What we call primary prevention would manage the functional balance of the body and incorporate therapeutics to combat physiological imbalance factors (risk factors). The secondary prevention serves to cover acute illnesses throughout their duration – yet this currently being not the case.[8]Finally, tertiary prevention should include the management of chronic diseases and disabilities, taking into account the notion of predictability. Dependence can be predictable or unpredictable. Where for example, the ageing population is predicted to generate a rise in Alzheimer cases whose financial impact is heavy, certain diseases or disabilities caused by accidents are currently unpredictable and must have specific financial input.

The tripartition of a health system based on a physiology of prevention integrates the management of physiological equilibrium, acute patho-physiology (secondary prevention), and chronic patho-physiology (tertiary prevention). By combining voluntary incentives, solidarity, as well as anticipating and determining the dependence at each level of prevention, it would be possible to design and propose a partition of the health system, one that is easier to budget. Indeed, the premise of the research developed in our book, is in knowing that the economy is built on human needs and capabilities. In conclusion, it would therefore be better to direct resources towards health understood as a state of balance rather than disease as a state of non-health to be healed.

Acknowledgments

Thanks are due to Ludovic Bot, Researcher at the Pôle Sciences Humaines et Sociales, ENSTA-Bretagne, whose experience and expertise contributed to the revision of this presentation.

[7] Excerpt from a presentation in 2009 to the Academy of Medicine

[8] In France social security budgeting occurred once its coverage was limited.

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