
Immunity – Natural and Otherwise: Towards a ‘Scientific Revolution’ in Modern Medicine

Dr Thomas Hardtmuth is interviewed by Richard House Ph.D.

Richard House [RH]: May I begin by asking you to share something of your own professional journey, and at what point in your unfolding career you realised that immunity is such a key issue in relation to health and illness?

Thomas Hardtmuth [TH]: Already in the course of my medical studies I was dealing with psychosomatic medicine and especially with the anthroposophically oriented healing arts. Through numerous working groups and 30 years of practical experience as a doctor, I became more and more aware that autonomy issues play a central role in human health. ‘Autonomy’ is understood in the salutogenic¹ sense as *the ability to self-regulate and thus experience self-efficacy in one’s own life*. During my ten years as a lecturer for health sciences and social medicine at the Dual University of Baden-Württemberg, I chose this autonomy theme as the guiding principle for my lectures. Some of my publications on contemporary diseases, such as cancer, depression and dementia, also dealt with this topic.

An edited collection published last year, *Perspektiven einer Biologie der Freiheit* (Perspectives of a Biology of Freedom),² edited by evolutionary biologist Bernd Rosslenbroich, contains a summary of my experiences in this regard under the title ‘Autonomy and health’. What autonomy consists of on the spiritual-cultural level is what we call ‘resilience’ in the mental realm, and, at the biological level, the immune functions. All three levels – i.e. self-regulation/autonomy, resilience and immune functions – cannot be separated: and it is always the ego forces, the essential self as the organising architect, one might say, of the actions of any human being, that are visible in differing ways on the three different levels.

RH: So as I understand it, Thomas, we have *self-regulation* at the spiritual-cultural level; *resilience* in terms of mental health; and *immunity* at the biological level; and taken together, this is an *holistic* human phenomenon that cannot be disaggregated into autonomous, self-contained parts. Does it follow from this that in terms of effective ‘medical’ *treatment* informed by an all-encompassing scientific approach, it is not appropriate to treat just one of these three levels *without addressing the other two levels as well*? Such

that in the case of immunity, for example, to ‘treat’ it merely through a ‘medical-model’ approach (like vaccination) without addressing the other two levels cannot but be, at best, a partial approach – and at worst, it could be a woefully inadequate (or even *iatrogenic*)³ treatment.

I am also struck by how what, in some circles, is called the ‘Victimhood Archetype’ plays into the picture you’ve so usefully painted here. *Victimhood* is the very opposite of what you term ‘self-efficacy’ and ‘self-regulation’: the core metaphysical belief which the ‘victimhood mentality’ assumes is that we inhabit a deterministic universe in which human beings (and their symptoms) are *caused* (e.g. by our genes) – and that we are therefore the victims of whatever those ‘external’ causes might be.

It seems to me that the practice of vaccination is a paradigm-case of a medical treatment that is underpinned by such a ‘victimhood’ mentality – that is, the accompanying, self-justifying narrative says that our illness is ‘caused’ by a (‘persecuting’) virus, so all ‘victims’ need to do in this mechanistic universe is to eliminate, neutralise or control the cause (i.e. the virus) – for example via a (‘rescuer’) vaccine – and then, *ipso facto*, we will be healthy again. (Here I am invoking the archetypal *Persecutor–Victim–Rescuer* so-called ‘Drama Triangle’ from Humanistic Psychology.) How seductively simple! – and no need to take responsibility for anything other than dutifully rolling up our sleeve to get the jab!

In stark contrast, a *self-efficacy* approach to the human being clearly requires that we address the other levels you refer to – which I assume has as a core precept that we take full responsibility for our own health and well-being – and all that this entails. Could say something about the worldview entailed by psychosomatic medicine⁴ and the anthroposophically oriented healing arts? – and how their whole approach to medicine differs from the mainstream ‘medical model’.

TH: Of course we cannot consider the three levels of autonomy in isolation. Medicine in the future must be an integrated form of medicine that is not solely based on biological mechanisms, but is broadened to include, for example, the ‘biopsychosocial model’ developed

by the American psychiatrist George L. Engel,⁵ and was an approach which was actually included long before Engel's era in the principles that underpin anthroposophic medicine. This approach to medicine thinks in terms of 'forces' – in the anthroposophical context we speak of etheric (life forces) medicine – which come to expression in different ways on the physiological, psychological and mental levels,⁶ but which nonetheless originate from the same source – namely, from our individuality.

There is far more to strengthening the immune system than giving biotechnological stimulation with a vaccine. The significance of vaccines in the control of infectious disease epidemics is vastly overrated because in the industrialised world, the influence of psychosocial factors on human health is deliberately excluded. To put it bluntly, there are no profits to be made with salutogenesis. This is the fundamental error in our health system – namely, that money can be made from illness, and that a sick society offers a profitable market-place. It was the introduction of the all-consuming neoliberal economic logic of the 1980s that transformed the healthcare system into a market-place. This also turned pandemics into a highly lucrative business model that has been kept well-oiled by ever-more brazen attempts at ramping up fear (to which we will return in more depth later). Giovanni Maio, the well-known professor of ethics at the University of Freiburg, Germany, had expressly warned of this development in his books.⁷

As to the concept of sacrifice; we must of course distinguish between the sacrifice I make consciously in response to a situation, out of dedication or love etc. – i.e. what I do out of *freedom*; and the sacrificial role that plays out unconsciously as a result of conditioning and education, or through passivity and dependency. In the first case, my 'I' (my essential self, the active kernel at the centre of my being) is fully present, and I engage with the issues myself; in the second case, *the problems control me*, and I play catch-up with them. This defensive 'archetype of victimhood' is, as you describe, being massively stimulated by the corona propaganda.

Since we are human, there are of course many intermediate forms, too. The person who founded the concept of salutogenesis, Aaron Antonovsky, said that health is not a passive condition, but *a permanently active process* in which we continually seek to overcome and learn from the tendencies that lead to illness. He spoke of a health–illness continuum, which, as human beings, we are continually moving through. We also live in an ongoing tension between autonomy and heteronomy, i.e. between self-determination and being determined from the outside. The importance of autonomy for health should not be seen as an absolute, since it also gives rise to the stand-alone illusion and egocentric focus that is so widespread today, and the many associated conditions of loneliness, especially

within the growing singleton culture of big cities. We are 'I' beings *and*, simultaneously, *social* beings. Heteronomy in this context has not only pathogenetic significance; it also embraces belonging, participating, sacrificing, forgetting oneself, recognising oneself in the other. We *share* our lives with each other. The fact that we can identify ourselves with the 'I' of the other person provides the greatest incentive for the evolution of a common, human culture.

But pathology arises on all three levels of autonomy when the positive self-image of a human being and, with it, authenticity and self-efficacy (we can also say 'self-empowerment') are completely and permanently lost. A kind of alien life then begins to emancipate itself in the human being. On the biological level it is the viruses and bacteria that take on a life of their own and develop as infectious diseases. With cancerous growth there is also a form of 'alien autonomy' that spreads through the organism. On the soul level, the hidden self makes itself felt through anxiety, self-harm and compulsive behaviour, through to psychotic events in which the human being is totally dominated by this alien element.

I completely agree with your perception that the metaphysical conviction of a deterministic universe is the medium for growing the bio-mechanistic ideology which has such an influence on the medicine of the present day. It has no real concept of the ego and the latter's concrete physiological activity. In discussions about infection, the focus is placed exclusively on exposure, and too little attention is given to *constitution* and *disposition*.

Determinism is unable to develop a concept of freedom, nor of health, because it is imprisoned in a one-dimensional, physical pattern of causal thinking which can only explain things in terms of past conditions. The neurobiological determinism which swept through the media a few years ago with the message "*Not I but the brain decides*" was, for me, just a foretaste of its escalation today in the corona crisis – the last gasp of a long decadent materialistic dogma – with a massive attack on the human 'I' and its freedom. Using the sophisticated psychological techniques of ongoing media propaganda, a climate of fear and confusion was created whose long-term effects are the very opposite of the health it was supposedly intended to support. Chronic fear and powerlessness, helplessness and social isolation are anti-ego forces, and therefore the most effective killers of immunity that we know of. This global pandemic of fear, with all its martial measures, will cause far more suffering and death than the virus itself (to which we will return later); and contemporary knowledge shows in any case that the paradigm of a single virus causing a specific illness is increasingly questionable.

RH: There are several lines I'd like to pursue from

your fulsome answer, Thomas. Could one say that ‘the market’ also ‘abolishes’ *true* science, as well – in that when it is the money-making profit motive that drives medicine and medical activity, then what succeeds in making the most money (i.e. profit maximisation) is almost bound to trump, and so prevail over, everything else – and that includes an honest, genuinely open-minded attitude and approach to scientific theory and praxis – with the latter being one of the first casualties of ‘business model health’. Or put differently, perhaps the great danger here is that ‘*the science*’ (to coin that tiresome phrase so beloved of the mainstream media) *will be constructed in the image of the market*, and will then *necessarily* be distorted and then diverted from what should be a fearless adherence to the best of objective scientific praxis, wherever it might lead. Furthermore, all of the actors involved in this system, who have a vested interest in the fruits that this model produces, will be motivated to align themselves with this distorted model of ‘science’, rather than with truly authentic science.

Does what I’m saying here make sense to you? I’d really welcome your thoughts on, and insights into, this phenomenon; and do you know of anyone (yourself included!) who has written at length on how *science itself* has been distorted because of its colonisation by neoliberal free-market ideology?

TH: What you are suggesting here puts the finger directly into the wound of a sick medicine! Good science proves itself primarily in the questions it asks, not so much in the answers it gives. There is often much more spirit and intelligence in a good question than in the answers; the wise question, which presupposes a free spirit, only opens up the space for creative and innovative research. Today, we are miles away from this Humboldtian⁸ ideal of education and science. The horizon within which current medical research takes place is so narrow that it is increasingly becoming a dead-end. The guidelines of the industrial-pharmacological complex determine not only what is researched, but – and this is the real evil – what is *not* researched.

Let me give you an example. In the case of metastasised cancer, palliative chemotherapies are carried out today which, for example, in the case of lung cancer are sold as a ‘last chance’, and achieve a statistical prolongation of life of 3–4 weeks – but in reality, this effectively means a prolongation of dying. Such mostly pointless therapy regimes cost between 100,000 and 150,000 euros per treatment, and researchers no longer even ask about fundamentally alternative concepts: instead, they only ever compare chemotherapy A with chemotherapy B, and do not even notice how they have been spinning in circles for decades on the shackle of this one-dimensional battle strategy of aggressive cell elimination.

Individualised therapy approaches of an integral medicine, which work with all three autonomy levels mentioned, certainly have a far better outcome. But this cannot be ‘proven’ because the primacy of statistics as the sole criterion of evidence forces us to use standard therapies that presuppose a standard patient – yet a ‘standard patient’ does not, of course, exist in reality.

The methodological constraints of medical research categorically do not take into account the influence of autonomy factors on the healing process! The individual simply doesn’t exist in this science. This is the fundamental systemic error in established medical thinking that I have been talking about. The problem is not only that the biographical–psychosocial, especially the chronic stress factors, are given far too little consideration, but also that most of the modern findings of psychoneuroimmunology, genome research and epigenetics⁹ have essentially been ignored – which simply shows what a decisive influence self-regulation processes have, right down to the level of genes.

I’ll give one example to illustrate this. Katharina Domschke from the University Clinic in Freiburg was able to show that long-term depression and anxiety, which we now know are often the initial symptoms of chronic diseases, are associated with epigenetic changes that can be reversed after just four weeks of psychotherapy. One could cite numerous other examples. In a recent study at the University of Ulm, people who had been sexually abused or had endured other experiences of violence in childhood were observed over a long period of time. Among numerous other disease risks, these people had a six-fold (!) increased risk of carcinoma because their entire stress biology was in a kind of permanent state of alert. Here, targeted, preventive salutogenetic and psychotherapeutic measures would be far more sensible (and cost-effective) than just running after the disease process with toxic and grotesquely expensive chemotherapies.

The latest studies regarding human genome sequencing show more and more clearly how highly individual the human organism is, also, on the biological level. Our unique intestinal microbiome alone leads to a highly individual metabolism of medicines, so that standardised treatment, one-size-fits-all approaches alone are becoming increasingly questionable. Every person develops a personal relationship with a medicine – this is not a metaphor, but reality! Our immune system develops in a way that is complementary to the gut microbiome, and carries an equally individual signature.

Unfortunately then, as needs to be said very clearly, in recent decades the economic logic of profit maximisation has increasingly become *the* leading motive of medical research. The spread of fear of disease and death inevitably becomes a lucrative marketing concept, as can easily be observed today.¹⁰

RH: I think this point is absolutely key, Thomas – namely, that “Good science proves itself primarily in the questions it asks, not so much in the answers it gives”. And the *presuppositions* one holds about reality and the cosmos will be a very major, even decisive influence on the questions one is able to ask, and even conceive of. For example, if one assumes *at the outset* that a virus is ‘pathogenic’ and has to be destroyed in an all-out ‘war’ by all available technological means (what you evocatively refer to as a ‘one-dimensional battle strategy of aggressive cell elimination’), then of course the ‘answers’ one is able to reach will be severely constrained by one’s initial, assumed worldview. And woe betide us all if the initial assumptions on which such a ‘declaration of war’ are based are just plain wrong! Not least, we end up, as you say, with “...the horizon within which current medical research takes place [being] so narrow that it is increasingly becoming a dead-end” (and ‘dead’ not just in a metaphorical sense, perhaps).

In an earlier answer, you touched on this whole question of fallacious assumptions leading to false, and possibly catastrophic consequences, when you said:

Chronic fear and powerlessness, helplessness and social isolation are... the most effective immune killers that we know. This global fear pandemic with all the martial measures will cause far more suffering and death than the virus itself.... *The paradigm of a single virus as the causative agent of a specific disease is becoming increasingly questionable due to the latest findings.*” (my italics)

Could you say more about this, and your latest understanding of the truest and best-available science around all this (as opposed to Big Pharma’s narrow medical-research horizon).

Relatedly, perhaps, you also recently wrote to me that “we have to talk more about a dynamic sphere, than about specific microbes. What we constantly absorb from the virosphere (i.e. the world of virus diversity) are quasi-biological ‘inspirations’ that drive evolution forward – but not deterministically...”. This feels like the early intimations of a *genuinely new* scientific paradigm. Could you sketch out here what that new scientific paradigm might look like, and what it is in the old (Big Pharma) paradigm that needs replacing and transcending – for the sake of our healthy human future.

TH: The paradigm of the specific aetiology¹¹ of infectious diseases – one pathogen, one disease, one therapy – was established in the second half of the nineteenth century by Robert Koch and Louis Pasteur. The discovery of specific micro-organisms identified in the context of tuberculosis, anthrax, diphtheria etc. was a scientific sensation at the time, which found rapid and high acceptance in society because the new ‘enemy image’ of bacteria served a simple traditional pattern

of thought. In a time greatly shaped by militarism, the ‘declaration of war against bacteria’ indeed provided a strategy that was immediately obvious to, and recognisable by, everyone. In his famous lecture on bacteriological research on 4 August 1890 to hundreds of doctors and scientists from all over the world at what later became the Charité University hospital in Berlin – which was at that time a military hospital under the command of the General Staff – Robert Koch ended with the following words:

And so let me conclude this lecture with the wish that the forces of the nations may measure themselves in this field of work and in war against the smallest but most dangerous enemies of the human race, and that in this struggle for the good of all mankind, one nation will always outstrip the other in its successes.

With this, a battle mentality – as already established by Darwinism – was also introduced into medicine; the disease of man was replaced by an animal model, which was linked to eradication fantasies; and the utopian view that viruses could be ‘destroyed’ has been deeply engraved in the thinking habits of people – and, above all, of science – to this day. A huge industry still lives based upon the enemy-image of micro-organisms.

However, the findings of microbiome research in the last 10–15 years have increasingly confirmed what was already emphasised by the critics of the germ theory in the nineteenth century: “Le microbe n’est rien, le terrain est tout” (“The germ is nothing, the terrain is everything”). Louis Pasteur is said to have confirmed this statement of the French physician Antoine Béchamp on his death-bed.¹² Max von Pettenkofer, a Munich polymath and opponent of Koch, who is considered to be the founder of hygiene science, drank half a litre of a liquid containing cholera bacteria in front of a large audience without falling ill from it, his aim being to demonstrate that microbes alone do not cause disease.

We now know that well over 90 per cent of all infectious diseases, such as tuberculosis, diphtheria, cholera and many more, have declined simply due to improvements in living conditions, before the first vaccines and antibiotics were introduced.¹³ At the beginning of the Industrial Revolution, most people in the cities lived in miserable conditions; small, dark, damp flats with mould and bad air, no adequate heating, poverty, scarcity, stress, cold, miserable hygiene and a daily fear of survival; *these* were the main reasons for the epidemics, not the bacteria.

Today, modern microbiome research educates us to think in systems terms, not in antiquated, one-dimensional explanatory patterns, but in complex, living contexts. I have the feeling that the corona crisis is like a last gasp of a reductionist–biomechanistic mind–soul culture that has become decadent. At the end of the Middle Ages, it was symptoms of decadence such as the Inquisition, the indulgence (selling church

pardons for committed sins) and relic trade that ushered in the end of the morbid, clerical power elites before the Enlightenment took hold. I see a similar phase unfolding today: the fear of witches then, and viruses now, suggests a similar background psychological dynamic. The Enlightenment is far from over!

You asked me about the new scientific understanding that marks a broader horizon than that of Big Pharma. I would like to illustrate this with an example. In a study published in 2017, virome analyses in the blood of 8,240 asymptomatic, healthy individuals showed 94 different virus species, with 19 species alone detectable in 42 per cent of the subjects. These included not only herpes and anelloviruses¹⁴ but also various types of so-called cancer-causing viruses and other supposedly pathogenic species such as the AIDS pathogen HIV, hepatitis B and C viruses, polyoma and parvoviruses.¹⁵ What does this mean?

If we consider that evolution on earth began with viruses, then it is hardly surprising that our entire organism is riddled with viruses. Viruses have been an integral part of all living things from the beginning! But they are emphatically not parasitic poisonous creatures – something which is still claimed today. In the human genome, 46,000 retroviruses and about 1.5 million virus fragments have now been identified, i.e. the genomes of all living beings are basically made up of viruses! *This is the most spectacular scientific discovery of the twenty-first century.* Genetic evolution and biodiversity ultimately mean the incorporation of ever-new viruses.

Now you may understand from this why I am talking about a paradigm shift. We have to completely rethink this whole field, and form new, more realistic concepts. Viruses are not pathogens in a mono-causal sense. If, instead of a colourful variety of flowers, only dandelions grow on an over-fertilised meadow, then the dandelions are not pathogens, but a symptom of a sick system. And it is similar with infectious diseases when individual micro-organisms, which are otherwise only present in reasonable numbers in a healthy mixed culture, appear pathologically as a monoculture.

Basically, we would have to write a pathology of monocultures, because in my opinion they are the central systemic health problem, not only in the biological and ecological sense, but also in the social, psychological and spiritual sense.

RH: If what you're saying here is anything like right, Thomas, then we could right now be in the middle of the kind of 'scientific revolution' that philosopher of science Thomas Kuhn famously wrote about 60 years ago.¹⁶ Your point about pathological monocultures reminded me of Vandana Shiva's excellent work on 'monocultures of the mind'¹⁷ – where she writes, for example, that:



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Monocultures first inhabit the mind. Then as a monoculture takes root, they have a characteristic relation to the world around them.... Monocultures of the mind generate models of production which *destroy diversity and legitimise that destruction as progress*, growth and improvement. ... *[This leads to] impoverished systems* both qualitatively and quantitatively. They are also highly unstable and non-sustainable systems not because they produce more, but because they control more. *The expansion of monocultures has more to do with politics and power than with enriching and enhancing systems.* (my italics)

I think there is a very rich and insightful vein of thinking here that could easily be applied to mainstream medical science and allopathic medicine, too. A book on *The Pathology of Monocultures* would indeed make a tremendous contribution!

Regarding this 'battle mentality' we've been speaking of in relation to viruses and pathogens, and how it has become (often unconsciously) inscribed into the very 'psyche' (if I may use that term) of modern medical science. I think there is also a cultural story to be told about *patriarchy* and the way in which a fundamentally patriarchal worldview (again, normally unconsciously) underpins so much medical science – and which is then 'acted out' (to use a psychoanalytic term) in ways that

the protagonists and apologists for the status quo are completely unaware of, and which they then delude themselves is 'objective science'.

What do you think are the main impediments to the aforementioned 'scientific revolution' happening? I'm speaking here of the forces – cultural, political-economic, egotistical-psychological, paradigmatic, bureaucratic-institutional, professional, spiritual... – that will be determined to retain, and even entrench still further, the status quo, and concomitantly, will attempt to discredit any ideas, insights, new theories etc. that propose a worldview and medical ontology¹⁸ that flatly contradict the germ theory (referred to earlier), and many/most of the other *leitmotifs* of modern medical science? Another way of putting this might be: how, in the real, existing world of inherently conservative, system-reinforcing tendencies and vested interests, is urgently needed change actually going to happen?

TH: I have no illusions that such a scientific revolution will still take a few decades before what is now called 'systems science' – we could also call it 'the science of living connections' – begins to develop.

In addition to the corona crisis, it will take some more painful mistakes and experiences before we free ourselves from the constraints of 'biomechanistic ideology', and find what the evolutionary biologist Wolfgang Schäd¹⁹ calls 'the peripheral view'. Today, we think from the point to the periphery, from the atom to the universe; we spend a huge amount of time and effort (for example, at the Cern nuclear research facility in Geneva) arriving at an understanding of cosmic laws, a universal formula deduced from the analysis of elementary particles. It is the same one-dimensional centrifugal way of thinking that thinks from virus to disease or pandemic. Of course, micro-organisms are part of the understanding of epidemics, but without an understanding of the immunological, psychosocial and ecological connections, we will not be able to develop a real concept of health, and new 'epidemics' (in the broadest sense) will always appear.

So a healthy science breathes between the centrifugal and centripetal movements of thought, from the whole to the detail and back again.

The 'revolution' will be that we no longer conceive of life as a property of matter, but as an ontologically irreducible level of reality. We cannot locate the living in space, we cannot say that life starts from a point; the living works where it establishes the connections of the points, which is an epistemologically fundamental act that must be realised in all concreteness; atomic power starts from the point, the living from the periphery. And it is precisely this living thinking that micro-organisms teach us in a very vivid way, as I have tried to describe in my new book on the microbiome.²⁰

I'll give you a practical example; we have to be very

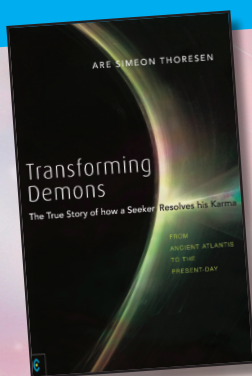
specific about this. One of the best-researched intestinal bacteria is *Escherichia coli*, which is found in the intestines of all mammals. Now, we must not think that this microorganism has a stable identity like a bee, a rabbit or a human being. The strain genome of *E. coli* accounts for only 6 per cent; everything else is variable. For comparison: the genomes of Richard House and Thomas Hardtmuth are 99.9 per cent identical, those of humans and chimpanzees 98.7 per cent, and of mice and rats about 90 per cent. In other words, what we call '*E. coli*' are actually countless, genetically highly diverse organisms whose genome, and thus their properties, are highly plastic and flexible, depending on the situational context. They constantly change their genome, depending on the surrounding situation. This means that their existence and metabolism are not determined by themselves and their genome in the centre, but by the periphery. The ecosystem or the host organism decides how this bacterium behaves.

The large cattle farms in the USA produce gigantic amounts of dung, which are deposited into huge cesspools. This does not normally happen in nature, with millions of litres of faeces or trillions of *E. coli* bacteria coming together in one place. Nature has to regulate this; the population dynamics of micro-organisms, i.e. which microbe occurs when, where, and in what numbers, are essentially regulated in ecosystems by viruses. In this case, this means that the 'monoculture' of coli bacteria must be attacked by a toxic virus so that the natural balance is restored. From the cesspools on the farms, these infected bacteria seep into the groundwater and, via contamination of the drinking water, lead to about 90,000 (sometimes fatal) EHEC infections every year in the USA.²¹ So with this disease, in order to understand it we must not only look at the bacterium or the virus, but at the pathological ecosystem of cattle farms. The root cause is not the microbe as a point, but in the periphery of the interrelationships *that we ourselves* have caused. This principle basically applies to all micro-organisms; that is, they are only to be understood as part of a larger whole, and therein will reside the paradigm shift we're talking about. To think in a living way means to think anew every time, because the current contexts are always new.

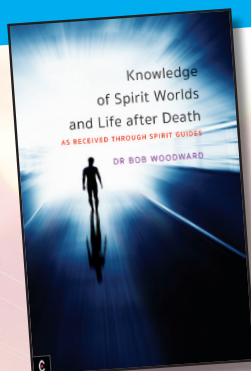
You asked about the main obstacles that stand in the way of this new paradigmatic thinking. It is, as you also put it, always the old and cumbersome, patriarchal and authoritarian power structures – in the anthroposophical context we would speak of 'retarded spirits' – that have a paralysing effect on progress. Their only – albeit very effective – instrument of power is fear, as can easily be observed at the present time.

People who see the meaning of their existence only in the elitist exercise of power and in boundless wealth will always perish at some point from their own greatness and decadence, like the dinosaurs 60 million

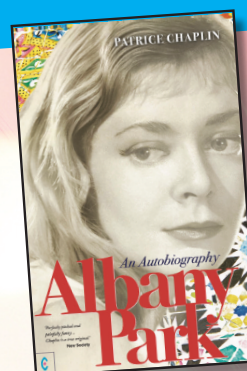
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years ago; that is like a law of nature! Nature does not tolerate monocultures: its principle is *dynamic diversity* – at all levels! Everything imperial and totalitarian in history is characterised by the fact that it has perished – and mostly in a catastrophic scenario. Only rarely have the established power structures changed through self-reflection and insight. What will always remain, on the other hand, is the creative human being. The most important thing we can do today is to teach children how to think in a living way! Educational institutions, especially Steiner Waldorf schools, would have to take the corona crisis as an opportunity to teach the incredible dynamics and plasticity of microbial life on earth as the basis of an almost unlimited diverse evolution, as opposed to implementing a deep mistrust of nature with the enemy-image of viruses (referred to earlier). This image of a creative universe creates in the souls of children the prerequisite for mobile, lively and innovative thinking.

We have to be aware that evolution, if we translate it into one week, has dealt only with micro-organisms from Monday to Saturday (3 billion years) and all 'visible' living beings have emerged on Sunday (600 million years). In India, the cow (their rumen contains around 20 kilos of bacteria) is revered as a sacred animal because it is a kind of representative of this metabolic wisdom on earth, which works from the periphery via

the microbiosphere and keeps us all alive.

RH: I just read a chapter by another big thinker, Professor David Ray Griffin, written well over three decades ago, in which he wrote:²²

the transition from the modern to a postmodern paradigm... will allow the evidence of psychosomatic interaction to be taken seriously in the science of medicine, leading to significant modifications in both research and practice..... [Postmodern medicine will] bring personal causation back into science, a development that will encourage the full recognition of individual differences, *even at the level of biochemistry*..... Postmodern medicine will overcome the alienating depersonalization that has been the bane of modern medicine.

So although siren voices raised against monocultural biomedical science have been around for quite some time, I think what you're saying in your previous answer is that although a 'scientific revolution' is by no means imminent in the realm of modern medicine, we do at least have quite an advanced understanding of why it is that the current biomedical paradigm is grossly inadequate and fails abysmally to describe and

understand reality, and *life* itself, in a way that would render its medical ‘treatments’ appropriate, and in tune with, living realities, rather than being routinely iatrogenic.

We have to fundamentally re-think our habitual *causal attributions* – for example, as you say, “The root cause is not the microbe as a point, but in the periphery of the interrelationships *that we ourselves* have caused. ...[A]ll micro-organisms... are only to be understood as part of a larger whole, and therein will lie the paradigm shift. To think in a living way means to think anew every time, because the current contexts are always new.” As well as being a ‘science of living connections’, as you evocatively put it, this also strongly suggests that a ‘post-revolutionary’ *holistic medical science* will also be one which has *uniqueness and individuality* as a core organising ontology, as opposed to the normalising monocultural bludgeon of Industrial-Complex biomedicine. And I also wonder whether our mainstream, ‘normal-science’ understanding of existing mechanistic conceptions of ‘causality’ itself, and of scientific ‘explanation’, will themselves also need to be fundamentally re-cast (which can only surely happen if the ideologies of patriarchy, determinism and the accompanying Victimhood Archetype are also challenged and thence transcended – themes we touched upon earlier).

To what extent are the seeds of what a new, viable medicine will look like *already available* and waiting to be assembled in this vast body of alternative ways of thinking about human health, illness and healing? Or will quite new epistemological and ontological breakthroughs and discoveries (also) be needed? I’m also aware, that ‘revolutionary’ changes in science and culture can’t be understood or predicted without locating them in the wider *evolution of human consciousness*.

TH: Basically, all the questions we are addressing here revolve around the age-old body–soul problem. Because we are not prepared to solve it, or because we have not managed to resolve the fatal dualistic dilemma via the Enlightenment, that is why psychosocial catastrophes such as the corona crisis are developing. We have created an abstract viral parallel world that is completely disconnected from human reality and which is now taking on the life of a monster.

The earth and the human being are a common reality: ‘the world is organised towards subjectivity’:²³ everything we separate out of the great context of this primordial symbiosis, everything we dis-integrate, becomes a source of error, even of a destructive nature.

Those who talk about viruses by invoking parasitic enemy images make them the projection field of their own fears and their latent militaristic mental attitude, in so doing overlooking their deep co-evolutionary connection with the human being (right down to

mental processes!); and, moreover, they create a kind of phantom, a spectre that menacingly haunts us. I think the most important thing we have to achieve in natural science today is an integrative understanding of evolution. Paracelsus (1493–1541)²⁴ already put it this way: “Nature is made up of letters, and the word that designates them is man”. This fundamentally important idea can be traced today to all microbiological and genetic processes. One of the leading microbiome researchers in Germany, Thomas Bosch from Kiel, has illustrated this very clearly in his book *Der Mensch als Holobiont* (in translation, *Man as a Holobiont*). And the virologist Karin Mölling has described the human genome as a “colourful potpourri from the gene pool of the entire earth”.

We share at least 80 per cent of our genetic material with horses – but that is only the outside view of a phenomenon that also has its inside view: the common history of humans and horses, their deep soul relationship and their eco-cultural co-evolution. The horse is in us, not only genetically but in a soul-resonant relationship. The horse touches us because we carry ‘equine’ within us. Like is only recognised by like (Empedocles).²⁵ We would not be able to love these noble creatures if there were not a deep soul-like kinship with them by nature.

There is a fascinating new science called psychomicrobiology²⁶ which reveals previously considered unthinkable connections between gut bacteria, and our mental states and cognitive abilities. As with horses, we share an ancient history of co-evolution with micro-organisms; we have gone through countless metamorphoses with them. We could continue the narrative of connections endlessly.

“The whole earth is human!” – this sentence is not an attempt to revive a romanticised 19th-century view of nature, but merely describes the logical inversion that human beings are a compendium of all natural phenomena. We are interspersed with viral, bacterial, plant and animal genes, and what we have here before us as a biological fact, we need only translate into the language of the soul and spirit, for there, the same principles and forces are at work, only on different levels of description. Today we cannot yet clearly describe the ‘anatomy’ of the feeling for the horse, because our spiritual sensitivity is not yet sufficiently finely and consciously developed to do this. But what Greek mythology experienced and described as the Centaur we will perhaps grasp anew in the future, with a finer depth of focus of the psychological-scientific gaze.

The physicist Hans Peter Dürr (1929–2014) once summed up our central epistemological dilemma thus: “we have completely disassembled the world and now we have the problem that we can no longer put it back together”.²⁷

I would like to briefly touch on a second point of our topic. What was described in myth in the ancient

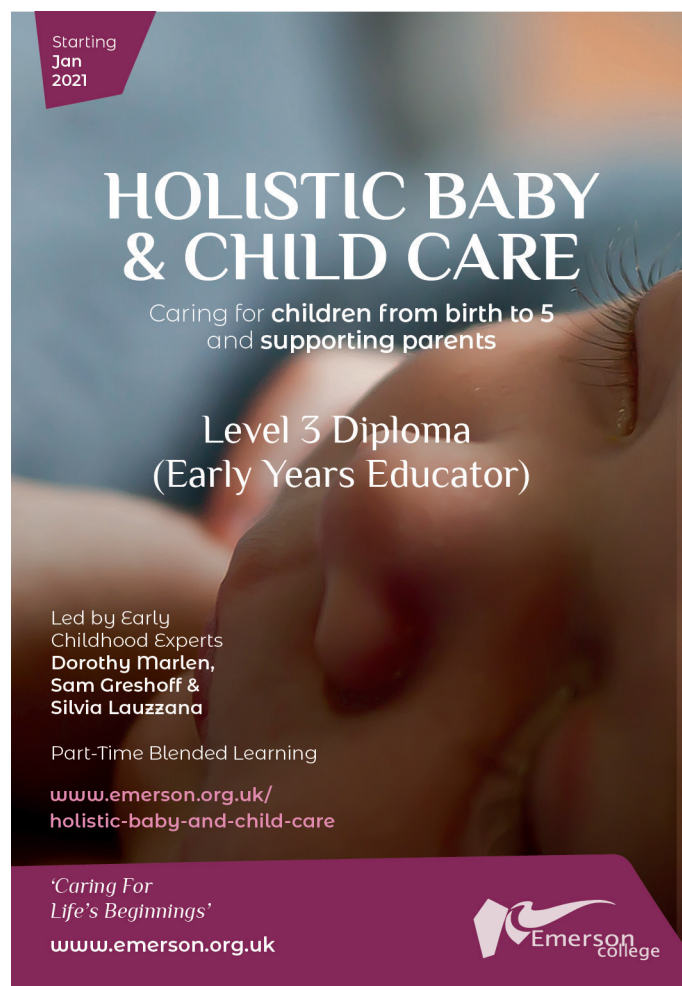
world of the Greeks as the Titan Chronos is currently experiencing the first birth pangs of a modern scientific renaissance: the rediscovery of time! Time precisely is *not* conceived of as an abstract physical unit of measurement, but as the ‘fabric’ from which all living things are woven; every organism is permeated by structured time, and all the regularities that are evident in chronobiological orders (every animal and every plant is the result of a time choreography – the hoof of the horse corresponds to the nail of the human middle-finger, but emerged from a different developmental dynamic) are also at work in the creative workshops of human ‘world interiors’ (Rilke).

In recent years, modern physics has declared time to be an illusion because it cannot be grasped on the physicalist level. We cannot even comprehend time as a physical quantity because it is a phenomenon of the living. The key to the body–soul problem lies in the essence of time, but only the experience of our own reflection can teach us about this.

The experience of the pure process, the pure activity within, in thinking, is the same as that which we find, for example, in a living cytoplasm.²⁸ In every cell, hundreds of thousands of metabolic processes take place simultaneously every second. When we write endless chemical formulae on the blackboard, it is only an attempt to present this purely processual phenomenon in such a way that we can better understand it with our naïve, building-block thinking. It is some 300 years of materialistic thinking that has deeply imprinted itself in people’s brains, so that today we can no longer think the purely living. In his work *Das Prinzip Leben* (The Principle of Life),²⁹ Hans Jonas writes that the ancient Greeks could not actually think of death at all: their world was immersed in a single animated aliveness, and everything was filled with soulful beings and gods. Today it is the other way round: we have created a dead, mechanistic universe, and we no longer understand the living, with life itself having become the central enigma of all science.

On the scientific side, I do see microbiome research as being a light on the horizon.³⁰ Because micro-organisms are very close to the purely processual understanding I mentioned earlier, they will force upon us a completely new dynamic of thinking; otherwise, we will no longer understand anything at all in this regard, for the traditional, analytical methodology completely fails here. I think that in the next few decades the paradigm shift *will* take place, and we will experience a new ‘love affair’ between natural science and the humanities. We will recognise that the same laws are inherent in our thinking as they are in living nature. As Heidenberg wrote,

...nature, I was convinced, is made in such a way that it can be understood. Or perhaps I should



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more correctly say the other way round; our faculty of thought is made in such a way that it can understand nature.... It is the same ordering forces which have formed nature in all its forms and which are responsible for the structure of our soul, and therefore also of our faculty of thought.³¹

RH: With regard to what you term the ‘purely processual phenomenon’ that “in every cell, hundreds of thousands of metabolic processes take place simultaneously every second”: how on earth (I am asking rhetorically!) can reductionist science and simplistic causal thinking ever imagine that they can get *anywhere near* a remotely viable, realistic account of that reality with their blunt analytical instruments, without doing a kind of terminal violence to it? The term ‘modernist scientific hubris’ comes to mind.

I’d like to return to the issue of *stress and fear* in relation to illness which we’ve touched upon already, Thomas – as it seems to be such an apposite litmus-test as to how and why allopathic biomedicine can be just plain wrong (or, at best, hopelessly partial to the point of caricature), *scientifically* speaking. In your 2020 article ‘The Corona Syndrome: why fear is more dangerous than the virus’ (*New View*, Spring 2020) you refer to the “chaos [that] is caused when fear, ignorance, panic and unscrupulous business interests coalesce and

run out of control”; and you then write the following:

viral activity increases in every ecological system... as soon as this system comes under stress.... If the organism becomes stressed..., the dormant state can become lytic (destructive), which means that the virus starts to multiply and destroy the cell (Lysis). We then have an infectious disease.... *The most significant cause of human illness is chronic, negative and fear-induced stress!....* When self-confidence is lost through fear and shock and with it the motivation to live, we withdraw from life as human beings *and our immune system collapses.* (my italics)

You also quote G. Hüther thus: “Fear... interferes with the regulatory system at the centre in the brain stem that integrates and guides bodily reactions and therefore the self-healing capacity of the organism”. And you further quote a 2007 empirical study by Cohen and others³² (presumably just one of many similar studies),³³ showing the impact on the immune system of being unemployed. These empirical findings are entirely consistent with the aggregative data estimating that the global mortality rate rose by hundreds of thousands in the 2010s decade, due to neoliberal Western governments’ economic austerity policies.³⁴ The latter quoted study included the following:

“It is crucial that policy makers consider the psychological impacts of current and future policies. Creating the conditions for well-being and resilience directly helps to reduce distress both in the short term and the long term”.³⁵

And with direct relevance to the imposed Covid-19 regulations, a literature review identified five specific ways in which austerity policies negatively impacted mental health: humiliation and shame; fear and mistrust; instability and insecurity; isolation and loneliness; and being trapped and powerless.³⁶ From this, it appears that it would have been difficult to design Covid-19 regulations that were more damaging than those that governments did choose to impose, psychologically speaking.

And so the corollary of all this: “Societies... in which people are not anxious but courageous, creative, cooperative... do not provide a fertile soil for epidemics”.³⁷ At this point, I can offer a personal experience of this phenomenon. I have been part of a substantial activist group that throughout the ‘pandemic’ has not observed the social-distancing and mask regulations, has had regular close social contact, and which to a person has not been consumed by fear of ‘the virus’. Now if the mainstream, simplistic germ-theory narrative about Covid susceptibility peddled by

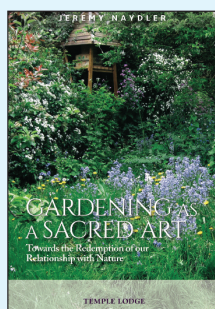
government and their scientific advisors were remotely true, we would have been dropping like flies; but in reality, *not one of us has contacted Covid, or any other illness, for 17+ months* (as I write). This anecdote seems to be entirely consistent with what you are saying here about fear and stress, and their self-fulfilling, illness-generating nature.

Now would I be somewhere near correct in saying that this is the clearest possible example of just how wrong the prescriptions based on biomedical science can be when that science adopts its narrowly conceived pathogen and germ-theory ontology? So in the case of the Covid-19 so-called ‘pandemic’, for example, we were told that all the restrictions imposed (and the accompanying fear-inducing propaganda to which citizens were deliberately subjected by government and mainstream media)³⁸ were designed to *protect* us from the virus and limit its spread; whereas on your analysis, these so-called protective measures had *precisely the opposite effect* to that which government and their scientific advisors were claiming; i.e. the amount of fear (even *terror*) that was generated (which I have to say was enormous, and quite unprecedented in the UK in my lifetime) was *itself* a major cause of increasing people’s susceptibility to contacting Covid, and thus in many cases dying as a result.

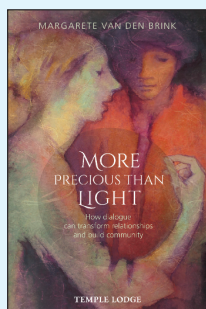
In other words, *people were at least as much killed by fear as they were by Covid-19 per se – and quite possibly far more so.* If this is anything like true, then it surely constitutes a scientific, cultural and political scandal of unimaginable proportions – perhaps, even, a state and corporate-engineered crime against humanity.

TH: I am grateful to you for raising the issue of anxiety, stress and illness; it is centrally important. We have already mentioned the three levels of autonomy – autonomy on the cognitive level, resilience on the psychological level, and immune functions on the organic level. All three levels cannot be separated, and they interact to a high degree. Today, in mainstream thinking the disease process is reduced purely to the biological level or to viral exposure, and this creates room for fatal errors – indeed, it is a criminal omission! People who hold this position, which also supports the whole corona narrative, obviously have no idea of the close correlations between immune functions and psychological stress that psychoneuroimmunological research has brought to light over the last two decades.³⁹

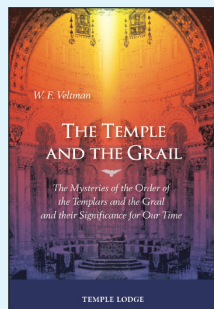
We now know how directly interdependent our immune functions are with our psychosocial condition. When people are exposed to frightening impressions of horror and violence in front of the television, the fall in immune parameters can be measured directly; and the opposite occurs with positive or cheerful content. A study in *The Lancet* has indeed shown an enormous increase in mortality rates (HIV, suicides, infant



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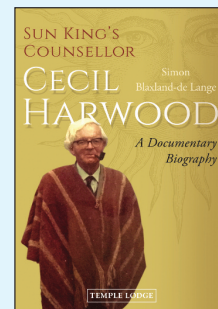
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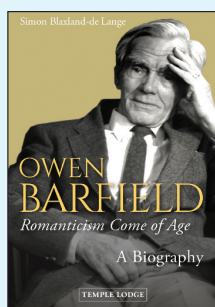
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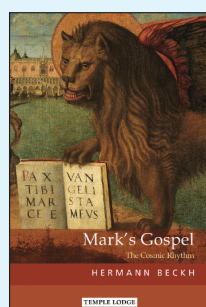
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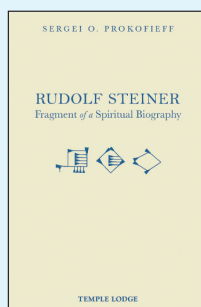
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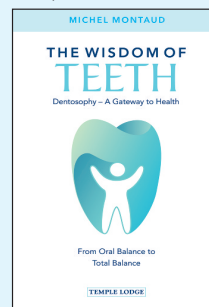
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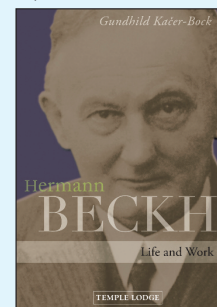
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mortality, etc.) in Greece in the context of EU austerity measures.⁴⁰ Indeed, British epidemiologists Kate Pickett and Richard Wilkinson have shown how much population health depends on social balance and equity in a country.⁴¹

It can be summed up in one sentence: *the human being is healthy where it is humane.*

Millions of ruined livelihoods, mass unemployment and poverty, a massive increase in mental illness, violence, fear, exclusion, and much more. All this corona collateral damage will result in a collective *depression* of immunity, with corresponding consequences. If our media return to their legitimate profession – namely, that of presenting proper and objective information for people – it will become clear that the global corona measures and their social consequences will claim many times more lives than the virus itself. .

When you deal with patients every day for 35 years and look closely, you get a feeling for why people die: from tiredness of being alive and from exhaustion and weakness, from lack of motivation in life, from the feeling of no longer being needed, or from social isolation – from depression, fear, grief and deprivation of love. I could share countless examples of this with you.⁴² Sometimes the reason is not immediately evident, and only reveals itself through very intimate observation. If the immune functions weaken for the reasons mentioned,

then naturally a 'foreign life' in the form of viruses and bacteria emancipates itself more easily. Cancer, too, is basically a matter of 'foreign autonomy' in the organism. A person does not die from a viral pneumonia – these are usually relatively harmless – but when he or she dies, it is usually down to a bacterial super-infection whose development is not due to the original virus, but to a weakened immune system.

What loneliness does to people has been demonstrated by the psychiatrist Manfred Spitzer from Ulm in his book published in 2018.⁴³ The risk of death from loneliness is higher than from smoking, alcohol and obesity. Until a few years ago, such things were not studied at all, so knowledge about these relationships is not yet widespread.

On 1 August 2021, I took part in a demonstration against the corona measures in Berlin, and I have never seen so many peaceful and relaxed people, families with children, pensioners, artists, musicians, intellectuals, and even clowns – all from the middle-class echelons of society. I couldn't find a single 'Nazi' or other so-called (rightist) 'radical', as they are so often presented in our German media! Talking to some of the participants, it was so pleasant for me to experience how many sympathetic, courageous and also educated people there are in our country – a modern, colourful society, as one would basically like to see.

In fact, the planned demonstration on the 'Straße des 17. Juni' and in the government district had been banned, so that the estimated 200,000 people dispersed in numerous smaller marches throughout the centre of Berlin. What was frightening was the massive extent of the brutality and show of force with which the police acted. Endless squadrons of emergency vehicles raced through the city with sirens blaring and blue lights flashing – actually, completely senseless – generating a catastrophic kind of mood for which there was no justification at all. Countless police squads in black uniforms, with helmets, visors, batons, tear gas, firearms, knee and elbow pads (as if they wanted to win a war) obviously had orders from 'above' to stop and disperse the demonstration marches by means of numerous road-blocks. Some of the violence used was so martial that the UN Special Representative for Human Rights Violations has since intervened with an enquiry to the government.

At one point, we were directly confronted by a chain of police officers. On closer inspection, the pale faces of totally overstrained and completely insecure young people, including many young women in their early twenties, who were sweating with fear, were partially hidden in these threatening-looking suits of armour; how grotesque! An older woman next to me obviously also made a similar observation, stepping forward and shouting to them, 'Why don't you take off your helmets – we won't hurt you!'. After this 'disarming' sentence, there was a short silence; it was one of those small profound moments where it brought tears to some people's eyes because this simple sentence had such a strong impact.

Where does this aggression and accompanying fear come from, which threatens to divide society more and more at the moment, and which has already destroyed so many relationships in private life? Why do we keep losing our humanity in this field of tension of fear and power, although nobody actually wants that? Does the stoked fear of the virus generate an age-old social-psychological reflex – namely, that of 'solidarity out of fear', in which anyone who refuses this solidarity becomes a hate object, a 'covidiot', because he or she endangers the 'vital' cohesion of the group? How can we overcome these deep rifts and these radicalisations? What attitude do we need in order to maintain dialogue without risking our authenticity, or even denying our convictions and pandering to the mainstream, as is unfortunately very common right now?

In my entire working and personal environment, I do not know a single corona victim, and I take note of such socio-psychological pathologies with concern, even with a certain fear.

RH: Thank you for this conversation, Thomas. I so wish we could continue! I'm deeply moved by your

description of the Berlin freedom march; and I'm also so grateful that you have highlighted the highly complex question of why it is that people die. In your few words on this, you have comprehensively laid bare the hopelessly simplistic positivism of the mainstream narrative constructed around people 'dying from Covid'.

Along with many others, I'm sure, I've been feeling a paradigmatic 'scientific revolution' in my bones for many years now; and your cogent analyses and insights in this interview have helped to give form and substance to just what that scientific revolution will entail. Heartfelt gratitude to you on behalf of this magazine's many thoughtful readers.

Dr. Thomas Hardtmuth, born 1956, is a medical doctor, writer and international lecturer. He studied human medicine at the Technical University and LMU Munich from 1978 to 1985; and he trained as a specialist in surgery at the Heidenheim Clinic and thoracic surgery at the University Hospital Ulm. A senior physician at the Klinikum Heidenheim, from 2011 to 2020 he lectured in health sciences, epidemiology and social medicine at the Baden-Württemberg Cooperative State University. A participant in the Microbiology working group at the Goetheanum in Dornach, other focal points of his research interests are neurobiology, oncology, health economics and the autonomy principle in salutogenesis. His latest books are *Mikrobiom und Mensch: Die Bedeutung der Mikroorganismen und Viren in Medizin, Evolution und Ökologie. Wege zu einer systemischen Perspektive (Microbiome and Humans: The Importance of Micro-organisms and Viruses in Medicine, Evolution and Ecology. Paths to a Systemic Perspective)*, Salumed-Verlag, Berlin, 2021; and *What Covid-19 Can Teach Us: Meeting the Virus with Fear or Informed Common Sense?*, Interactions, Stroud, 2021.

Richard House lives in Stroud, England. He has worked as a counsellor-psychotherapist, a Steiner Waldorf early-years leader and a university senior lecturer in Psychology and Education Studies (2005–14). He has a particular interest in the philosophy of science and narratives of illness and well-being. His forthcoming book *Limits to Medical Science: 'Revolutionary' Conversations* (which will include an extended version of this interview with Dr Hardtmuth) will be published by Interactions (Stroud) in 2021–2.

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Endnotes

1. The term 'salutogenesis' refers to the origins of health, focusing on factors that support human health and well-being, rather than on factors that cause disease (pathogenesis).

2. *Perspektiven einer Biologie der Freiheit* (Perspectives of a Biology of Freedom) was published (edited by Bernd Rosslenbroich, an evolutionary biologist) (see also note 42, below)
3. Iatrogenesis (from which term the adjective 'iatrogenic' derives) is the causation of a disease, a harmful complication, or other ill-effect by any medical activity, including diagnosis, intervention, error or negligence; in other words, when medical treatment itself does harm. See, for example, Virginia A. Sharpe and Alan I. Faden, *Medical Harm: Historical, Conceptual, and Ethical Dimensions of Iatrogenic Illness*, Cambridge University Press, Cambridge, 1998. It has been estimated in peer-reviewed research that about 330,000 patients a year die from prescription drugs in the USA and Europe, with 80 million patients suffering 'side-effects' of pains, discomforts, dysfunctions etc. Source: Prof. D.W. Light, 'The epidemic of sickness and death from prescription drugs', *ASA Footnotes*, 42 (8), 2014; available at <https://tinyurl.com/6u633zwt> (accessed 19 September 2021). See also Donald W. Light, Joel Lexchin and Jonathan J. Darrow, 'Institutional corruption of pharmaceuticals and the myth of safe and effective drugs', *Journal of Law, Medicine and Ethics*, 14 (3), 2013, pp. 590–610; available at <https://tinyurl.com/pa67nfp6> (accessed 19 September 2021).
4. Psychosomatic medicine is an interdisciplinary medical field exploring the relationships among social, psychological and behavioural factors on bodily processes and quality of life in humans and animals.
5. See George L. Engel, 'The need for a new medical model: a challenge for biomedicine', *Science*, 196, 1977, pp. 129–36; available at <https://tinyurl.com/ju9s386f> (accessed 19 September 2021).
6. Psychological problems are commonly perceived to be a result of environmental factors or social circumstances, thus placing responsibility on external factors typically beyond the person's control. Mental problems are perceived to be caused by individual 'weakness' or genetic faults – internal factors that *can* potentially be controlled.
7. For example, Bernd Hontschik and Giovanni Maio, *Geschäftsmodell Gesundheit: Wie der Markt die Heilkunst abschafft*. (The Business of Health: How the Market Destroys the Art of Healing). Suhrkamp Verlag, Berlin, 2014.
8. Wilhelm von Humboldt (1767–1835) was a Prussian philosopher, linguist, government functionary and diplomat, particularly remembered as a linguist who made important contributions to the philosophy of language, ethnolinguistics and to the theory and practice of education. He envisioned education as a means of realising individual possibility rather than a way of drilling traditional ideas into young people. He was the architect of the Humboldtian education ideal, used in Prussia as a model for its public education system.
9. 'Epigenetics' refers to the study of how human behaviours and environment can cause changes that affect the way our genes work.
10. Christian Kreiß, an economist at Aalen University, has written a very informative book that is well worth



- reading, about the increasing, disastrous fusion of economics and medicine; see *Gekaufte Forschung – Wissenschaft im Dienst der Konzerne* (Berlin, 2015).
11. 'Aetiology' refers to the study of the cause, set of causes or manner of causation of a disease or condition.
12. Ethel D. Hume, *Béchamp or Pasteur?: A Lost Chapter in the History of Biology*, A Distant Mirror (<https://adistantmirror.com>), 2017 (orig. publ. 1923).
13. See, for example, Mateja Černič, *Ideological Constructs of Vaccination*, Vega Press, Newcastle Upon Tyne, 2018.
14. Anelloviruses are small, single-stranded circular DNA viruses. They are extremely diverse, and have not to date been associated with any disease. Strikingly, these small entities infect most probably the complete human population, and there are no convincing examples demonstrating viral clearance from infected individuals.
15. Polyoma and parvoviruses are animal viruses.
16. Thomas S. Kuhn, *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago, 1962 (2nd edition, 1970).
17. Vandana Shiva, *Monocultures of the Mind: Perspectives on Biodiversity and Biotechnology*. Zed Books, London, 1993, p. 7.
18. The term 'ontology' refers to the branch of philosophy that studies concepts such as existence, being, becoming, and reality – or in short, theories of what exists. It includes the questions of how entities are grouped into basic categories and which of these entities exist on the most fundamental level.
19. Evolutionary biologist Professor Wolfgang Schäd Professor worked for many years as a Waldorf school teacher and as a lecturer at the Waldorf Teacher's College in Stuttgart. He is an Emeritus Professor at the Institute for Evolutionary Biology, University of Witten-Herdecke, Germany, a position he held until his retirement in 2005.
20. See Thomas Hardtmuth, *Mikrobiom und Mensch: Die Bedeutung der Mikroorganismen und Viren in Medizin, Evolution und Ökologie. Wege zu einer systemischen Perspektive*. (Microbiome and Humans: The Importance of Micro-organisms and Viruses in Medicine, Evolution and Ecology. Paths to a Systemic Perspective). Salumed-Verlag, Berlin, 2021.
21. EHEC refers to *enterohaemorrhagic Escherichia coli*,

- a disease which causes severe diarrhoea with kidney failure.
22. David Ray Griffin, 'Of minds and molecules: postmodern medicine in a psychosomatic universe', in D.R. Griffin (ed.), *The Reenchantment of Science*, State University of New York Press, Albany, NY, 1988, pp. 141–63; quotation from p. 161, italics added.
 23. Quotation adapted from Hans-Georg Gadamer (1900–2002), a highly influential German philosopher in the continental tradition, best known for his 1960 magnum opus on hermeneutics, *Truth and Method* (Wahrheit und Methode). His influential book on medicine, *The Enigma of Health: The Art of Healing in a Scientific Age*, was published by Polity Press (Cambridge) in 1996. On Gadamer and subjectivity, see Rudolf Bernet, 'Gadamer on the subject's participation in the game of truth', *Review of Metaphysics*, 58 (4), 2005, pp. 785–814. On Gadamer's view of medicine as a *dialogical* process, see C. Abettan, 'Between hype and hope: what is really at stake with personalized medicine?', *Medicine, Health Care and Philosophy*, 19, 2016, pp. 423–30.
 24. Paracelsus (1493–1541) was a Swiss physician, alchemist, lay theologian and philosopher of the German Renaissance. See, for example, Vincent Di Stefano, 'Paracelsus: Light of Europe – A Brief History', *Australian Journal of Medical Herbalism*, 6 (1), 1994, pp. 5–8; 6 (2), pp. 33–6; 6 (3), pp. 89–92.
 25. Empedocles (494–434 BC) was a Greek pre-Socratic philosopher, best known for originating the cosmogonic theory of the four classical elements. He also proposed forces he called Love and Strife, which would mix and separate the elements.
 26. S.C. Anderson, J.F. Cryan and T. Dinan, *The Psychobiotic Revolution: Mood, Food, and the New Science of the Gut–Brain Connection*, National Geographic, Washington, D.C., 2017.
 27. See Hans Peter Dürr, *Geist, Kosmos und Physik: Gedanken über die Einheit des Lebens* (Mind, Cosmos and Physics: Thoughts on the Unity of Life), Crotona Verlag GmbH, Amerang, Germany, 2010.
 28. Cytoplasm is a jelly-like substance between the nucleus and the cell membrane.
 29. Hans Jonas, *Das Prinzip Leben* (The Principle of Life), Suhrkamp Verlag, Berlin, 2011.
 30. See note 20.
 31. Werner Heisenberg, *Der Teil und das Ganze. Gespräche im Umkreis der Atomphysik* (The Part and the Whole. Conversations in the Field of Atomic Physics), Piper Verlag, München, 1969, S. 123 f.
 32. F. Cohen & others, 'Immune function declines with unemployment and recovers after stressor termination', *Psychosomatic Medicine*, 69 (3), 2007, S. 225–34.
 33. See, for example, Rhoda L. Ross-Williams, 'Fear is stress that causes weakening of the immune system', *Journal of Clinical Cases and Reports*, 3 (S4), 2020, pp. 19–21; available at <https://tinyurl.com/3uxd8tsz> (accessed 19 September 2021).
 34. See, for example, Nikolaos Vlachadis and others, 'Mortality and the economic crisis in Greece', *The Lancet*, 383, 22 February 2014, p. 691; available at <https://tinyurl.com/6dk2en57> (accessed 19 September 2021); and Adam Standring and Jonathan Davies, 'From crisis to catastrophe: the death and viral legacies of austere neoliberalism in Europe?', *Dialogues in Human Geography*, 10 (2), 2020, pp. 146–9; available at <https://tinyurl.com/y4rj3nps> (accessed 19 September 2021). See also L. McGrath, V. Griffin, E. Mundy and others (no date), 'The psychological impact of austerity: a briefing paper', Psychologists Against Austerity, UK; available at <https://tinyurl.com/y36cttsz> (accessed 9 August 2021).
 35. McGrath et al. (note 34), p. 1.
 36. Ibid.
 37. Thomas Hardtmuth, 'The Corona Syndrome – why fear is more dangerous than the virus', *New View* magazine, 95 (Spring), 2020, p. 18.
 38. Laura Dodsworth, *A State of Fear: How the UK Government Weaponised Fear during the Covid-19 Pandemic*, Pinter & Martin, London, 2021; see also Richard Brinton, Book Review Essay, *New View* magazine, 100 (Summer), 2021, pp. 88–93.
 39. C. Schubert and M. Amberger, *What Makes Us Sick, what Heals Us: The Dawn of a New Medicine*. Fischer & Gann Verlag, Munderfing, 2016.
 40. A. Kentikelenes and others, 'Greece's health crisis: from austerity to denialism', *Health Policy*, 383 (9918), 2014, pp. 748–53; see *The Lancet*, 22 February 2014.
 41. Richard Wilkinson and Kate Pickett, *Equality. Warum gerechte Gesellschaften für alle besser sind* (Equality. Why Just Societies Are Better for All), Verlag Haffmans & Tolkemitt, Berlin, 2016 (in English, *The Spirit Level: Why Greater Equality Makes Societies Stronger*, Bloomsbury, London, 2010).
 42. See, for example, Thomas Hardtmuth, 'Autonomy and health', in B. Rosslenbroich (ed.), *Perspectives on the Biology of Freedom*, Verlag Freies Geistesleben, Stuttgart, 2020.
 43. See Manfred Spitzer, *Einsamkeit – die unerkannte Krankheit*, 4th edn (Loneliness – the Unrecognized Disease), Droemer HC, München, 2018.

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