

# Immunizing Society: The Adaptation of “Immunity” in the Discourses of the Humanities and Social Sciences<sup>1</sup>

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## Abstract

The paper introduces the concept of *Homo immunologicus* from *You Must Change Your Life* by the German philosopher Peter Sloterdijk, and discusses it together with Niklas Luhmann’s theory of *Social Systems*. It tries to explain the changes within the concepts of immunity that come about through the processes of adaptation from the natural sciences to the discourses of the humanities and social sciences. The paper also calls attention to historical variations in the conceptualizations of immunity within various scientific immunological discourses and to the criticism and analysis of scientific discourses on immunology from the point of view of cultural studies. Since the author is not a specialist in Japanese Studies, the paper ends with a very short, tentative outlook on how Sloterdijk’s and Luhmann’s theories might be applied to post-Fukushima Japan, leaving, however, further discussion to the experts in that field.

## I.

The German society – if such a generalization may be permitted – reacted to the Fukushima Nuclear Accident in Japan in March 2011 with an extraordinarily radical demand: to immediately back out of the German national nuclear energy program. Germans also expected the Japanese to do so, and the majority of them are bewildered by the fact that the Japanese, in spite of the devastating accident and its foreseeable long-term consequences, in spite of the underlying hazardous seismographic characteristics of their home soil, are not following suit. The radicalness with which the Germans reacted is due to long-term discourses prevailing in the German public, ranging from

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the Student Revolution of the 60s and the Anti-War, Anti-Nuclear Warfare, Anti-Nuclear Energy demonstrations of the 70s and 80s to much older, centuries encompassing discourses imbedded in philosophical and social theories, in religious and political concepts, and in formulas and conceptualizations in medicine and the natural sciences.

## II.

The title of the book that the well-known German philosopher Peter Sloterdijk published in 2009, two years before the fatal accident, seems to encapsulate this German zeitgeist: “You Must Change Your Life”. This book answers to the two great challenges that the world is confronted with according to Sloterdijk. The foremost subject of the book is therefore the so-called “religious clashes”, drastically epitomized in the American-Islamic confrontation since and before September 2001. In spite of his fierce and astute criticism, Sloterdijk is trying to envisage a tertium comparationis for the dead-locked antagonists and to build a bridge to overcome these so-called “religious” differences. In his view all religions and societies in this world are based on one and the same principle, i.e. “spiritual regimen”<sup>2</sup> (Sloterdijk 2013 : 3), which is practiced world-wide in collectives such as “church”, “ordo”, “umma”, “sangha” or practiced individually in a more modernized version through interaction with a “personal God”. What unites the followers of the most diverse religions is therefore the concept of practice – practicing Buddhism, Islam, Christianity – being a member of a certain religion by doing something, living in a certain way, according to certain rules. Moreover, all religions expect their followers to improve themselves and their relationship to whatever they deem holy. Historically the “moral”, “ethic”, “ascetic”, “pious”, or “spiritual” imperative “You must change your life” has therefore been predominantly linked to religious concepts or their secular modern off-springs. But who is to pronounce this imperative in a world full of religious and political factionalism and rivalry? Here Sloterdijk’s second looming challenge enters the stage:

The only authority that is still in a position to say “You must change your life!” is the global crisis, which, as everyone has been noticing for some time, has begun to send out its apostles. Its authority is real because it is based on something unimaginable of which it is the harbinger: the global catastrophe. One need not be religiously musical to understand why the Great Catastrophe had to become the goddess of the century. As it possesses the aura of the monstrous, it bears the primary traits that were previously

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2 Quotations are taken from the English translation of Peter Sloterdijk’s *Du mußt dein Leben ändern: Über Anthropotechnik* (2009).

ascribed to the transcendent powers [...] Since the global catastrophe began its partial unveiling, a new manifestation of the absolute imperative has come into the world, one that directs itself at everyone and nobody in the form of a sharp admonition: “Change your life! Otherwise its complete disclosure will demonstrate to you, sooner or later, what you failed to do during the time of portents!” (Sloterdijk 2013: 444)

According to Sloterdijk all mankind is confronted with this looming danger, the global catastrophe, throwing its shadows in forms of earthquakes, tsunamis, and nuclear accidents, tornados, hurricanes, and oil pollution, droughts, inundations, and global warming, famine, pandemics, and overpopulation, economic bubbles, crashes, and impending wars. And therefore all mankind feels the need to brace themselves – the religious as much as the atheists. “The false dichotomy of believers and unbelievers becomes obsolete and is replaced by the distinction between the practicing and the untrained, or those who train differently” (Sloterdijk 2013: 3). What remains, are not religions and parties, nations and cultures, but only regimens more or less capable and worthy of propagation. The human being appears in its original shape as that species which uses practice in order to survive:

After centuries of experiments with new forms of life, the realization has dawned that humans, whatever ethnic, economic and political situation might govern their lives, exist not only in “material conditions”, but also in symbolic immune systems and ritual shells. (Sloterdijk 2013: 3)

Peter Sloterdijk offers nothing less than a new concept of the human species, and introduces the “*Homo immunologicus*, who must give his life, with all its dangers and surfeits, a symbolic framework”. It is an ethical human being, struggling with itself in concern for its form, a *Homo repetitivus*, the *Homo artista* in its extreme version (Sloterdijk 2013: 10). The stress on form is important here, because the *Homo immunologicus* is not simply answering to the demands forced upon him by an all too often adversary environment, he is as much designing himself along these lines, displaying an immense amount of self-awareness. Repetition therefore serves not only performance enhancement, reaching as far as the astounding achievements of artists and athletes, but it also serves discursive strategies of the performative. The pivot of Sloterdijk’s extensive analysis of the *conditio humana* in an anthropological and global framework is the conceptualization of the immune system, the propagation of which dawned in late-nineteenth century biology:

From that point on, none of the scientific integrities – animal organisms, species, “societies” or cultures – could remain the same. Only hesitantly did people begin to understand that the immune *dispositifs* are what enable systems to become systems,

life forms to become life forms, and cultures to become cultures in the first place. It is only by virtue of their immunitary qualities that they ascend to the level of self-organizing unities, preserving and reproducing themselves with constant reference to a potentially and actually invasive and irritating environment. (Sloterdijk 2013: 7-8)

In this first encounter with the concept of immune systems offered to his readers, Sloterdijk draws on various aspects. He hints at the revolutionary dimension of the immunological discoveries, said to redefine the basic forms of life on earth. He makes reference to the adherent concept of environment, visualized as invasive and irritating, i.e. adversary, but also stimulating. He insists on the power of immune systems to bring specific life forms into being and keep them alive, but at the same time plays on the double meaning of culture (in anthropological and agricultural discourses), taking back some of the seemingly clear-cut definitions presented here. Indeed the basic concepts of “immunitary qualities” and “immune dispositifs” remain obscure. The adaptation of “immunity” to the discourses of the humanities and social sciences is an extremely protean process undertaken by various thinkers in manifold ways. In order to understand Sloterdijk’s discursive position and philosophical aim, we must follow his chain of argumentation very carefully, and set great store by his peculiar way of wording his ideas and interpretations, which in their imagery and conceptualizations are more often than not surprising, flamboyant or even flabbergasting.

It is the discoveries and theories of Ilya Metchnikoff, Louis Pasteur, Robert Koch, Paul Ehrlich, Carl von Nägeli, Karl Landsteiner and Shibasaburo Kitasato, just to mention the outstanding players of the formative phases of what was later to be named immunology, which attract Sloterdijk’s curiosity:

There one finds the baffling idea that even relatively simple organisms like insects and molluscs have a native “foreknowledge” of the hazards that accompany a typical insect or mollusc life. Consequently, immune systems at this level can be defined *a priori* as embodied expectations of injury and the corresponding programmes of protection and repair. (Sloterdijk 2013: 8)

Even though Sloterdijk puts the “foreknowledge” in quotation marks hinting at the inadequacy of a cognitive term ascribed to simple organisms, he continues with a somewhat ironical, yet still straightforward description of immunitary qualities in mollusc and insect life: the phrase “embodied expectations of injury” hovers on the edge of corporeal and psychological, somatic aspects of living beings, whereas the following phrase “programmes of protection and repair” refers to the technological and military spheres of life. Here, too, the explanation of what is really going on in immune systems remains rather vague. Sloterdijk borrows vocabulary from other realms of life,

yet his rhetorical playfulness reflects his awareness of the dilemma of finding old words for new concepts, which is at the bottom of the philosophical side of the immunological endeavor. And in fact, this semantic and consequently conceptual problem of describing immune systems is at the very heart of any metaphorical adaptation of “immunology” to the discourses of the humanities and social sciences (Napier 2003).

Viewed in this light, life itself appears as a dynamics of integration that is equipped with auto-therapeutic or “endo-clinical” competencies and refers to a species-specific space of surprise. It has an equally innate and – in higher organisms – adaptively acquired responsibility for the injuries and invasions it regularly encounters in its permanently allocated environment or conquered surroundings. Such immune systems could equally be described as organismic early forms of a feeling for transcendence: thanks to the efficiency of these devices, which are constantly at the ready, the organism actively confronts the potential bringers of its death, opposing them with its endogenous capacity to overcome the lethal. Such functions have earned immune systems of this type comparisons to a “body police” or border patrol. But as the concern, already at this level, is to work out a *modus vivendi* with foreign and invisible powers – and, in so far as these can bring death, “higher” and “supernatural” ones – this is a preliminary stage to the behaviour one is accustomed to terming religious or spiritual in human contexts. (Sloterdijk 2013: 8)

Sloterdijk now pushes his argument two steps further: With an as much maieutic as ironical, metaphorical twist he exchanges the two sides of the comparison: the compared with the comparing, while at the same time reversing the temporal relationship. While one would expect that the immune system becomes the metaphorical description of the fears and practices of human beings, ergo the fundamental transcendental dimension of human beings receiving “immunitary” attributes, Sloterdijk in fact ascribes quasi-transcendental attributes to the primordial immunitary constitution of living beings on a mere biological level as “early forms of a feeling of transcendence”. And this allows him to go one step further, i.e. to reunite the two parts, or better: to blur the line of the two parts of a traditionally sacred division of body and soul, or matter and mind, which now appear as a continuum in his “immunological” conceptualization. This is also reflected in his choice of words, endowing “life itself” with “auto-therapeutic” competencies, heretofore reserved rather for psychological and cognitive activities. Nevertheless, Sloterdijk is far from any argumentation rooted in the supremacy of biologism. The coinage “space of surprise” (“Überraschungraum”) forces the biological argument back into the cognitive realm. It also does away with the one-dimensional concept of aggression, as expressed in words like “invasive” or “adversary”, or behavioristic terms such as “irritating”, and

leads consequently to the conceptualization of a far more complex relationship of organism and environment, or of self and other, as we shall see later. It is no longer the concepts of “invasion” or “irritation” but “dynamics of integration” which are supposed to govern the relationship of organism and environment.

With the argument in the above quotation a continuum is established between basic biological (or chemical) reactions and the complex cultural spheres usually thought of as reserved for the human being only. For the sophisticated sphere of human beings Sloterdijk postulates no fewer than three immune systems, layered on top of one another and collaborating closely.

In the course of man’s mental and socio-cultural evolution, two complementary systems have developed for the pre-emptive processing of injuries: firstly the socio-immunological methods, especially legal and solidaristic ones, but also the military ones by which people resolve their confrontations with distant and foreign aggressors and insulting or harmful neighbours; and secondly the symbolic or psycho-immunological practices on which humans have always relied to cope – with varying success – with their vulnerability through fate, including mortality, in the form of imaginary anticipations and mental armour. (Sloterdijk 2013: 9)

The three immune systems of the human sphere are 1) the primary bio-chemical one, 2) the socio-immunological one encompassing legal, solidaristic, military methods, and 3) the symbolic and psycho-immunological one including ideological and metaphysical, religious methods. This time Sloterdijk takes again recourse to the images of aggression and attack, clearly expressed by “foreign aggressors” and “insulting and harmful neighbors” for reasons of clarity and in order to drive this basic argument home. Yet again, one should not fail to notice the obviously ironically exaggerated naivety of these images. The following passage then consequently takes a critical stance and shows the limitations of the postulated secondary immune systems:

It is one of the ironies of these systems that their dark sides are capable of explication, even though their existence depends on consciousness from the start and they consider themselves self-transparent. They do not function behind the backs of subjects, being entirely embedded in their intentional behaviour – nonetheless, it is possible to understand this behaviour better than it is understood by its naïve agents. This is what makes cultural science possible; and it is because a non-naïve approach to symbolic immune systems has itself become vital to the survival of “cultures” today that cultural science is necessary. (Sloterdijk 2013: 9)

It is by no means Sloterdijk's intention to create an automatic machinery to produce and reproduce legal, solidaristic and military or religious and ideological systems based on the concept of immunity. The redefinitions and revisions of law, community, military, ideology and religion and so forth as "immune systems" serve only to better analyze and understand what is at stake in cultural entities. The traditionally construed noble concept of right and wrong for example crumbles when confronted with the down-to-earth "immunitary" idea of keeping a society going by keeping the perpetrators in check. In Sloterdijk's view a non-naïve approach to symbolic immune systems, i.e. understanding religions or cultures etc. as symbolic immune systems, is vital for the survival of mankind within the diversity of its cultures and religions in a shrinking global setting.

Unfortunately Sloterdijk's *You Must Change Your Life* does not offer more than a preliminary introduction to a critique of social and symbolic immune systems. The core of the book deals with the concept of *anthropotechnics*, i.e. the various practices of the *Homo immunologicus* as unfolded in the course of history. However, en passant Sloterdijk mentions Niklas Luhmann's conceptualization of the legal system "as society's immune system" in his comprehensive treatise on *Social Systems*. We will turn to this now in order to find out along what lines Luhmann is incorporating the concept of "immune systems" into his general theory of social systems. The sheer proportion that the discussion of the conceptualization of a social immune system takes in Luhmann's analysis explains why it is missing in *You Must Change Your Life*: Sloterdijk bases his argumentation on Luhmann's much earlier writings, yet at the same time he distances himself from Luhmann's position.

### III.

Let us take up Niklas Luhmann's example of the legal system as society's immune system. Although the example of the legal system does not reflect all dimensions and the intricacy of the concept of social immune systems, it gives a very clear and concrete first idea of what Luhmann's theory is about; Luhmann himself introduces it in order to "clarify the highly abstract and unaccustomed concept of mechanisms of social immunization"<sup>3</sup> (Luhmann 1995: 373). The idea that the legal system functions as society's immune system does of course not cover all functions of the legal system within a society. It is the aspect of its function to generalize expectations in view of risky behavior that connects the legal system to the immune system of society: "The security attained by law (which concerns, not situations that can actually be achieved, but one's own expectations) rests on the fact that one communicates one's own expectations even in contradiction, although in a way opposed to normal communication and having different connective values". (Luhmann 1995:

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3 Quotations are taken from the English translation of Niklas Luhmann's *Soziale Systeme: Grundriß einer allgemeinen Theorie* (1984).

374):

One can see the nexus of law and immune system more clearly if one considers that law is formed *in anticipation of possible conflict*. This focus on conflict extracts from the enormous number of everyday expectations that have been formed those that prove successful when conflict arises. This prospect of proving successful is associated with the normativity of expectations and brought under the schematism of legal and illegal, thus into a complete universe in which there are only two values, which mutually exclude each other. This schematism can generalize and anticipate experiences of conflict and thus bring them into a form in which conflicts on the level of interaction are merely exceptions, even when quite improbable expectations are formed. (Luhmann 1995: 374)

One parallel of legal system and (biological) immune system is “anticipation of possible conflict”. Luhmann, too, adopts the idea that an immune system is based on prior information (Sloterdijk’s “foreknowledge”). Its activities start from a hypothetical point. For the time being we shall consider the binary schematism, in law of “legal and illegal” (or “permitted and forbidden”), and in the immune system of “familiar and unfamiliar” or “benign and malignant”<sup>4</sup>, as a second parallel, even though we will later understand that this relationship is much more complicated. The third parallel concerns the method of procedure: neither the legal system nor the biological immune system is (primarily) interested in explanation, insight or prognosis. Luhmann compares the legal proscription of denial of justice (“Verbot der Justizverweigerung”) with the immune system’s inherent compulsion to decision making.

The schematism of “legal and illegal” does not lead to a better understanding of expectations, actions and motivations. Quite the contrary, the information processing in law is designed to function when understanding fails and conflict arises. This also means, according to Luhmann, that “[l]aw does not serve to avoid conflicts”, it rather leads to “immensely greater opportunities of conflict” (Luhmann 1995: 375). The function of law is merely to avoid unrestrained and violent direct conflict and replace it by a special form of communication which suits the specific situation of the conflict. In Luhmann’s words: “Law serves to continue communication by other means” (Luhmann 1995: 375).

It is not the function of law to ensure that as much as possible is treated as legal and as little as possible is treated as illegal. That would be easy: one would only have to

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4 A dichotomy not introduced by Niklas Luhmann himself, though appropriate.



permit everything. Nor is it a matter (as natural law thought) of enforcing a naturally given order against the free and corrupt human will. [...] Law must fulfill the function of an immune system, and it is given the freedom to do this. The legal system is therefore autonomous in the use of its schematism of legal and illegal, which is available only to it. But in using this schematism it must also secure the autopoiesis of society's communication system as much as possible against as many disturbances produced by this system as possible. It must forestall society by producing its own insecurities and instabilities, and thus it is not allowed to go "astray", it is not permitted to wander outside the problems that can be expected (Luhmann 1995: 375-376).

Here the functioning of the legal system is connected to the idea of "autopoiesis"; the legal system serves the autopoiesis of the social communication system. It is important to recall that in Luhmann the social system is defined by communication, the law therefore is upholding the social system by preserving communication. Luhmann offers a very clear description of immunitary mechanisms and their autopoietic function in his presentation of the second system relevant in human life, the psychic system:

In terms of their function, emotions can be compared to immune systems; they seem to assume an immunizing role for the psychic system [...]. With unusual means, they secure the continuing performance of autopoiesis – here not the autopoiesis of life but of consciousness – in the face of problems that arise, and in doing so they use simplified procedures of discrimination, which permit decisions without considering the consequences. [...]

Perhaps the most important insight, however, is that all emotions occur as essentially unitary and homogeneous [...]. This results not only from increased interdependence with bodily occurrences, through which one experiences emotion, but also from the immunizing function, which, to guarantee autopoiesis against unforeseeable disturbances, cannot keep in store a separate emotion for everything that happens. One can establish in the biochemical domain that emotions occur as a unity, but emotions are more than interpreted biochemistry – they are the psychic system's self-interpretation with regard to whether its operation can continue. (Luhmann 1995: 274)

Luhmann's description of the functioning of emotions calls to mind Sigmund Freud's analysis of the mechanisms of dreaming. While in Freud it is the dreams that guarantee the continuation of sleep, in Luhmann homogeneous emotions function as guarantors for the continuation of the autopoiesis of consciousness. Indeed, in post-Freudian scientific analysis dreams do not only function as

guarantors of sleep, but also as promoters of autopoiesis of the body and mind in the sleeping subject. Luhmann's argument shows, that the foremost function of any immune system is to uphold autopoiesis of the system it belongs to. Thus, emotions carry out this function in the psychic system, while laws do so in the social system.

Yet, although the connection of social or psychic immune systems and autopoiesis is quite plausible and may be regarded as basically sufficiently explained, the mechanisms of immune systems are still not fully accounted for. This leads us back to the example of law as an immune system: Again, it is plausible that the legal system secures the autopoiesis of society against as many disturbances as possible. It is also plausible in this argument that it therefore must produce its own insecurities and instabilities in order to anticipate possible conflict. However, this does not yet explain, why the legal system, in its capacity as immune system, does not seek to avoid conflict, but rather increases the opportunities for conflict within the social system. In order to explain this, Luhmann resorts to a more theoretical sociological discussion of "contradiction" as the basis of conflict and its functions in his theory of social systems.

According to Luhmann contradictions are as much a common topic in sociology, as they are unappreciated in philosophy. He refers to Hegel in his argument that "the social is excluded from the environment of science by a logic that must postulate objects as free of contradiction" (Luhmann 1995: 358). In a sociological perspective and in autopoietic systems, however, contradictions play a different role: "Contradictions have an entirely different function depending on whether one is dealing with autopoietic operations or observations" (Luhmann 1995: 359-360). Luhmann argues that for an observer (be he within the system or outside) contradiction means undecidability. He cannot continue his observation if he has to deal with a distinction of mutually exclusive designations. In an autopoietic system, however, contradictions function quite differently; they present a specific form of connecting further operations.

This does not return to a "dialectical" function for contradictions because one can replace that function with an evolutionary theoretical perspective. Evolution presupposes self-reproduction and observation. It comes about by deviant self-reproduction. [...] It is not a logical process. [...] Evolution proceeds by undecidabilities. It uses the opportunities that undecidabilities sort out as opportunities for morphogenesis. (Luhmann 1995: 360)

Only instability allows self-reproduction and can prevent the system from ceasing to exist. Therefore instability is a precondition for evolution. On the other hand, it is not enough for the system to simply survive, it has to maintain its "essential variables", including, of course, the interdependence of dissolving and reproducing activities and the capacity of self-observation and discrimination

(Luhmann 1995: 369).

Contradictions articulate self-reference, and thus they are specific forms of self-reference. Their function is to preserve the formal unity of meaningful interconnections, indeed, to make it stand out. They do not strengthen the security of the expectations normally bound up with these interconnections, but rather dissolve it. Contradictions destabilize a system, and they reveal this in the insecurity of expectation. [...] One must guard against the widespread error of thinking that destabilization as such is dysfunctional. Instead, complex systems require a high degree of instability to enable on-going reaction to themselves and their environment, and they must continually reproduce this instability. (Luhmann 1995: 367)

Luhmann provides a very informative example based on contradiction from the realm of social immune systems: the calculation of costs.

One can find an important guiding image for this in the *calculation of costs*. The concept of costs designates a specific form of contradiction – something that one does not want but intentionally brings about nonetheless. In this, costs have a warning function that approaches an immune system. They are also like an immune system in that they cannot function ad hoc, but presuppose systematization. In other words, they depend on externalization to discriminate costs that should be considered internally. The calculation of costs reveals – and “undoes” – negative aspects of actions because once the costs have been calculated, one acts only if the advantages appear to outweigh the disadvantages. The more costs that can be included, and the more the calculation can be extended – for example, to temporal and psychic costs, or even (as in Pascal’s famous calculation) to endangering the salvation of one’s soul – the more sensitive to contradiction the action becomes. Then one only needs maxims for decision, such as that the costs must at least be covered or that among comparable actions one should choose the most cost-effective – and already many actions that could be chosen are excluded from the domain of possibilities. They are presented as mere possibilities, produced as antibodies, so to speak, to ward off risks, to tie up whatever is negative. (Luhmann 1995: 381-382)

Indeed, in the example of the calculation of costs, contradictions (like “debit” and “credit”) articulate self-reference. Furthermore, the contradictory side makes the interconnection stand out. Yet at the same time they dissolve the security of any expectations. In his example Luhmann tries to give

a congruent image of risk calculation and the functioning of the immune system. To support his argument, he inserts the word “undo” (the German original says “vernichten” – “destroy”) and the metaphorical use of “antibodies”. Although Luhmann usually insists on comparative functionality between biological and social immune systems and rejects the idea of mere metaphor, here, he himself resorts explicitly to metaphor (“so to speak”).

The nexus to the immune system is quite evident. In order to summarize, Luhmann pinpoints all necessary characteristics that make up the immune system and clarifies their functions, stressing most of all the fact that an immune system has to be compatible to changing conditions and therefore does *not at all costs* defend the existence of the structure under attack:

Because contradictions enable but do not compel the elimination of deviations, they have qualities that promote the development of an *immune system*. An immune system must be compatible with self-reproduction under changing conditions. It is not simply a mechanism for correcting deviations and re-establishing the *status quo ante*; it must manage this function selectively, namely, must be able also to accept useful changes. It does not serve to preserve unconditionally the structures under attack, but also presupposes structures and limits of possibility for its own functioning and especially for recognizing contradictions. (Luhmann 1995: 369)

We see that both, Peter Sloterdijk and Niklas Luhmann, have a very complex notion of immune systems. In their view, they do not simply function to defend their master systems, and they are certainly not as “trigger-happy” as presented in most popular and pseudo-scientific accounts. Furthermore, throughout Sloterdijk’s and Luhmann’s presentations a reliable scientific description of the “nature”, of the bio-chemical functioning of immune agents or immune systems remains unaccounted for. Although Niklas Luhmann’s German version of *Social Systems* is as old as 1984, it, too, is already part of an era in which scientific immunology was being considered as somewhat obsolete, pushed aside by triumphant clonal selection and genetic control (Silverstein 2009<sup>2</sup>: 441-453). David A. Napier’s vehement criticism of scientific immunology will give us some insights into why Sloterdijk and Luhmann avoid a clear description of immunitary functions and the immune system as a whole.

#### IV.

In order to understand why David A. Napier is lashing out so mercilessly at scientific immunologists, let us first look at a typical (pseudo-) scientific description of the immune system:

The immune system is a network of organs, tissues and cells that *defends* the body *against attacks* by “*foreign*” bodies such as bacteria, viruses, parasites and fungi that can cause disease. It has an amazing ability to *track down these pathogens* and *target them for destruction*.

The organs of the immune system include the tonsils, spleen and small bean-shaped lymph nodes laced through tiny lymphatic vessels. They all house lymphocytes, small white blood cells that are the immune system’s key players. Immune cells often have specialized functions – they can engulf and digest bacteria, for instance, or *kill parasites*. They include “*killer T cells*”, which mature in the thymus and *attack tumors* and virus-infected cells. Some T cells “*remember*” *past foes* and quickly *mount a vicious assault on subsequent encounters*.

Unfortunately, immune systems sometimes *engage in friendly fire*, causing disease by *destroying* healthy human tissues. Other problems arise from suppressed immune systems, which can make people *vulnerable* to diseases such as pneumonia. (Muir 2001: 226; all italics by H.H.)

The words in italics show to what extent immune systems are envisioned as military operations, not only in the sense that they defend and attack, they are also metaphorically endowed with willpower (to achieve victory) and human fallibility (engage in friendly fire). Some of Napier’s charges are directed against these militaristic conceptualizations as well as against the accompanying “hero epic” (Napier 2003: 69) – a metamorphosis of scientific language into dramatic fiction. Military language has vastly been used to describe not only reactions and actions in microbiology, but also in Darwinist competition and “fitness” scenarios. Napier’s main criticism, however, goes much deeper and touches the very core of immunological thinking:

Here is a domain of scientific inquiry that by its own definition exists specifically in order better to elucidate the biological influence of “other” on “self”; and though immunology is now a very complex, subtle, and sophisticated science, it is essential to remember that it is, and always has been, a science of “foreign bodies”, one where “self” and “not-self” are specified on the molecular level in the paradigmatic battle between antigen (foreign invader – i.e. *antibody generator* ) and antibody (defender of self – i.e., *anti-foreign body*). (Napier 2003: 41)

In fact, immunology has designed itself in over one hundred years as a scientific endeavor analyzing the conflict-laden, if not to say: warring, relationship of „self“ and „other“, or as immunologists prefer to call it „self“ and „not-self“ – even though they were only dealing with the

tinest elements in biology or chemistry, sometimes analyzing nothing more than the phenomena of dye acceptance (Paul Ehrlich). Yet the bulk of scientific analysis and theorization, and certainly its reputation and image, were linked to research on pandemic diseases – quickly to be implemented in public healthcare. Immunologists were therefore prone to design concepts of self and enemy. This atmosphere of hygienic crusades was likely to promote the imagery of hostile agents opposed to a “self” whose “integrity” and “identity” had to be safeguarded.

The main thrust of David Napier’s criticism of immunology is, of course, directed against the limitations or complete absence of philosophical, anthropological, or cultural-studies expertise in the formulations of immunological scenarios. It is those basic questions of these disciplines about “self”, “other”, and “identity” which are grossly and inexcusably neglected by a natural science that prides itself of clarifying the relationship of “self” and “not-self”. In his fierce criticism of such “immunological” blunders, David Napier is certainly not at a loss for examples, nor is he sparing with his sharp sarcasm against such scientists. He quotes the works of none lesser than the two 1960 Nobel-Prize winners Peter B. Medawar and F. Macfarlane Burnet in order to show how the limited, outmoded Western concepts of “identity” and “self” stumble over scientific displays of seemingly “illogical selves”:

Medawar’s ideas about acquired immunologic tolerance developed out of his demonstration that mice could “learn” to accept foreign tissue if injected with allogenic bone marrow at or before birth; Burnet’s contribution was predicated on the body’s production of antibodies that recognized foreignness (i.e. “not-self”) but, in so doing, did not recognize “self”. (Napier 2003: 202)

According to Napier, the insistency on a presupposed “integral self” mystifies scientific research where alternative, and explicitly non-Western, perspectives might have ready answers. In this critical perspective the “self” appears as the holy cow of (Western) immunology. “Self-consciousness” therefore is regarded as the paramount and indispensable disposition, “unselfconsciousness”, is depicted as a horrifying aberrance or a dangerous adversary, depending on perspective.

Immunology, in its fear of the unselfconscious, is, therefore, no more or no less the victim of post-enlightenment metaphysics than is any other field of inquiry or domain of experience. What distinguishes immunology, though, is its hysteria – that is, the vehemence with which it curiously denies the very metaphorical mechanisms of embodiment while unconsciously reviving a demonology better suited to the Dark Ages. It is immunology’s hysterical fear of possession that causes Descartes’s enlightened reverse engineering to take its final toll autotoxically on the self. (Napier

2003: 73)

“Autotoxication”, “autoimmunity” because of their obvious relationship to “identity” are the key words to the crux of immunological phraseology and conceptualizations, together with transplantation and tumor immunology they mark the major issues immunology is facing today. Yet the scientists do not seem to find a way around the self/not-self model, except discarding the whole concept of “self” once and for all (Napier 2003: 203):

While immunologists are not metaphysicians, one can readily see that this debate hinges on an idea about selfhood that is almost wholly unexamined, or if examined, blissfully uninformed by the diverse ways that philosophers – not to mention other cultural traditions – have constructed what we call “identity”. [...] This lacuna is made glaringly obvious by the degree to which immunology has traditionally hinged on a recognition and elimination of biological difference, by the unsolved problems that self/nonself models have created, by the discipline’s current attempts to jettison the self/nonself nomenclature, by the inability of immunologists to define “selfhood” in any novel way – in other words, by a wide array of problems all of which bear the scent of culturally tendentious parochial thinking. (Napier 2003: 203-204)

According to David Napier, an immunological construction of selfhood that focuses solely on recognition and elimination of difference cannot cure illnesses. What is desperately needed is a more assimilative model of self, one that Napier finds not only in other cultures. Conceptualizations of the maternal or the fetal are based on assimilative models of selfhood. Napier even mentions the human gut, digestion system, without which it is impossible for human selfhood to survive. And even the “humble parasitic worms that once populated the guts of most humans” may have had their share in controlling human autoimmunity by simply engaging the immune system. (Napier 2003: 286). The relationship of self and other is certainly manifold and calls for far more creative approaches than most immunologists were able to envisage.

## V.

Yet it would be wrong to condemn immunologists wholesale. Especially at the beginning, in the nineteenth century, when the word “immunology” did not even exist, and when the new scientific field was still like a dark continent, many researchers relied on their vivid imaginations or on what they regarded as God’s design. And furthermore they were led in their research approaches by the already established neighboring disciplines: botany held its sway over the new research field,

especially with its Linnaean nomenclature and specification systems with classification into species, genera, order, and individual:

For Schleiden's generation, and for Nägeli in his earlier days, specificity had been a botanical problem. For Koch and the older Nägeli, it was a problem of bacteriology. For the next generation, it became a problem of immunology: bacterial species, in the absence of visible, morphological differentiae, might be defined by their reaction with specific antisera. (Mazumdar 2002: 8)

While the famous Berlin-based Robert Koch was in favor of species and specificity as modes of analysis, the Swiss Carl von Nägeli in Munich followed a theory of *Kontinuität* and *quantitative Abstufung*, continuity and quantitative gradual transition, partly gained from a rather arbitrary adaptation of Kant's critical philosophy to the natural sciences and partly from Matthias Schleiden's research which replaced the concept of well-defined species by one of gradual differences. In his *Gattungen einzelliger Algen*, an investigation oriented along the lines of natural history published in 1848, Nägeli analyzed single cell algae in order to find the essence, the concept of the species. From then on Nägeli was no longer interested in differentiae, but tried instead to understand the transitions that were supposed to connect different forms of life.

In his work on the fine structure of living matter, for example, he examines the transition between living and nonliving; in his phylogeny he sees a continuous flow of forms passing into each other from an origin at this transition point. His theory of fermentation and his bacteriology are built upon *spezifische quantitative Abstufungen*: species differ from each other only quantitatively, by gradual transitions. Everything is connected to everything else: each of these fields is linked in nature to the others. (Mazumdar 2002: 31)

In 1856 he added to this a "genetic theory of descent", *Vervollkommungsprinzip*, or drive to perfection, which can be traced back to the conceptualizations of dynamic natural philosophy by late eighteenth- and early nineteenth-century German physiologists, and was compatible with Darwin's theory of natural selection, adding to it an additional mechanism of increasing complexity. Indeed, Darwin may have been influenced by such conceptualizations (Mazumdar 2002: 33-36):

Species develop, increase in complexity, and flow continuously upward. The species itself is an individual composed of other individuals, as a tree is of cells. The species and the genus are as real as the individual, and like individuals, they shade in to



each other with no sharp differences. An earlier distinction between the continuity of individuals and the absolute differences between species, genera, and orders has disappeared. All is flowing and changing, species and genera as much as the individuals, which are composed of smaller units, like the higher classes. *Unendlich[e] Theilbarkeit* is true of the whole of nature; and so is continuous change. (Mazumdar 2002: 34)

In the philosophical foundation of his argument, he follows again Kant, who stipulated that each science is scientific only in proportion to the amount of mathematics involved. Neither human beings nor sciences can conceive of absolute different properties, all difference is understood as relative or quantitative, thereby mathematical. There is no absolute difference in nature. “Nägeli traces a continuity from chemical molecules to crystals, to the parts of the cell and the cell itself, through the plant and the animal kingdom to human consciousness” (Mazumdar 2002: 36).

Some twenty years later, Koch’s famous disciple Paul Ehrlich, however, when facing his problem of dye adaptation chooses wholeheartedly the path of solution that is staked out by diversity and specificity and not by unity and continuity. He sports the chemical explanation which demands not only specification of the elements entering the process, but even comes up with a new compound: a double salt. The effect must be chemical specific, Ehrlich declares, because it occurs only between the two salts involved (Mazumdar 2002: 110). In spite of the factionalism and sectarianism, the fierce fighting over conceptualizations and philosophies between major groups in the formative years of immunology (e.g. Koch vs. Pasteur and Gruber vs. Ehrlich), the idea of species and specificity, so closely interlinked with the concepts of “self” and “other”, “identity” and “individuality”, would become the prevailing doctrine.

## VI.

After the presentation of the fierce criticism of David A. Napier and the attempts at alternative conceptualization of Carl von Nägeli, it must have become quite obvious why Peter Sloterdijk and Niklas Luhmann are not too interested in focusing on scientific descriptions of the immunitary concepts and the immune system. The “repatriation” of such concepts as “self”, “nonself”, “other”, “identity”, and “individuality” to the discourses of the humanities and social sciences, and especially to post-colonial and post-structuralist theories, would be all too embarrassing. Instead, both thinkers take scientific immunology only as a starting point from which to design their own concepts: Sloterdijk the *Homo immunologicus* and his *anthropotechnics*, Luhmann a social immune system based on contradiction rather than discrimination and elimination of non-self. Both make use of the scientific research results in order to circumvent “subjectivity” and “intentionality”, replacing these

by their specific concepts of agency. Both also try to bridge the traditional gap between humanities and natural sciences, between body and mind.

Now that we have come to understand the protean appearance of concepts of immunity throughout history in the natural sciences, in the humanities and social sciences, an assessment of post-Fukushima Japanese society does no longer seem as easy a task as it may have been from the point of view of German public criticism. The variability of discrimination results and countermeasures of a social immune system in case of danger or disaster does not allow only one single reaction. Japanese are most likely much more used to seismographic activities, which are almost a part of their everyday life, than Germans. Yet, why the Japanese public is less fearful of nuclear disaster than the German remains to be analyzed. The near future only can show, whether Japanese reactions and countermeasures were appropriate or not, how much radioactive contamination the Japanese society and its human members can survive, or whether Japan's social immune system will turn its back on an obsolete structure for the sake of autopoiesis and morphogenesis. The warning call that was sounded by the Luhmannian social immune system was obviously not as clearly heard in Japan as it was in Germany. So far the main reactions in Japan remain part of the limited immunitary task of repair work only. Building higher walls around nuclear plants to fend off tsunamis is still part of this kind of repair work, bound to remain again and again one step behind the next higher tsunami. The new national nuclear watchdog stands out alone as a countermeasure that theoretically could do away with the danger once and for all.

Two new pieces of insight, however, can be gained from applying Sloterdijk's and Luhmann's theories to post-Fukushima Japan: Some Japanese reactions to the nuclear disaster show clearly that Sloterdijk's *Homo immunologicus* is as indigenous to Japanese society as he is to the Western ones. The solar panels mounted to the roofs of private houses show to what extent some Japanese have reacted to the alarming call of "You must change your life!". Luhmann's theory of a social immune system based on the corrective function of "contradiction" in order to enable survival and adaptability points relentlessly at a serious defect in today's Japanese society, i.e. the lack of conflict as a pool for alternative strategies and as a stimulant for change.

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