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A Dialogue on Creative Thinking and the Future of the Humanities

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About Insights

Insights captures the ideas and work-in-progress of the Fellows of the Institute of Advanced Study at Durham University. Up to twenty distinguished and 'fast-track' Fellows reside at the IAS in any academic year. They are world-class scholars who come to Durham to participate in a variety of events around a core inter-disciplinary theme, which changes from year to year. Each theme inspires a new series of *Insights*, and these are listed in the inside back cover of each issue. These short papers take the form of thought experiments, summaries of research findings, theoretical statements, original reviews, and occasionally more fully worked treatises. Every fellow who visits the IAS is asked to write for this series. The Directors of the IAS – Michael O'Neill, Colin Bain, Barbara Graziosi and Tony Wilkinson – also invite submissions from others involved in the themes, events and activities of the IAS. *Insights* is edited for the IAS by Michael O'Neill.

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The Institute of Advanced Study, launched in October 2006 to commemorate Durham University's 175th Anniversary, is a flagship project reaffirming the value of ideas and the public role of universities. The Institute aims to cultivate new thinking on ideas that might change the world, through unconstrained dialogue between the disciplines as well as interaction between scholars, intellectuals and public figures of world standing from a variety of backgrounds and countries. The Durham IAS is one of only a handful of comparable institutions in the world that incorporates the Sciences, Social Sciences, the Arts and the Humanities.

The focal point of the IAS is a programme of work associated with, but not exclusive to, an annual research theme. At the core of this work lies a prestigious Fellowship programme. This programme gathers together scholars, intellectuals and public figures of world standing or world-promise to address topics of major academic or public interest. Their mission is to anticipate the new and re-interpret the old, communicating across and working between disciplinary boundaries.

Every year, the Institute invites as many as twenty highly creative individuals to spend up to three months in Durham. They are located in Cosin's Hall, a magnificent and spacious 18th century mansion which, together with Durham Cathedral and Durham Castle, forms part of Palace Green, dominating the World Heritage Site of Durham Peninsula. During their stay, Fellows engage with departments and colleges, deliver public lectures and seminars, and, above all, join an international community of researchers to address the theme selected for that year. Further details of the IAS and its Fellowship programme can be found at www.durham.ac.uk/ias/fellows

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A DIALOGUE ON CREATIVE THINKING AND THE FUTURE OF THE HUMANITIES

A writer and a scholar discuss the future of the humanities and their evolution in a new, practical direction. What is the connection between creativity and education and how can the academy embrace programs not only in creative writing but also creative thinking? Should we teach students how to write literary manifestos and construct alternative worlds? What would be a new transformative universe that is now born from the universe of information?

ME: The current crisis of the humanities, their decline in both social and academic standing, is an obvious fact. In the last 40 years, the number of students majoring in the humanities has dropped by more than half, from 17% to 8%, according to the American Academy of Arts and Sciences.

I believe that humanists should be responsible enough to accept at least part of the blame for the decline of their professions, rather than pointing an accusing finger at the job market, the economic crisis, the greed of corporations, the indifference of the government, shallow consumerism, superficial obsession with new technologies, etc.

The major problem with the humanities is their self-enclosure in the past and alienation from the contemporary world. They focus on the study of texts instead of investigating human potential for the future. In fact, the humanities of today, as a set of academic disciplines, have turned into textual studies. Contrary to the meaning of their name and vocation, the 'humanities' are not interested in humanity and humanness as such, in human beings as the creators of history and civilization, as heroes, conquerors, dreamers, martyrs and discoverers. The academic humanities are interested only in texts and their interpretations, and interpretations of interpretations of interpretations... The general public justly perceives humanists as second-hand retailers of the past rather than inventors of the future.

Can this trend be reversed and what do we need to do in order to restore the transformative potential of the humanities? I believe that the humanities, as a field of scholarship, needs a practical branch that would correspond to what are technologies in relation to natural sciences and politics in relation to social sciences.

Imagine botany, the study of plants, without agriculture, forestry and gardening, i.e. practical cultivation and experimentation with plants. Or imagine cosmology without cosmonautics and space technology, without rockets, satellites, shuttles and astronauts, without any attempt of the practical conquest of space. This is the situation with the humanities today. Scholarship, without developing its own practical and experimental branches, degenerates into scholasticism.

AC: This is very interesting, and I would agree with much of what you say. But I think there are a couple of ideas that need unpacking. First, it seems we are speaking here of the humanities (and scholarship generally) as something that exists within universities and academic systems. Secondly, a distinction is being made between theory and practice, with the proposal that

the humanities should develop its own experimental branch alongside its existing theoretical concerns.

As a novelist and creative writing lecturer, my initial response would be that such a branch exists already, in my own subject area. In creative writing the primary goal is the production of new imaginative work, augmented by reflection on the process of composition. We do indeed concern ourselves with humanity, real life, the future of society, and so on. Our interest in existing texts is based on our desire to draw lessons which we can apply in our own writing. In a sense we are like the gardeners or rocket builders you speak of.

But not everyone who loves literature wants to become a writer, and I do not think anyone would want to make creative writing a model for the whole of humanities. So although I feel a fundamental sympathy for your point of view, I also see problems. The distinction between theory and practice is very clear-cut in some fields, but not in others. I think it would be quite reasonable to say that Napoleon did practical history, but I do not think anyone would say he deserved a PhD for winning the Battle of Austerlitz. In creative writing, a PhD typically consists of creative work (e.g. a novel or poetry collection), accompanied by some shorter critical or reflective piece. What makes one novel a valid PhD thesis, and not another? This is an institutional question which arises as soon as we try to define any academic subject area, and it is one that would need to be faced by your department of 'creative thinking.' Should we conceive the humanities solely within institutionalized academic disciplines? Might its practical branch not be better pursued elsewhere?

ME: Your objections are clearly stated, and I will try to respond to them. You say that the practical branch of the humanities exists already in creative writing, whose primary goal is the production of new imaginative work. In my view, creative writing is not a practical branch of the humanities, but rather an object of their study, as nature is the object of study in natural sciences. Literature, painting, music, theater and cinema are primary arts that are explored by humanistic disciplines, such as aesthetics, cultural studies, literary theory, art history and musicology. What I suggest is the practical extension of these disciplines, the transition from theory to practice, which is not the same as writing poems or novels, or playing piano, or acting in theater. I propose to establish the area of the transformative humanities that would change what they study, in the way in which technologies change the nature that is studied by natural sciences. An example of such a transformative genre in cultural theory would be a literary manifesto, the genre that crucially shaped great literary movements and cultural epochs, from Neoclassicism and Romanticism to Futurism and Surrealism... A literary manifesto is not a work of literature (like a poem or a short story), but neither is it a work of academic scholarship (like a dissertation or a monograph). It is a genre of transformative aesthetics or transformative poetics. Nowhere in contemporary academia is there a place where humanistic inventors, such as Friedrich Schlegel, or Andre Breton, or Walter Benjamin, could teach students how to proclaim, shape, direct new literary movements and schools. One might object that the literary manifesto is a creative genre that cannot be taught. However, the novel or poetry, which are also creative genres, are taught by departments of creative writing. Why not create departments of creative thinking where literary visionaries and engineers could find their proper place in academia?

Then you suggest: why not practice this art of creative thinking outside of academia? I agree: nobody should coerce creative minds into academia. But if there are poets and fiction writers who choose an academic career in addition to their literary vocation, why deny such an opportunity to creative thinkers? Yes, Napoleon does not deserve a PhD for winning the Battle of Austerlitz. However, we have to distinguish between heroes and authors. Napoleon, as a hero, as an object

of historical studies, does not deserve a PhD for his military battles, but perhaps the author Nietzsche does, for his intellectual battles. Who could better teach the ideas of Superman than their author?

Meanwhile, imagine Friedrich Nietzsche applying for the position of assistant professor at a department of philosophy somewhere in the United States. He brings his book *Thus Spake Zarathustra* as confirmation of his credentials. A book without a single reference, with no list of sources, devoid of scholarly apparatus, and full of pompous and vague metaphysical declarations voiced by the arrogant author in the guise of an ancient Persian prophet. Without a shadow of a doubt, Nietzsche would be denied even the position of an instructor, despite the fact that dozens of full and distinguished professors of philosophy have made their careers studying Nietzsche's oeuvre and commenting on his philosophy of the superman. Nietzsche himself was not a researcher in the academic sense of the word. He was a seeker and visionary, the inventor of ideas that inspired a number of highly influential social, artistic and philosophical movements in the twentieth century. I believe the academy needs such creative minds no less than they need the academy.

AC: I discern within your argument a classificatory tendency, something that of course has a long intellectual history and a fine pedigree, which we could date from Aristotle. Thus, for example, you speak of disciplines, and of their having theoretical and practical branches (much as Aristotle spoke of theoria and praxis). You further distinguish between objects of study (e.g. novels), and the modes by which they are studied within disciplines (e.g. critical essays).

I do not take issue with the usefulness of this way of thinking, which is amply demonstrated by science and technology. Nor do I deny the efficacy of classificatory, hierarchical thinking in the realms of administration and institutional bureaucracy (for example, the structuring of universities or other formalized systems). What I would however take issue with, is the implicit notion that these classifications necessarily reflect an objective reality. To be specific, there is a book on my shelf that is called a 'novel.' Why is it described in this way? Is it because the author used that word? Not necessarily. Is it because a bookshop or an academic has used that description? Possibly. I can speak without ambiguity of the book's size and weight, but there is no objectively definable quality in it that I can call its 'novel-ness,' though there are of course arguments of more or less sophistication that can be raised in defence of the book's status as a novel. The question of 'primary' versus 'secondary' works is therefore suspect. One need only think, for instance, of the essays of Montaigne.

I am skeptical of the equivalence you appear to make between science and the humanities, and of the classificatory procedure you go on to adopt, based on that equivalence. You say, for example, that a battle and a novel are objects of study (of history and literary criticism), not forms of practical study; whereas gardening and rocketry are practical branches of botany and cosmology. Let us compare digging a flowerbed and writing a novel. I do not do much gardening, but I imagine it to be hard and satisfying work, which is how I would describe writing a novel. The gardener is free to choose what and where to plant, subject to certain natural constraints, and the novelist is likewise free, within limits of tradition and social norms. It strikes me that there is a very fundamental similarity: I almost wonder if this is really what Voltaire may have been alluding to at the end of *Candide*!

This example may seem frivolous but it is not meant to be. What I am saying is that the gardener has knowledge, experience and creativity, but whether or not we decide to make gardening a degree subject is really a matter of institutional choice and classificatory definition. There is no objective division between botany as a theoretical science and gardening as a practical activity.

There are instead certain procedures which have come to be seen as legitimate or otherwise within those two areas.

Let us consider the excellent examples you raise: Nietzsche and Walter Benjamin. You rightly say that Nietzsche's *Thus Spake Zarathustra* would never have been accepted as a scholarly thesis; Benjamin's *Origin Of German Tragic Drama* was indeed written as a habilitation thesis, and was rejected. Benjamin's subsequent career was entirely outside academia: he worked as a freelance critic, translator, very occasional radio broadcaster, and through Adorno and Horkheimer he got some support from the Institute for Social Research (a formalized bureaucratic institution created within an academic context, which in its American incarnation relied heavily on charitable funding).

We could certainly say that those two books by Nietzsche and Benjamin are outstanding examples of 'creative thinking.' They are not novels (though *Zarathustra* has a fictionalized form) or conventional scholarly essays (though Benjamin's work has all the required apparatus). They are hard to categorize in any conventional way. This evasion of category is partly what makes them so compelling. Likewise, the intellectual careers of their creators can be seen as a continual resistance to categorization.

Kundera has aptly said of novels (by which he means great or at any rate interesting novels) that they convey a philosophy, but not in a way that can be summed up. We have a sense of Dostoevsky's 'philosophy,' but you could not have a little book summarizing it, like those books that propose to encapsulate the essential ideas of Plato, Kant, Marx or Freud. We are comfortable with the notion that the philosophy of a novel (or novelist) is not something that can be reduced to a series of propositions or bullet points, not something that can be made into a 'transferable skill.' And it could be argued that this has also been a shift within philosophy itself, with Nietzsche serving as a prime example of that shift, taking us away from the (allegedly) summarizable thought of Hume or Kant – their search for a priori truth – to the unsummarizable philosophies of people such as Benjamin, or more recently Deleuze etc. We recognize a plasticity of thought, an ambiguity of expression, that was formerly the domain of art, but becomes a mode of philosophy, which itself then comes to seem like art.

This, I take it, is what you would like to cultivate in the garden of creative thinking: this freedom and plasticity of thought. But you make the a priori assumption of a distinction between object of study and medium of expression. Benjamin wrote a famous essay on Goethe's *Elective Affinities*: I would say of that essay that it is as elusive, as enigmatic, as multi-valued as the novel it comments upon. Its 'message,' if there is one, appears to be that art is fundamentally impenetrable – and the essay says this in a pretty impenetrable way. Benjamin speaks, for instance, of art's 'truth content.' What does he mean by this? Obviously not the same as if he were speaking of botany. He makes a distinction between 'truth content' and 'material content' that has, I think, some bearing on the presently attempted distinction between object of study and mode of expression. Benjamin argues (I think) that whereas material content is visible and manifest, the truth content (which we might think of as artistic form or value) is in a sense hidden, and must always be so, for whenever it becomes most visible, most easily summarized or classified or turned into a 'message,' it thereby loses its value. Kundera, we realize, is saying much the same thing. In its simplest, most debased form, we could reduce it to the mantra of how-to-write manuals, 'show don't tell.'

With this in mind, I would say that the 'creativeness' of 'creative thinking' is not really something that can be thought a 'transferable skill,' except in a devalued form. This is of course a perennial issue within creative writing: what is it that we actually 'teach'? Can writing be taught, can

creativity be taught, can the value of creative work be assessed? I hope there will never come a point where it is felt that these questions have been resolved.

Aristotle's categories of activity were theoria, praxis and poeisis. Theoria corresponds to the contemplative, reflective gaze of a spectator; praxis to active participation; poeisis to making and production. The same distinction lies within your separation of secondary commentary from primary object of study. Yet these categories become blurred in any real-world situation, particularly in literary activity. With its fictionalized form, does *Zarathustra* really count as being on the same plane as a discursive essay or manifesto? Where do we place the dialogues of Plato, the writings of Pascal and Descartes? The resistance of such works to pre-existing categories of thought is striking: they create new categories of their own.

This, perhaps, would be the real achievement of the hypothetical discipline of creative thinking: it would create the intellectual conditions of its own expansion beyond any definable bound – perhaps even the conditions of its own negation. It would create research papers unpublishable in any reputable journal (new and disreputable ones would need to be created to accommodate them). It would reject all authority except whatever its individual practitioners found beautiful or moving; it would be anarchic, its every gesture one of resistance to the circumstances of its own creation. Its practitioners would leave their posts or be fired, or else pursue safe subjects of enquiry within their host institutions, privately pursuing ones that might change prevailing conditions rather than merely reflect them.

How can I dare to be so flippant, when I myself work within a department of creative writing? Let us remember why people sign up for study: they want to be writers. They think that by doing a creative writing degree they perhaps increase their career chances – I am always quick to disabuse them of this notion. Some of them might think that an 'expert' such as myself is able to tell the difference between good writing and bad writing: I happily share with them my tastes and prejudices, reassure them that I will mark their work in accordance with my professional judgment and experience, and also (I hope) convey to them the complexities of the situation, the impossibility that is at the heart of all creative activity. I might be wrong in my judgment: this is something I hear constantly inside myself, not only when judging other people's work, but also when creating my own.

The University of Frankfurt was right to reject Benjamin's thesis. Had he written an acceptable one, nobody today would be interested in it. The university must also have rejected or accepted numerous theses which are today of interest to no one. Most of what is written, in any age, is destined to be forgotten. We look to the exceptions of the past, or to the rare public successes within our own time, and mistakenly see them as typical. We think that had we been on the examining board at Frankfurt University then of course we would have known better – we might even have set up a new department specifically so as to cater for geniuses like Walter Benjamin. More likely, we would have shared the opinion of our colleagues and peers. It is so easy to recognize greatness in the past, impossible to know where it walks today, unless we can somehow see the future where it will be judged.

ME: Paradoxically, on most points I agree with you though my practical conclusions are different. I agree that creative thinking is so called precisely because it crosses the existing boundaries and creates new genres and disciplines of its own. In my view, this justifies rather than questions the necessity for creative thinking divisions/departments/programs within the contemporary academy. We need a place for the invention and propagation of new genres and disciplines, including those that undermine the established borders between sciences and the

humanities, between theories and practices, between art objects and art theories, between novels and treatises…

As you refer to your personal experience as a science fiction writer, I will refer to my own, as a '*fiction science*' writer. I believe there should be some institutional place for a number of new, at this point fictional or semifictional, disciplines emerging in response to the new intellectual and technological developments of the early twenty-first century. This new constellation of humanistic disciplines includes *technohumanities*, studying, from the humanistic perspectives, mutual transformations of humans and machines; *micronics* (on the micro-phenomena across disciplines), *semiurgy* (on synthesizing new signs and rules of grammar), *horrology* (on the self-destructive mechanisms of civilization) and *scriptorics* (on the psychology and anthropology of writing, versus impersonal grammatology), etc.

Where can we discuss these projects for new disciplines? How can I even attempt to inaugurate them as worthwhile intellectual practices? Currently, there are no specialists in the *technohumanities*, or *micronics*, or *semiurgy* or *horrology*. There are no journals, no departments and no academic outlets. Meanwhile, these 'fictions' are meant to become disciplines, precisely in an academic sense of this word. I am not talking about interdisciplinarity, a rather trivial interaction of existing disciplines (mostly a formal and 'administratively pleasing' label). I am talking about the birth of new disciplines, for which there is no place in academia. It would be improper, if not simply ridiculous, to offer an introduction in *technohumanities*, or *micronics* or *horrology* to philosophy departments as they overwhelmingly specialize in a narrow analytic tradition; or to offer courses in *semiurgy* or *scriptorics* to departments of linguistics.

Universities need a place for the conception and birth of new disciplines; a womb, so to speak, for new methods and genres of intellectual discourse. Francis Bacon believed that the most important kind of invention is that of new arts and sciences:

> Invention is of two kinds much differing—the one of arts and sciences, and the other of speech and arguments. The former of these I do report deficient; which seemeth to me to be such a deficience as if, in the making of an inventory touching the state of a defunct, it should be set down that there is no ready money. For as money will fetch all other commodities, so this knowledge is that which should purchase all the rest. And like as the West Indies had never been discovered if the use of the mariner's needle had not been first discovered, though the one be vast regions, and the other a small motion; so it cannot be found strange if sciences be no further discovered, if the art itself of invention and discovery hath been passed over. That this part of knowledge is wanting, to my judgment, standeth plainly confessed (Bacon, 1803, p. 132).

This part of knowledge is still wanting in today's academia. Bacon himself invented several disciplines that found their continuation only centuries later, like geopolitics in the twentieth century. Should we wait for centuries to have a new discipline mature 'spontaneously'? Or do we need a place for the invention of new disciplines within the academy that will consistently and pointedly transgress the boundaries of what is considered 'academic'? I am not for anarchy, a complete demise of the institution of genres and disciplines; I am for their infinite proliferation in all possible directions.

I believe it is necessary to establish boundaries in order to transgress them. This is the most efficient way to produce new meanings and values. Rigid structures, as well as amorphous entities, are fruitless and entropic. Creative thinking programs will function as modes of transgression of established boundaries from within universities, which will reinforce an intellectual ferment that is now lacking in the academy, especially in the humanities.

AC: I should like not only to respond to what you have written, but also to raise one or two points that have emerged in the very enjoyable discussions we have had, both privately and publicly, during our stay at the IAS.

In one of your lectures you mentioned Bakhtin's concept of 'outsideness.' I consider myself an outsider by predisposition; many novelists and artists would feel the same. Some people are temperamentally disposed towards institutions or categories that afford a sense of community and shared identity: affiliations that might be of a religious, political, corporate, academic, social or other kind. And there are people who feel an equally strong tendency to resist such categorizations, to be nomadic: I would see myself as being of that latter type. Hence my natural skepticism with regard to the concept of disciplinarity, or indeed inter-disciplinarity, if the latter is meant to presuppose rather than supersede the former. You see boundaries as existing in order that they may be transgressed; I see them as convenient fictions to be discarded as soon as they cease to be useful. There was an eighteenth-century discipline called cameralistics; nobody nowadays seems to want to call themselves a cameralist (though for all I know, there are people doing the subject anyway, under another name). There were also people who studied the taxonomy of minerals, classifying them into orders, genera and species. All sorts of occupations, political parties and religions have come and gone, as well as countless artistic movements, philosophies or fads. Whether we want consciously to manufacture such entities, or else merely observe their transitory existence, is a matter of taste. Today in the institute coffee room I listened to a discussion between two scientists about 'systems biology.' The question was whether such a thing really exists (given that its practitioners appear unable to come up with a single definition). Actually I quite like the idea of fuzzy disciplines: I would regard creative writing as one.

You mention disciplines that have a name but no home; let me offer a different sort of example. I once went into a bookshop and asked the assistant where I would find books concerning blindness. He had no idea: it was not a category in their shelving system. Nor could they have created one: I was interested in anything written by or about blind people, fictional or non-fictional. I was looking for a shelf that would have Helen Keller's autobiography, Diderot's 'Letter on The Blind,' Gide's 'Pastoral Symphony,' and lots of other books I had never heard of. I had to go and make it for myself: a home without a name.

Recently you and I participated in a panel discussion in which you highlighted a significant and very interesting distinction between the future orientation of the sciences and what you saw as the historical orientation of the humanities. You also made this point in the opening remarks of our present dialogue, and you make a similar one, in a different way, with the Bacon passage you have quoted.

Certainly, when I think of my own scientific education, I am struck by the lack of history in it. Richard Feynman made a jokey comment in his book *QED* about the history that gets taught in physics lessons, which may or may not be the real history but is the story everyone learns. That little remark says a lot, I think, not only about how science is taught, but also how it is thought. Science is a bunch of stuff you need to learn in order that you can hopefully create some new stuff. In order to be learnable, the stuff needs to be strung out in a linear sequence that goes from easy to hard. There are a few names and dates in there, maybe a few anecdotes, and also – very occasionally – a digression on theories once thought true, but which turned out to be false. These are provided for light relief, or because they make it easier to understand the true theories, or because they still have some utility even though they are not true.

In science it is all about invention, and that is great. But the lack of history is, I think, regrettable. I do not mean knowing who discovered this or that equation, I mean understanding that all human activity is historically situated. The only notion of history I learned from studying theoretical physics is that you have got this great big four-dimensional box (the universe of general relativity) with little world-lines going through it, and those lines are 'history.' The very idea that history (as distinct from the letter t in certain equations) might be philosophically problematic, came as something of a revelation – and other concepts could be added that are equally problematic. My naivety, which I am still trying to remedy, is shared, I think, by a not insignificant proportion of those who have come from a similar background.

I present this as a converse to the idea that humanists must make themselves more like scientists in order to survive. I think both sides can learn from each other. Also I would add that when we speak of the 'crisis in humanities' (which was your starting point) we could add the crises in science, the economy and everywhere else. To what extent are these crises objectively real, or else an indication of how we perceive change?

Bacon's concept of knowledge is quantified and commodified; foundational knowledge is a universal currency: 'For as money will fetch all other commodities, so this knowledge is that which should purchase all the rest.' His notion of invention is similarly utilitarian: his 'arts and sciences' would encompass areas we would now consider technological. What we might think of as artistic or philosophical invention – making possible new forms of thought not previously available – could well come under Bacon's category of 'speech and arguments.' In that respect the humanities do indeed invent: Proust made this point very pithily, if hyperbolically, when he said that Flaubert's syntax had advanced human thought as much as Kant's categories.

What I value is your calling into consideration of this matter of orientation, the question we can ask ourselves, whether we look to past or future (or both), and in what sense. As a novelist I write often about the past but I always think of the future; I think of the book that will be finished, or the one that will be started after that. In creative writing we consider texts as being forever unfinished; there is always another stage of editing that could be done, though naturally at some point you have to call time. Once the book is written you can forget about it and get on with the next project.

But perhaps I have simply been caught up too much in the historical present I seek to stand outside; I have absorbed the values of my scientific education, of the market economy, and look to an imaginary future when really I should be conserving the past. It strikes me that my feeling for the past – my emotional connectedness to it, as opposed to my response to its trace – is not particularly strong. I have never cared to keep a diary, I do not use a camera, the record or archive plays a marginal role in my existence. If everyone were like me then the world would be in a pretty terrible state. So I express skepticism towards the glittering ideology of invention, manifestos, 'futurism' in the broadest sense – precisely because I so strongly feel its pull.

In other words I come round to agreeing with you again, Mikhail – and therefore disagreeing. To deny that one has an ideology is to acquiesce unwittingly in whatever ideology currently prevails; to try and state it is to codify and potentially reinforce it. Bakhtin, whom we both admire so much, aptly identified the novel as the perfect vehicle in which ideology becomes relativized and thus transcended, neither stated nor surrendered to, but instead thrown into perpetual variation. The novel, he realized, is the tool of free thought, the genuine philosophical medium. Does this mean that the ideal department of creative thinking is really a department of creative writing? No, it means that our academic reflection is subordinate to a larger and unclassifiable activity which goes on beyond institutional walls: the business of living.

ME: I agree: the business of living is, indeed, above all. In my view, the business of thinking is a part of it, perhaps, the most ambitious and productive one. That is why one of my projected disciplines in the transhumanities would be biosophy. Unlike biology, a natural science that studies life and living organisms, biosophy would be a humanistic discipline that studies life and properties of living in culture, mind and spirit. I believe the property of 'being alive' is independent from a material carrier, which can be biological or non-biological (for example, textual, conceptual or electronic). Some personalities, thoughts, texts, paintings are more alive than others. What makes a certain idea, theory, work of art or literature a living entity whereas another idea or work is dead or stillborn? Some criteria for 'alive' in opposition to 'dead' include openness to others (interpersonal or intertextual connections), multiplicity of meanings and possible interpretations, a potential for structural growth and intellectual change.

The categories of 'dead' and 'alive' are, in particular, applicable to labor. Karl Marx distinguished 'living labor,' as the force of living workers, from 'dead labor' or 'past labor' accumulated in tools, factories and goods. According to Marx, 'Capital is dead labor, which, vampire-like, lives only by sucking living labor, and lives the more, the more labor it sucks.' The same can be said about the distinction between an accumulated, 'disciplinary' knowledge, and thinking as living labor of mind, which crosses the borders of disciplines and of knowledge itself. The project of the transhumanities pursues the goal of changing the ratio of intellectual labor in favor of the living over the dead, which suggests not the dissolution of disciplines but rather a consistent transcendence of disciplinarity. Disciplines are relevant for the formation of knowledge, the classification and distribution of the products of 'past' intellectual labor, but creative thinking crosses their boundaries. Today, with the spread of intellectual and information technologies, living thinking is quickly winning over dead knowledge, just as living labor is winning over 'past labor' objectified in manufactured goods of civilization. An electronic network is a more live and mobile informational tool than a traditional book that accumulates certain amounts of knowledge in a static form. The Internet is better accommodated than any paper edition to the outbursts of creative thinking and interactions between creative minds.

Biosophy is particularly important for the future of artificial intelligence as the way to ensure that an artilect can produce a living thought, not just amounts of knowledge. I believe that if a poem or a sculpture could be alive, i.e. able to take on this quality from its human creators, the same can be even more true of thinking machines, capable of *autopoiesis*, or *self-creation* (this is one of the most widespread definitions of life in biology).

The property of all living entities is not just to transmit information, but also to transform it and to be transformed by it. Cells not only exchange information in the process of living and not only reproduce the information received from genes. Actually, cells, as contemporary biology shows, are more similar to writers than to texts written by genes. They compose the organism in collaboration with genes and with each other.

This 'biosophic' approach is relevant also in our considerations of history. We are not just products of our histories. We create those traditions that create us. The past, the present and the future interact and transform each other through our living participation in all three of them. The future, in particular, is the source of wonder and instability and thus serves as the greatest source of information whose value is based on improbability, on the quality of newness. Any information is a messenger from the future because it contains a measure of uncertainty and newness. In this sense, the past is also a part of the future as we permanently revise and reinterpret it and open something new in what happened long ago. As we are better informed about our past, we continuously transform it.

Living organisms are engaged in processes of metabolism, homeostasis, assimilation and dissimilation, that incessantly cross borders between opposite states. For example, the processes of metabolism are organized into pathways, in which one chemical is transformed through a series of steps into another chemical, by a sequence of enzymes as accelerators. In enzymatic reactions, the molecules at the beginning of the process that are called 'substrates' are converted into different molecules, called the 'products.' Life, in the broadest sense, can be defined as a transformational process in which certain elements (particles, molecules, facts, concepts, words, ideas) are converted into others.

It is time to raise a question about the basic unit of transformation that could be compared with the *bit* as a unit of information. In my view, these processes, trans- and in-, and their formative units, are correlative. The measure of information is the probability of the event that is presented in a given message. A *bit* (contraction of *binary digit*) is the basic unit of information in computing; it is the amount of information stored by a digital device or other physical system that exists in one of two possible states (0 or 1). The two states can also be viewed as logical values (*true/false, yes/no*), algebraic signs (+/–), activation states (*on/off)* or any other two-valued attributes. The information is gained when the value of such a variable, 0 or 1, becomes known. The transformation is attained from the same binary values, with one distinct state turned into another, with the transition from *on* to *off*, from *yes* to *no*, from *false* to *true*, from + to –, or in an opposite direction. A unit of transformation, both in analogy and contrast with *bit*, can be called *vit*, from Latin 'vita,' life. Life is transformative and self-transformative, autopoietic.

Information is produced through the choice of 0 or 1, whereas transformation is achieved through the change of 0 to 1 or 1 into 0. Transformation connects the two poles, or values or states, by the process of their reversal. If we throw up a coin and describe on which side it fell, heads or tails, it is one *bit* of information. If we change the sides of the coin, reverse its up and down, this is a basic unit of transformation, one *vit*. The more *vits* to be found in a certain process, the more *vital* (vibrant, dynamic) it is, and, therefore, the closer it is to the processes of life in organic beings.

The more rare and improbable the event, the higher its information value. In the same way, the force of transformation can be measured by the improbability of an action or an accomplishment. Life is a highly intense transformational process, with millions or even billions of *vits* occurring per second within an organism. Furthermore, the resurrection of the dead may be viewed as the maximum possible magnitude of transformative power: it demands a virtually infinite amount of *vits*, or transformative events.

Thinking is not antagonistic to life, on the contrary, it is one of the most intense forms of living that is relatively independent from material carriers (though still connected, rather mysteriously, with the activity of the brain). Thinking is the transformative work on concepts and various elements of information. Whereas information in the form of knowledge reflects the existing state of facts, thinking transforms them. Since the structure of concepts (including meanings in language) is built on binary oppositions, thinking, by directly operating with these oppositions, presents the most transformative of all regular human capabilities. It consistently crosses the borders between concepts, and overcomes or reverses their binary oppositions. To argue this, we do not need to look for a sophisticated example, like the formula of transformation of mass into energy $\mathbf{E = mc^2}$. Even a most routine and seemingly tautological act of thinking, such as one expressed in the plain statement 'Socrates is a man,' is essentially transformative as it crosses the boundary between the individual ('Socrates') and the general ('man').

At the present point of history, when information becomes the main wealth (capital) of society and some scientists acknowledge that even the physical universe consists of nothing but information, it is time for a next step. We are moving from an informational to a transformational universe. According to the physicist Michio Kaku, 'We are making the historic transition from being passive observers of the dance of nature to becoming choreographers of the dance of nature, with the ability to manipulate life, matter and intelligence' (Kaku, 2006, p. 361). This brings forth the necessity for a transformative or 'choreographic' approach to all areas of study as they can be creatively transformed by the living force of thinking. It is time to learn how to measure transformative practices to the same extent as we are now able to measure amounts of information. I believe that the establishment of '*vits*,' as units of living thinking, can promote this goal. The possibility of processing *vits* through computerization is another area where the transhumanities can collaborate with the information/transformation technologies.

AC: With these remarks you take us in an interesting new direction. It was from my discussions with you that I first learned of Fyodorov's Cosmism, a nineteenth-century movement concerned with immortality and the conquest of space, which developed into a form of transhumanism distinct from yours, but not, I think, wholly unrelated.

Marx's vampire metaphor is one of a number of supernatural images he invoked; another, equally famous, is the fetish:

> The form of wood, for instance, is altered, by making a table out of it. […] But, so soon as it steps forth as a commodity, it is changed into something transcendent […]. The mystical character of commodities does not originate […] in their use-value. […] A commodity is […] a mysterious thing, simply because in it the social character of men's labour appears to them as an objective character stamped upon the product of that labour […]. In the same way the light from an object is perceived by us not as the subjective excitation of our optic nerve, but as the objective form of something outside the eye itself. But, in the act of seeing, there is at all events, an actual passage of light from one thing to another, from the external object to the eye. There is a physical relation between physical things. But it is different with commodities. There, the existence of the things quâ commodities, and the value relation between the products of labour which stamps them as commodities, have absolutely no connection with their physical properties and with the material relations arising therefrom. There it is a definite social relation between men, that assumes, in their eyes, the fantastic form of a relation between things. In order, therefore, to find an analogy, we must have recourse to the mist-enveloped regions of the religious world. In that world the productions of the human brain appear as independent beings endowed with life, and entering into relation both with one another and the human race. So it is in the world of commodities with the products of men's hands. This I call the Fetishism which attaches itself to the products of labour, so soon as they are produced as commodities, and which is therefore inseparable from the production of commodities (Marx, 1961).

Marx was not alone in seeing abstraction as characteristic of modern thinking. It has nowadays reached such a stage that many are prepared to consider life itself an abstraction, something whose reality is independent of its physical manifestation. I do not know whether or not that view is valid, but it could be seen in Marxist terms as a form of reification. There are many dead millionaires currently kept frozen in hope of reincarnation; it is only a matter of time before entrepreneurs offer to store brainwaves on hard drives. By expending their riches on a final purchase for themselves rather than a legacy for others, deceased consumers achieve economic immortality in the form of lasting selfishness.

I recently read *The Beginning Of Infinity* by the physicist David Deutsch (a founding figure of quantum computing). He says, 'abstractions are real'; more real, in fact, than their particular physical instantiation. I have also recently read *The Beautiful Invisible* by Giovanni Vignale (also a professor of physics), which argues 'in praise of the abstract' (Vignale's original title for the book). To physicists, this abstraction comes perfectly naturally, and has done since Maxwell discovered equations for the electromagnetic field that had no mechanical model. Physicists say of quantum theory that the truth lies in the equations; this could be seen as a fact of nature, a new kind of Platonism, a statement about the limitations of human understanding, or an illustration of the historical specificity of thought.

As an artist I am no stranger to mysticism and embrace it wholeheartedly: art is mysterious, it has a transcendent value we can call its life, and any attempts to rationalize or instrumentalize this transcendence are doomed to failure. There are countless books on 'how to write a novel', their very premise a fallacy. The first creative writing courses appeared in America in the early twentieth century and were billed from the outset as a form of material self-improvement: writing for pleasure and profit. 'Transferable skill' is a form of commodity. Transferable life – the kind that could be downloaded or simulated – is likewise a commodity, and the sort of transhuman future dreamed of by many of its proponents is one that has to be bought. Instead of the finite body we are freely granted, it ironically substitutes an endless succession of upgrades that will need to be purchased; a vision of eternal slavery.

Marx invoked the fetish because he saw a parallel between the transcendental abstractions of religion and capitalism, the latter being in effect a replacement of the former, where instead of soul or spirit there is economic value. The distinction is that spirituality deals with the unquantifiable while capitalism requires absolute quantification. A passage of rare amusement in Adorno is when he recalls his first days in America: somebody asks him if he is an introvert or extrovert. He detects a reified mentality conditioned by magazine questionnaires, a format he ends up having to use (to his horror) as a research tool. I can report a similar illustration from last night, when my 12-year-old daughter showed me her homework. It was a 'self assessment' based on the exercise they had previously done (the exercise having been to write the events of 'La Belle Dame Sans Merci' in the style of a newspaper article). My daughter had to respond to questions such as 'what were your targets?' and 'how well did you achieve them?', providing evidence to support her statements. The task had a pseudo-democratic air of individual empowerment when in reality it was mere bureaucratization: a situation with which we are all familiar from the self-assessments and personal progress reviews we are made to undergo in our workplaces. The school task, bewildering and educationally vacuous, was a training exercise for future employment.

When I attach a percentage mark to a student's short story it is always with the knowledge – conveyed (I hope) to the student – that while the mark has meaning, it is only a very localized form of meaning. The mistake, so easily made, is to confuse local meaning for absolute value: then we have fallen under the same sort of spell that Marx discerned in relation to commodities.

Regarding the life of art, I would have to say that it has many lives. Beethoven's Fifth Symphony is a part of all our lives, to the extent that we may even feel personal ownership of it. This is different from whatever went on in Beethoven's head when he wrote it, and whatever goes on in the music. For myself, I would say that when I was young and starting out I wrote with some grandiose hope of fame and immortality, and nowadays write with an equally certain sense of oblivion. All life is finite, and art need not be a gesture against annihilation; it can be the acceptance of it. One of my favourite writers, Diderot, wrote his finest novels without

any intention of publication: they were for himself, or a few close friends, or God. An artist of that sort is like the person who determines to make a very difficult journey alone, solely for the beauty of a destination that might not even be reached.

This is very different from the view of art as digitized information in a sphere of perfect knowledge and accessibility. The internet is posed as an ideal of total information, but it is worth remembering that search engines find only a tiny proportion of what is out there – estimates of the 'deep web' suggest it may be tens or hundreds of times larger than the searchable web. The internet is a model of real life only to the extent that in both, nearly everything is unnoticed or forgotten. Likewise in art.

Regarding vits, my first thought was that the notion had about it an unsavoury air of 'life force.' But what you are really presenting, as I understand it, is a contrast between unit of information and unit of transformation, and that is interesting. Taken at face value, we might try to define a vit probabilistically (the likelihood that something will change), but then we are really just back to bits and have not done anything. What you would want to do in the case of vits is to find a conceptual way of treating change as a fundamental entity. This puts me in mind of a conversation I recently had with a philosopher about time; he pointed out to me that Aristotle regarded change as fundamental, and time as being the way we conceptualize change. The distinction is subtle but profound. I would suggest that your vits, if they could be made more rigorous, might play a role in some formal theory of transience. Whether it retained any connection to life would depend on whether change is something that has to be considered in relation to consciousness. My own feeling would be that it should go the other way round: consciousness depends on the physical fact of change.

I am also put in mind of Badiou's concept of the 'event' as something that cannot be ontologized, a 'set' that contains itself (in his example, 'French Revolution' is a collection that includes among its elements the name and concept 'French Revolution'). Referring back to time, there is the argument that change is inherently contradictory, the negation of one state by its successor. Perfect consistency is a state without change, and hence without time. Scientific models must be consistent to be meaningful, but perhaps this shows a fundamental gap between model and reality. Some time ago a very sophisticated thinker, well versed in mathematics, expressed to me the suspicion or indeed hope, that mathematics would one day be found inconsistent. This seemed almost ridiculous to me at the time, but I think I see what he might have been getting at. Universality and consistency, the things we see as being fundamental to mathematics and hence science, are abstract relations between things. The effectiveness of these abstractions is evident – that does not make them real.

Concluding Remarks

AC: We began this dialogue by considering whether the humanities ought to be augmented by 'transhumanities,' and what form this might take. You have argued for what I might call a 'scientized' version of the humanities, while I have tended to argue for the converse. Where we agree, is in seeing the necessity for a more explicit orientation towards the future; creating the new as well as conserving the old.

Knowledge is not quantifiable, except in certain restricted domains; it is not a transferable commodity, but a form of personal experience. Information is the disembodied shell of that experience. In my training as a physicist, I learned to think in terms of universals: a vibrating string on a guitar is the embodiment of an equation; the equation is truth while the string is

a kind of mirage. The converse is to see as real the instrument, the moment in which it is played, and to see the equation as ghost of that moment. Between uniqueness and universality there is not necessarily a binary opposition, but there is contrast, like that between black and white in a picture, where either could be seen as fore- or background, the difference being one of perception. Thus, while we have come to agree on the significance of transformation, we conceptualize it in contrasting ways. I have emphasized the historical specificity, rather than universality, of knowledge; I do not believe in Bacon's universal currency, but instead see values constantly fluctuating on the basis of individual or collective belief. If there is truly a crisis in the humanities, perhaps it amounts to a loss of faith in the unquantifiable – those things we could formerly call soul, spirit or beauty.

ME: I agree that the humanities should reaffirm the human measure of things. Soul, spirit, beauty or even a human face are unobservable or even non-existent from the viewpoint of natural sciences. A face, when explored in a microscope, reveals large pores, then skin's outer layer that is formed from flattened, dead cells, then molecular structure… It is impossible to find beautiful such a 'demystified' face or to fall in love with it. 'The Face Delusion,' 'The Beauty Delusion,' 'The Soul Delusion' – many things, among them the most important for human self-awareness – will turn out to be delusions in the style of R. Dawkins' 'The God Delusion,' if our view of reality were reduced to scientific data obtained by instruments and calculations.

Thus the first task of the humanities is to uphold the human measure of things and to maintain the immaterial values as they are revealed and perceived by humans: personality, soul and spirit; in particular, to preserve the beauty of 'common,' 'irregular' language as distinct from the 'precise' languages of sciences and computers. This is the task of *preservation*. The second is the task of *transformation* that I have discussed at length before. The latter calls for developing fully all human potentials as they are increasingly explored and implemented by sciences and technologies. We need to understand that even the most dehumanized instruments and calculations are still creations of human genius, and the essence of being human is not only to preserve, but also to surpass (and surprise) itself, to transcend the limits of its nature. What is common to both tasks is the necessity to *denaturalize* humans, i.e. to resist both the scientistic fallacy of reducing humans to physical nature, and the retro-humanistic fallacy of reducing humans to permanent human nature. To help people to *remain* human and to *become* human – these two missions of the humanities should complement each other rather than degenerate into philological conservatism or technological nihilism.

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Insights

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