

Nietzsche and Science

Edited by
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ASHGATE

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- Germany' ('Contemporary Literature. Theology and Philosophy', *The Westminster Review*, 47, 1 April 1875, 501).
- 32 Wilhelm Wundt, 'Philosophy in Germany', *Mind*, 2 (1877), 509.
- 33 Anonymous, 'Review of Paul Réc, *Der Ursprung der moralischen Empfindungen*', *Mind*, 2 (1877), 581.
- 34 Herbert Spencer, *The Data of Ethics* (London: Williams and Norgate, 1879), pp. 190–91 (sect. 70).
- 35 Paul Réc, *Der Ursprung der moralischen Empfindungen* (Chemnitz: Schmeitzner, 1870), p. 22.
- 36 Herbert Spencer, *Social Statics* (London: John Chapman, 1851), p. 69.
- 37 *Ibid.*, p. 58.
- 38 See, for example, Jean Gayon, 'Nietzsche and Darwin', in Jane Maienschein and Michael Ruse (eds), *Biology and the Foundation of Ethics* (Cambridge: Cambridge University Press, 1999), pp. 154–97, and Gregory Moore, *Nietzsche, Biology and Metaphor* (Cambridge: Cambridge University Press, 2002).
- 39 For a broad survey of the German literature, see Alfred Kelly, *The Descent of Darwin: The Popularization of Darwinism in Germany, 1860–1914* (Chapel Hill, NC: University of North Carolina Press, 1981), chapter 1.
- 40 Claire Richter, *Nietzsche et les théories biologiques contemporains* (Paris: Mercure de France, 1911), p. 9. A similar view is expressed in the inscription below the imposing statue of Lamarck outside the Jardin des Plantes in Paris: 'FONDATEUR DE LA DOCTRINE DE L'ÉVOLUTION'.
- 41 Darwin condemns any mention of 'chance' or 'accident' in evolutionary thinking as an incorrect expression which corresponds only to our ignorance (*The Origin of Species by Means of Natural Selection*, ed. J.W. Burrow (Harmondsworth: Penguin, 1968), pp. 173, 241 and 358). But not all Darwinians would agree with this opinion.
- 42 Nietzsche's description of deterrence as 'terroristic' recalls Dühring's *Der Werth des Lebens* (Breslau: Trewendt, 1865), p. 139.
- 43 W.H. Rolph, *Biologische Probleme, zugleich als Versuch einer rationellen Ethik* (Leipzig: Engelmann, 1882).
- 44 He remarks that Rolph has succeeded in overturning 'that combination of stupidity (*bêtise*) and Darwinism which Herbert Spencer has put into the world under the title *Data of Ethics*' (KSA 11, 35[34]).
- 45 Rolph, *Biologische Probleme*, p. 14.

Chapter 8

Between Mechanism and Teleology: Will to Power and Nietzsche's Gay 'Science'

Christa Davis Acampora

This chapter broaches the general issue of how Nietzsche imagined the relation between science and art and their tense union in future philosophy. It does so by focusing upon Nietzsche's concern to find an alternative framework for conceiving organic development. Much has been written about Nietzsche's views of the opposition of art and science, and although it was common for some time to read Nietzsche as either reducing science (including the 'sciences' of knowledge and morality) to aesthetics or auguring the eclipse of science by art, increased interest in Nietzsche's familiarity with contemporary scientific developments and his efforts to draw upon and incorporate them in his own work have cast his projects in a somewhat different light.¹ I wish to build upon this recent research in order to advance reconsideration of Nietzsche's practice and anticipation of a possible future *fröhliche Wissenschaft*. As I shall argue below, once we understand how Nietzsche approached his scientific studies and their intercourse with perennial philosophical concerns, we may better appreciate the role Nietzsche envisioned for himself (and those who might follow) as supplying novel concepts and conceptual frameworks that creatively open new possibilities for willing. The latter are vital, since willing, for Nietzsche, is how meaning emerges, and it orients the ways in which we organize our lives. Gay 'science' aims to effect orientations that afford the possibilities for joyfully redeeming – and, I shall argue below, thereby altogether transforming – human existence.²

This is an endeavour that can be witnessed virtually throughout Nietzsche's *oeuvre*, occurring not only during his so-called 'positivist' period but also even before his ideas about future philosophy crystallize in his later writings. Nietzsche's consideration of the problem of organic development illustrates this well. His critiques of both teleological and mechanistic accounts of organic development have certainly been discussed in the secondary literature.³ But considerably less attention has been devoted to Nietzsche's proposed alternative to these views. Though it is generally accepted that Nietzsche's so-called 'theory of will to power' represents his attempt to go beyond existing models of organic development, an account of its relation to teleology and mechanism – how his alternative meets the challenges facing those models it is intended to replace and how it preserves the features he admires – is lacking.⁴ This chapter is intended to address this shortcoming. In what follows I shall illustrate how Nietzsche's solution to the problem of organic development, to the need to offer an account that avoids the pitfalls and dangers of teleology and mechanism, draws upon the principles that provide the basis of his

conception of 'gay science' and serves as an illustrative example of its practice. Opening up a space between mechanism and teleology requires Nietzsche to take seriously nineteenth-century science and to reflect upon the relation between philosophy and science, in which philosophy is conceived as supplying and refining conceptual frameworks that science might utilize – not as creations *ex nihilo* but rather as concepts that emerge from reflections upon what science reveals about human sensation and physiology and the character of cognition.

Nietzsche's solution to the problem of development reveals precisely these tensions. In what I shall call Nietzsche's 'Heraclitean solution' to the problem of development, Nietzsche not only illuminates his emerging notion of will to power⁵ but also exemplifies his philosophical practice of the *Kunst der Auslegung*, the art of interpretation. This I claim is at least one of the unique features of the kind of philosophical activity as 'gay science' that Nietzsche envisions as opening possibilities for the direction of future development. Hence, I shall suggest in my conclusion that Nietzsche conceives his alternative account of development as not only *statically* descriptive but also *actively* transformative. In other words, what is potentially at stake in providing an account of development is not merely describing a state of affairs or the process by which they regularly unfold but rather providing direction for the emergence of other forms of development.

The Problem

One can find ample evidence in Nietzsche's texts, published and unpublished, to prove that he rejects conceptions of nature that render it as striving for some sort of specific end or as operating like a great machine. The same applies for what we designate as individual organisms. Nietzsche's interest in theories of evolution is marked by these concerns. On the one hand, he believes that the idea of what a human being is (particularly in its relation to other animals) proffered by evolutionism marks an advance over the special status accorded to humans in theology and those forms of philosophical thinking that arbitrarily place the human at (or at least very near) the pinnacle of being. The view that humans are thoroughly natural creatures subject to change, growth and decay to the same degree as other organic forms represents, for Nietzsche, progress in the exercise of 'good conscience' in the pursuit of knowledge. It is a view that better accords with empirical observation and is somewhat less influenced by the habit of allowing moral prejudices to direct our perceptions and conceptions of what is true and real. It is on this ground that Nietzsche claims to admire Descartes (see, for example, *Antichrist* 14 and the original preface to *The Gay Science*) and some mechanistic theories that reduce moral and aesthetic questions to those of physiology.

The case against teleology is more complex than this, however. It reaches beyond Nietzsche's rejection of God or his purported relativization of values. His suspicions concerning the concept of the subject, the existence of discrete individuals and the nature of causality are all eventually implicated in Nietzsche's ongoing struggle against teleology. Even early on in his intellectual life, Nietzsche appears to think that the idea of the individual is a fiction, a concept born of habit. This habit, Nietzsche suggests, not only in his notebooks but also in his published writings,

issues from grammar, which requires positing a conscious subject, 'a doer behind the deed' on the basis of which we also infer the existence of an intentional will and intelligent designer (KSA 12, 2[139]). It is through this same process that Nietzsche thinks we arrive at a conception of causality: things occur because something brings about their happening; there must be an agent behind all change. Our beliefs in the existence of individuals (rather than complexes of forces), the willing human subject and cause and effect are articles of faith, not constituents of knowledge. If we remain unquestioningly committed to these ideas and permit them to guide our scientific inquiries, we will retreat further into the subjective anthropomorphic world of the human rather than acquire the knowledge science seeks.

Similar concerns haunt mechanism, since its various forms often have recourse to the same metaphysical concepts. Although Nietzsche believes it practises somewhat better intellectual hygiene, mechanistic theory, particularly in its reliance upon inferences about causal relations and its postulations of laws, risks falling prey to the very same ills that plague teleological accounts of development (see, for example, BGE 21).

Moreover, the mechanistic world-view is potentially detrimental to our understanding of values. Both teleology and mechanism impose univocal accounts of the possible significance of existence: where the former asserts that all values derive from the end towards which everything is supposed to strive, the mechanistic view holds that all existence is essentially blindly (meaninglessly) unfolding in pursuit of nothing other than its mere perpetuation (see, for example, KSA 12, 7[54]). Christoph Cox puts it well when he reminds us that Nietzsche thinks that even mechanistic accounts are not free of the very prejudices that he is concerned to purge from metaphysics and moral philosophy.⁶ Cox elaborates a convincing argument that Nietzsche's objection to mechanistic physics is grounded in his 'rejection of being'. Having given up all forms of dualistic metaphysics that allow one to distinguish appearance from reality, substance or matter from form and the like, Nietzsche cannot embrace a view of the world that ultimately rests upon seeing nature as consisting of 'things', whose motions are accounted for largely in terms of reactivity in a system whose organization and purpose require the supposition of some sort of master design or ordering principle.⁷ Moreover, the notion that natural selection occurs on the basis of 'an increasingly better fit between organisms and the environment' also sneaks in a teleology that assumes some sort of overarching design which the world – shaped by evolutionary forces in the process of adaptation – ever more closely approximates. Hence, as Cox phrases it, mechanistic physics and evolutionary biology 'are still *not naturalistic enough*' for Nietzsche. They still import what Heidegger would later call 'ontotheological' concepts in their explanations of 'motion, change, and becoming'.⁸

Also at stake in Nietzsche's critiques of teleology and evolutionary theory are the possibilities for the meaning of human being. One view makes too much of us – nearly divine and divorced from the rest of creation – and the other makes too little – the blinking last man, descendant of the grinning ape, who by fortune finds the path of least resistance in the 'struggle for existence' and thereby manages to secure nothing more than his sheer 'preservation', mere survival. Both unnecessarily restrict the aims and ends of humankind; neither allows a role for creativity in the development of organisms and their possible futures. The real problem, as Nietzsche

sees it, is to broker some sort of compromise between these two positions by developing a conception of human being that: (1) situates it within the world of becoming, but (2) puts it in dialogue with the empirical sciences, and (3) allows for the possibility that we might also be able to raise the bar for indicating the goals for which the human might strive, thereby making room for meaningful art. In such a case the human would not be bound by any particular *telos* but would still be able to find and direct meaningful purposive activity.

Nietzsche formulated lasting views about teleology and mechanism following his reading of F.A. Lange's *History of Materialism* and his subsequent firsthand acquaintance with the positions of various biologists, physicists, psychologists, mathematicians and cosmologists, including Boscovich, Helmholtz, Zöllner, Kopp, Huxley, Pouillet, Roux, Ladenburg, Maedler and others concerned with the philosophical and social implications of such matters, including Spencer, Spir and Goethe. As other commentators, including Thomas H. Brobjer in this volume, have significantly documented the particularities of these influences, I shall not catalogue them here. These earlier insights amplify Nietzsche's understanding of a problem that he thinks he inherits from antiquity and with which even modern science continues to wrestle, namely the problem of purposiveness. Sometime between the summer of 1872 and early 1873, Nietzsche writes: 'The horrible consequence of Darwinism, which, by the way, I hold to be true. All our veneration is based on qualities we take to be eternal: moral, artistic, religious, etc. We do not come a single step closer to explaining purposiveness by appealing to the instincts' (KSA 7, 19[132]). The 'horrible consequence' of Darwinism, of course, is that it implies that there are no eternal qualities and hence it undermines all that we value. Nietzsche thought that the problem of purposiveness was significant enough that, for some time in 1868, he intended to write a dissertation on the topic entitled 'On Teleology since Kant'.⁹ The notes and drafts for the project provide further insight into Nietzsche's grappling with purposiveness and raise some important questions that I shall endeavour to address below. It is nevertheless worthwhile introducing them here, since they bear on Nietzsche's understanding of his task of mediating teleology and mechanism.

What motivates Nietzsche's prospective study is the question of whether it is necessary, as Kant claims, for us to suppose a teleology in the natural order. He plans to show that 'mechanism bound with casualism yields this possibility' of conceiving nature differently. Most interesting is what Nietzsche considers to be the stakes involved in a refutation of Kant. What would be the *advantage* of meeting Kant's challenge that it is impossible to conceive development without recourse to causality and purposiveness? Nietzsche claims: 'The elimination of teleology has a practical value. Only then is it possible for the concept of a higher reason to be removed: thus we are already satisfied.'¹⁰ Now, it seems fairly straightforward how getting past teleology undermines the need for supposing a higher reason, but what is the practical value of that? Well, it would seem to dissolve some of our theological problems; we would no longer need to furnish proofs for God's existence. But what would it enable us to do, practically speaking? For what does it free us?

Nietzsche does not get around to elaborating the practical advantage he sees in refuting Kant, but there is some suggestion that it opens possibilities for other pursuits; it would free us to pursue other paths. In the context of an established

hierarchy of purposes, certain routes of pursuing those aims are open whilst many others are closed. Nietzsche cites Kant's claim in the *Critique of Judgement* §65 that the idea of the effect that teleology seeks to explain stems from the concept of the whole. But, for Nietzsche, the latter is something we invent: 'There are in reality no individuals. Moreover, individuals and organisms are nothing but abstractions. They are unities manufactured by us into which we transfer the idea of purpose.'¹¹ To conceive of the whole as the purposive cause of the parts is to impede the possibility for understanding and appreciating change (for example, how one thing becomes another) and limits prospects for new developments. The latter, we might say, open different possibilities for being, for 'ways of living'. Thus Nietzsche writes: 'A thing lives – thus its parts are purposive: the life of the thing is the purpose of its parts. But there are countless different ways to live, i.e., countless forms, that is to say, parts.'¹² I take it, then, that the practical value of demonstrating that Kant is wrong when he claims that we cannot help but consider nature in terms of purposes is that, by showing that we may garner different perspectives on the world, we thereby extend the possibility that we might pursue some of them. In doing so, we open up different possibilities for interpretation, different possibilities for the organization of our lives, different ways of living. This, I shall claim below, is precisely what Nietzsche thinks is at stake in providing an alternative account of development. It is not just a matter of 'getting it right' or hitting upon the truth but also of facilitating the kind of growth for which it aims to account.

Although Nietzsche's views on numerous topics change and develop in the two decades that follow, the need to find a way out of the concerns raised in the unrealized plan for the dissertation persist. These concerns culminate in Nietzsche's writings of the 1880s in which one finds a relentless interest in developing a single account of change, growth and development that would be applicable to both the realm of morality – broadly conceived and freed from its religious moorings – and physiology, informed by his scientific studies, particularly in the field of embryology. He wonders about the physical effects of religious beliefs and practices and about the effects of diet, nutrition, climate, disease and health on the mind.¹³ Finding both mechanistic and teleological theories wanting, Nietzsche seeks to devise an interpretation of his own, one that might effect a reunion of art and science. His exemplar in this regard was (his own) Heraclitus.¹⁴

Nietzsche's Heraclitean Solution to the Problem of Development

Both Christoph Cox and Wolfgang Müller-Lauter have recognized that Nietzsche's alternative account of development is indebted to his study of Heraclitus. Both also acknowledge that Nietzsche's proposed 'solution' rests upon his claim that struggle is the most immediate and pervasive phenomenon of existence. Cox even goes so far as to tie such views to Nietzsche's interest in the *agon*.¹⁵ What I wish to explore in this section and those that follow is more precisely how Nietzsche considers the relationship between his studies of development and its applications in the domain of culture and the production of meaning – that is, whether it is possible to arrange creatively the forces of the organism for the production of excellence and health in the same way that the Greeks (allegedly, deliberately) harnessed the productive

power of the good Eris in the context of ubiquitous contest (see *HC*, *KSA* 1, pp. 783–92). In this case, Nietzsche's anticipated *gay science* combines both the conscience of the scientist with the exploitation of creative energies manifest in the dynamic process of struggle, resistance, and growth that characterizes all life. It is this prospect that shapes Nietzsche's emerging conception of will to power, which he later imagines would unite the disparate sciences.

In his reading of scientific works – in medicine, chemistry, physiology, and evolutionary theory – Nietzsche comes to recognize prominent conceptual structures that bear a resemblance to the social and individual forms he identifies as having an agonistic structure. Such an organization resembles the model Nietzsche earlier admired as offering insight into the developments of Greek culture and ethics. In his 1872 essay 'Homer's Contest', Nietzsche entertains the hypothesis that the creation of a certain poetic perspective effectively organized Greek culture around the pursuit of excellence. The labours of existence became transfigured as labours for glory once the culture ordered itself in terms of contests in which each person would strive to surpass the other. Homer's contesting heroes, as exemplars of the good (glorious) life, extended the range of possible meanings for the trials of human existence. The meaning of life became transformed in this light, and this revolution shaped all other values accordingly.¹⁶ Nietzsche admires both the contest itself as a mechanism for valuation – as a means for forging, renewing, or transforming standards of excellence that emerge in the course of the meeting of struggling forces – and the specific revaluation Homeric *agon* produces, the poetic reinterpretation it achieves. Although he does not wish to reinstate the ancient *agon* as an agency for renewing the moribund culture of nineteenth-century Europe, he does develop criteria for evaluating different kinds of contest and prospective contestant, and he strives to envisage how future revaluations might transpire.¹⁷

It is instructive to see how Nietzsche characterizes Heraclitus as a figure who resisted adducing teleological explanations for what is perceived as growth, change and development. In the course of his lectures on the pre-Platonic philosophers, Nietzsche also references contemporary scientific studies, particularly the work of Karl Ernst von Baer, the founder of comparative embryology. He cites Baer's study of perception relative to lifespan and sensory capacity¹⁸ because it articulates a hypothesis that the phenomena of change, development and growth are relative to perception. Creatures perceiving at lower rates of speed have the experience of persistence, but an increase in the speed of perception would result in the phenomenon of constant becoming. Nietzsche reads Heraclitus as articulating the 'higher' perspective that would afford the appearance of *becoming*.

But it is the way in which Heraclitus conceived of strife and applied it comprehensively that most inspires Nietzsche. The notion of 'immanent lawfulness' is especially appealing to him. The logic of the contest, as conceived by Heraclitus, is internal to it. Justice in the agonistic arena is not subject to an externally determined standard of measurement. The game itself has an *internal* aim or purpose, but its aims are not determined according to a larger goal. The contest is a part of a cosmos that has the character of 'a child playing a game, moving counters, in discord and concord' (*PP*, p. 65). The overall character of this play is non-teleological, arbitrary, and 'innocent'. Nietzsche continues:

... only in the play of the child (or that of the artists) does there exist a Becoming and Passing Away without any moralistic calculations. He [Heraclitus] conceives of *the play of children* as that of spontaneous human beings: here is innocence and yet coming into being and destruction: not one droplet of injustice should remain in the world. The eternally living fire [Aeon], plays, builds, and knocks down: strife, this opposition of different characteristics, directed by justice, may be grasped only as an aesthetic phenomenon. We find here a purely aesthetic view of the world. We must exclude even more any moralistic tendencies to think teleologically here, for the cosmic child [*Weltkind*] behaves with no regard to purposes but rather only to an immanent justice: it can act only willfully and lawfully, but it does not *will* these ways. (*PP*, p. 70)

Nietzsche contrasts Heraclitus' view with Anaxagoras' 'teleological insight': 'he construes the order of the world as a determinant will with intentions, conceived after the fashion of human beings' (*PP*, p. 72). This insight was picked up by Aristotle, according to Nietzsche's philosophical genealogy, and it then reverberated throughout the history of philosophy in the notion of the opposition of soul and matter: 'a force that knows and sets goals but also wills, moves, and so on and yet is rigid matter. It is strange how long Greek philosophy struggled against this theory' (*PP*, p. 72).

Near the end of the lecture notes, Nietzsche characterizes Heraclitus' non-teleological position thus: 'this playful cosmic child continuously builds and knocks down but from time to time begins his game anew: a moment of contentment followed by new needs. His continuous building and knocking down is a craving as creativity is a need for the artists; his play is a need' (*PP*, p. 72).¹⁹ 'The play of the child has immanent purposes, directed by the particularities of the play at any given moment, but its shape unfolds without an orchestrating will or design. Within the play, there is a kind of necessity at work, which Nietzsche describes as 'craving as creativity is a need', but that necessity is free from conformity to some law or universal principle. Nietzsche continues:

From time to time he [the child] has his fill of it [the play] – nothing other than fire exists there; that is, it engulfs all things. Not hybris but rather the newly awakened drive to play [*Spieltrieb*] now wills once more his *setting into order*. Rejection of any teleological view of the world reaches its zenith here: the child throws away its toy, but as soon as it plays again, it proceeds with purpose and order: necessity and play, war and justice. (*PP*, pp. 72–73)

What the vision of Heraclitus allows is a way of conceptualizing the character of the becoming of the world that renders compatible the semblance of order, purpose and regularity, while admitting change, flux and chance. It is possible to think this becoming without imposing a teleological order, precisely what Kant seems to deny. A non-teleological, non-mechanistic metaphysical framework provides Nietzsche with a conceptual model that is also consistent with his reflections on moral psychology and axiology.

Nietzsche's Heraclitean solution allows for the intelligibility of aims, goals and purposes (that is, *necessity*) as immanent to the justice or law that makes a struggle or conflict possible (that serves as the ground for the contest). But it also allows for *chance* as the agonistic process takes on more of the character of play than the

execution of design by a supreme being or an omnipotent will. Thus Nietzsche understands phenomena of change, growth and development in the natural world as unfolding in a process analogous to the evolution of morals and values. Heraclitus' playing child is a poeticized interpretation that seeks to capture metaphorically the becoming of *physis*, and, although Nietzsche will also adopt and adapt directly Heraclitus' specific metaphors, it is above all the poetic process applied to the realm of *physis* that seems to be most captivating for him. It serves as a prototype for a science mindful of the fact that it is a perspective – an interpretation, a product of the art of interpretation – a science attentive to its transformative capabilities.

Incorporating Science

Although Nietzsche does not begin to use the term in his published writings until *Thus Spoke Zarathustra*, his earlier account of the Greek *agon* foreshadows the idea of 'will to power'. The urges to strive, struggle, and overcome resistance, the 'terrible drive' responsible for 'fighting and the lust for victory', the irritants of *eris* and envy that plagued Themistocles and Pericles and propelled them to extraordinary accomplishments, the 'monstrous desire' of Xenophanes and Plato to defame their rival Homer, the 'personal struggling impulse' at the root of artistic competitions, the 'base desire for revenge' experienced by Miltiades (*HC*, *KSA* 1, pp. 783, 785, 786, 790 and 791) – each can be read retrospectively as manifestations of will to power (*TI* 'Ancients' 3). Nietzsche later experiments with the conclusions that potentially could follow from the hypothesis that all these drives, which constitute 'our entire instinctive life', ultimately spring from 'the development and ramification of *one* basic form of the will – as will to power' (*BGE* 36). One conclusion that might be warranted according to this hypothesis is that all organic functions are modulations of will to power because it is the source of all efficient force. If so, Nietzsche suggests, it might then be possible to trace the development or evolution of something – 'a thing, a custom, an organ' – as unfolding from 'a succession of ... more or less mutually independent processes of subduing, plus the resistances they encounter, the attempts at transformation for the purpose of defense and reaction, and the results of successful counteractions' (*GM* ii 12). In other words, struggles – or, in some cases, contests – could be interpreted as having occurred in an object of inquiry, thereby facilitating better understanding of what it is and how it came to be than by supposing that its present utility accounts for its development. I take it that this is what underlies Nietzsche's practice of genealogy in *On the Genealogy of Morals* and other later writings – namely, a hermeneutics of the machinations of power, one designed to be as appropriate for values as it is for physics. But at what does this genealogy aim? Does it seek merely to replace one description with another?

In the same section of *Beyond Good and Evil* in which Nietzsche famously suggests that all life might be conceived as expressions of will to power, he calls for an experiment. The experiment consists in asking whether one could account for everything that is supposed to happen in the 'mechanistic world' starting from a 'given' of only our passions and desires. Nietzsche claims that he could, and he then inquires as to whether such an experiment is indeed permissible. It is, he concludes,

not only permissible but also *necessary*. 'Conscience of method' dictates the experimentation with multiple kinds of causality (and explanations for the phenomena for which such views seek to account): 'Not to assume several kinds of causality so long as the experiment of getting along with one has not been taken to its ultimate limits ... that is a morality of method which one may not repudiate nowadays' (*BGE* 36). Let us further consider Nietzsche's hypothesis of will to power as it relates to causality and how it informs all activities of life.

We find more elaborate details about Nietzsche's reflections on will to power by looking at the notebooks he filled during the time he was preparing *Beyond Good and Evil*, *On the Genealogy of Morals* and the published writings of the last philosophically productive year of his life. I shall quickly review a handful of the most prominent and relevant ideas, as other critics have treated them in depth elsewhere. The will to power hypothesis does not posit an *Über*-will, or a will that promises one day to overpower all others, but rather conceives the world as comprising forces in conflict. Nietzsche is especially interested in casting these struggles not in terms of political projects but rather as *interpretations*: 'The will to power *interprets*' (*KSA* 12, 2[148]). But what is involved in interpretation? Nietzsche elaborates:

... it defines limits, determines degrees, variations of power. Mere variations of power could not feel themselves to be such: there must be present something that wants to grow and interprets the value of whatever else wants to grow. Equal in *that* – In fact, interpretation is itself a means of becoming master of something. (The organic process constantly presupposes interpretations.) (*KSA* 12, 2[148])

At the core of what we call life is this interpretive play: 'the tremendous shaping, form-creating force working from within which *utilizes* and *exploits* "external circumstances"' (*KSA* 12, 7[25]).²⁰ All that exists is centres of force (*Kraftcentren* or 'dynamic quanta') situated in relation to others; what they are is constituted by these relations. Each such force, human and non-human alike, 'constructs the rest of the world from its own viewpoint, i.e., measures, feels, forms it, according to its own force' (*KSA* 13, 14[186]).

What has hitherto been called 'cause' and 'effect' is nothing more than this perpetual process of interpretation and incorporation:

It is a question of a struggle between two elements of unequal power: a new arrangement of forces is achieved according to the measure of power of each of them. The second condition is something fundamentally different from the first (not its effect): the essential thing is that the factions in conflict emerge with different quanta of power. (*KSA* 13, 14[95])

Rather than conceiving this interminable process as the action and reaction of two separate entities, Nietzsche suggests that what we have is 'the mutual struggle of that which becomes, often with the absorption of one's opponent; the number of developing elements not constant' (*KSA* 12, 7[54]).²¹ Following the hypothesis of will to power, "'Life" might be defined as an enduring form of the *process in which force is established* [*Kraftfeststellung*], in which the various struggling parties grow unequally' (*KSA* 11, 36[22]). Accordingly, Nietzsche conceives the individual

organism itself as 'a struggle between parts (for food, space, etc.): its development is tied to the victory or predominance of individual parts, to an atrophying, a "becoming an organ" of other parts' (KSA 12, 7[25]).

Following Nietzsche's physics of interpretation and incorporation, human beings are conceived as pluralities of affects, which are essentially relational. Each affect has its own perspective in relation to the other affects, and each seeks to have its particular view become the vantage point. All action changes the structure of the relations of affects which constitute us and others as human beings. By living – by taking any action at all – we play a role in creating reality. And the same holds true of our interactions with others. We not only *participate* in shaping social reality; by engaging others, eliciting affects and being involved in relations with them, we are constituted by, and participate in, the constitution of others as well. We are, in sum, the ongoing interpretations of the multiplicity of drives that constitute us and their relations to the struggling drives that constitute others. The questions that Nietzsche appears to entertain at various times in his writings are as follows: Can we formalize at least some of these interactions? Is it possible to direct, organize, or at least facilitate certain kinds of conflicts that would better yield an enhancement of the human type? Rather than relinquishing development to mere reactive response to environmental factors that threaten survival, might it be possible to effect new developments through the imposition of new interpretations? Can we, in any way, direct the ends of the struggles that characterize human existence?

Strange as the latter question may seem, I think this is precisely the idea that Nietzsche entertains. The third essay of the *Genealogy* is organized entirely around a series of case studies of the adoption of ascetic ideals. In asking the question 'what is the meaning of ascetic ideals?', Nietzsche inquires into what we might call the uses and abuses of ascetic ideals for the production of types of humanity or forms of life. He considers the way in which different interpretations effect – or, given the revised description of cause and effect outlined above, convey – different ways of living, specifically in the cases of artists, philosophers, women, the 'poorly constituted', priests and saints. He also considers how ascetic ideals tap 'the active and interpreting forces' that characterize existence and bring about the possibility of knowledge, of 'seeing something' (GM iii 12).²² What I am endeavouring to identify as 'gay science' is tied up with Nietzsche's anticipation of a kind of selection that adapts Heraclitus' model of playful child, but in which human beings take it upon themselves to create the conditions under which contests over the meaning of humanity can arise.

Is it possible that human beings could actively affect the course of their organic development? And, if so, could they, in effect, bring about a new species?²³ These questions are at once tantalizing, if also bizarre and perhaps somewhat romantic. They might also strike some readers as sitting uneasily with Nietzsche's critiques of teleology and mechanism sketched above, namely his assertion that both viewpoints either overtly or covertly postulate ends towards which human beings strive and in light of which values are fixed. In his *Vivoid Life*, Keith Ansell Pearson asks: 'In seeking an alternative conception of "selection" and "value" is Nietzsche not guilty of anthropomorphizing nature and life?'²⁴ As the standard for the future against which Nietzsche compares previous accounts, Ansell Pearson alludes to the following passage, which is most frequently cited by those scholars who have

discussed Nietzsche's naturalism: 'When will we complete our de-deification of nature? When may we begin to "naturalize" humanity in terms of a pure, newly discovered, newly redeemed nature?' (GS 109). Ansell Pearson, like most others reading this passage, emphasizes its appeal to 'purity', by which he means uncorrupted by the prejudices and conceptual quagmires that are the legacy of millennia of metaphysics. The account I shall offer below places the emphasis elsewhere: instead of entertaining how the naturalization of humanity becomes *purged* of its deified meanings, I consider the new meaning it acquires through the redemption Nietzsche anticipates.

Ansell Pearson argues at some length that Nietzsche's alternative of will to power 'looks decidedly awkward and hugely problematic. If it is illegitimate to suggest that life and the universe manifest a desire or struggle for self-preservation, on what basis, and with what legitimacy, can Nietzsche claim that the fundamental essence of life is "will-to-power"? Is this also not an anthropomorphism?'²⁵ Ansell Pearson's question is *apropos*. For if we are to shed the notion of the agent-subject and if we are to move beyond interpretations of the world and humanity's place within it as unfolding according to purposes conceived by an intelligent designer, then how can Nietzsche propose replacing the old frameworks with one that appears to lead us further down these dangerous paths? Insofar as Nietzsche's account seems to infuse the world with intentions modelled on human volition and desires, does he not commit the very same errors he attributed to traditional theological and metaphysical paradigms? Though Ansell Pearson claims that Nietzsche's position appears to be more anthropomorphic than the views he criticizes, he argues that 'a Deleuzian-inspired reading of the will to power would point to its attempt to conceive reality in dynamical and processual terms in which the emphasis is placed on centered systems of forces, and in which "evolution" is seen to take place in non-linear terms without fidelity to the distinctions of species and genus'.²⁶ Thus it becomes possible to move beyond 'anthropo-centrism and -morphism ... through an improper biology that is faithful to the complex, non-linear, and machinic/pathic character of "evolution"'.²⁷ Although I am sympathetic to Ansell Pearson's project and his effort to bring about some resolution to a fundamental tension in Nietzsche's work, I wonder whether it is the only way to do so. It leaves unanswered the question of how Nietzsche might have regarded his own anthropomorphism as different from the kind that he criticized. Was he merely inconsistent, holding himself to standards different from those that informed his critiques of others? Was he blind to the degree to which his alternative concepts not only failed to purge God and theo-centric metaphysics from his reflections on nature? Or did he somehow think his own anthropomorphic view differed in kind from those it opposed? It seems to me that there is evidence for the latter position if we follow what Richard Schacht calls Nietzsche's deployment of an 'anthropological optic'.²⁸

The 'anthropological optic' facilitates what Schacht describes as 'the program of a de-deification and reinterpretation of ourselves and our world'. It organizes 'a project of comprehending our nature and possibilities' on the basis of a human perspective.²⁹ This is not to say that it is limited to reducing everything to human terms (as if such terms were fixed) or that it restricts itself to human concerns. It begins, of necessity, by inquiring about the nature of human being and its possibilities for knowing. It advances a perspective on the basis of that conception,

and it remains open to the possibility of other interpretations. It seems that Nietzsche might be able to defend himself against the charge of anthropomorphism by claiming that his own view is also informed by a more general conception of the perspectival nature of human knowing; hence it offers a human perspective mindful of the fact that other perspectives from other centres are not only possible but perhaps also justified.

Although I think such a line of defence is possibly open to Nietzsche, I do not think it will carry us the distance. If the same could be said of his adversaries (that they, too, offer an account that stems from a human perspective), then their anthropomorphism alone is not a sufficient ground for mounting a challenge against them. Moreover, it is far from clear that Nietzsche could claim that there is any such thing as a 'human perspective'. If there are no fixed individuals and no subjects, whence comes a species-specific perspective? I think the questions raised by Nietzsche's possible anthropomorphism bear significantly on the matter of how he conceives the task of the philosopher and the relation between science and art, and I shall argue below that Nietzsche's focus on the human stems from his conception of the project of philosophy as redemptive. I shall now turn my attention to his effort to exemplify that relation of science and art alongside the conception of redemption outlined in *Thus Spoke Zarathustra*.

The Zarathustra Paradigm

In *Thus Spoke Zarathustra* Nietzsche aims to articulate an alternative way of conceiving what a human being is, how it develops, and how such conceptions might be relevant for reflections on the aims of humanity as such. In the chapter entitled 'On Self-Overcoming', Nietzsche elaborates for the first time his idea that all existence is characterized by will to power. Zarathustra's speech is addressed to those 'who are wisest' and the 'lover of truth'. One of the aims of the speech is to reveal what lies behind the love of wisdom, to read the pursuit of philosophy as an expression of will to power. The desire to render intelligible what is true, good and real is described as a manifestation of will that ultimately seeks power. Will to power is conceived as the 'unexhausted procreative will of life'. Deploying quintessentially Heraclitean metaphors – such as the river of becoming and the play of the world – Zarathustra makes several points about life and the nature of all organisms, claiming, 'Where I found a living creature, there I found will to power' (Z ii 'Self-Overcoming').

Zarathustra observes that life as will to power establishes a dynamic of commanding and obeying: all living beings strive to dominate others or are enslaved. What all life seeks – whether ruler or ruled – is the pleasure of power unfolding: 'The will of the weaker persuades it to serve the stronger; its will wants to be master over those weaker still: this delight alone it is unwilling to forgo' (Z ii 'Self-Overcoming'). Even what could be considered the greatest will yield, will risk itself for the sake of power. The dynamic of commanding and obeying that constitutes life as will to power is also one of creation and re-creation. Much like the victor in a contest who aims not only to win according to the standards of judgement that are derived from the results of previous outcomes but rather to serve

as the standard bearer of excellence, the 'greatest' must also risk its entitlement to the law. It seeks legislation of the norm and all that is relative to it in order to have even greater opportunities to express that will. The dynamic of life incorporates mutual striving, contextualized valuation and chance – the very elements Nietzsche identifies with the contest. The process does not simply characterize discrete relations. Life itself whispers in Zarathustra's ear that it is 'that which must always overcome itself'. Everything is connected in the paradigm of self-overcoming.

And it is within this paradigm that Nietzsche's Zarathustra offers an alternative account of redemption, one that I think Nietzsche already has in mind in the passage from *The Gay Science* cited above in the discussion of whether Nietzsche's anthropomorphism is contrary to his project of de-deifying nature (GS 109). The *Übermensch*, or the 'overcoming being', that Zarathustra anticipates does not become the measure of all things, but it does entail an activity of esteeming, of willing, that aims at determining value. The project is envisaged as *redemptive* since it seeks to replace or restamp the values that have been held hitherto. A particularly curious feature of Zarathustra's conception of redemption is that it is organized, at least partially, in terms of the past: 'All "it was" is a fragment, a riddle, a dreadful chance – until the creative will says to it: "But I willed it thus!" Until the creative will says to it, "But I will it thus! Thus shall I will it"' (Z ii 'Redemption'), Zarathustra's redemption takes the form of a creative *retrospective* willing. One wills the past as if it were one's own responsibility, as if it were the result of one's own willing it to be so. This is not merely reconciliation with the past or passive acceptance of what has transpired; rather, it is at least partially reconstituting the past along the lines of that which one affirms. Thus, the past becomes one's own insofar as the significances and relations that serve as the bases for value become essentially related to one's own perspective. A perspective stemming from a past that has been reconstituted potentially revises or reorients future interpretations.

This is a goal that is quite different from a model of perfection offered as that for which one ought to strive. Zarathustra's conception of the 'comprehensive soul' further illustrates how his alternative conception of development is deployed in his vision of the being engaged in overcoming. Nietzsche describes it as 'the soul that has the longest ladder and reaches down the deepest'; it 'can run and stray and roam farthest within itself' (Z iii 'Old and New Tablets'). It enjoys 'the high body, beautiful, triumphant, refreshing, around which everything becomes a mirror' (Z iii 'Three Evil Things'). Everything mirrors it not because it has become thoroughly self-absorbed but, rather, because it has become aware of itself as an overcoming-being which is constituted in an ongoing struggle of forces, just as the rest of life is. Thus, 'out of sheer joy' it 'plunges itself into chance'. It challenges itself; it risks itself. It is the soul, 'which, having being, dives into becoming; the soul which *has*, but *wants* to want and will; the soul which flees itself and catches up with itself in the widest circle; the wisest soul, which folly exhorts most sweetly; the soul which loves itself most, in which all things have their sweep and counter-sweep and ebb and flood' (Z iii 'Old and New Tablets').

Nietzsche's agonized naturalism conceives of all existence as embroiled in a relation of struggle and becoming, manifesting both 'purpose and opposition to purposes'. Creation neither aims at a single goal nor operates as a complex, well-ordered machine – its paths are crooked, its particular outcomes undecidable in

advance, and its growth and decay irregular. It is conflicted, contentious striving, creation and recreation, exuberance and exhaustion.

What is true of creation in the natural world abides in the realm of morals: 'out of this valuation itself speaks – will to power!' (Z ii 'Of Self-Overcoming'). What is esteemed as good or reviled as evil is also drawn up in this process of struggle and becoming. As such, good and evil, too, are always overcoming themselves. In this context, the process of valuation is understood as a form of violence, in that it negates, cancels, rejects and expunges previous values and valuations, and yet it produces a kind of strength. Thus 'Life' itself, which seeks strength or power, can imagine this particular sort of destruction as ultimately creative: for it is essentially an engagement of regenerative energy, a kind of *poiesis* – or poetry, perhaps – of existence. It is his gay – artistic, graceful, free – science, which takes the form of a *poiesis* both informed by, and itself giving form to, the principles of *physis*. It is what Nietzsche means when he speaks of looking at science from the perspective of the artist (BT 'Self-Criticism' 2). But what is involved in adopting this viewpoint, and what are its consequences?

Gay Science

By way of conclusion, I wish to draw on one example that is offered in section 12 of the second essay of *On the Genealogy of Morals*. There Nietzsche entertains the possibility of at least some sort of conscious participation in directing will to power, and it is in such activity that agonial wisdom seems to exercise its greatest potential for him. In this passage, in which he famously argues that development is the history of struggles, Nietzsche explains how his model differs from contemporary mechanistic theories. Entities conceived in this way – in the same way that 'Life' depicts existence in *Zarathustra* – manifest 'purposes and utilities ... only as signs that a will to power has become master of something less powerful and imposed upon it the character of a function'. Rather than understanding a being's development as unfolding in light of a single or specific goal or in accordance with a system of universal laws, the joints of growth and change exhibit 'a continuous sign-chain' of becoming, a set of orientations that bear out the plurality of possible directions of will to power. Hence, a unified set of causal relations cannot be assumed. Change is more subject to the vicissitudes of chance – the product of risk involved in striving, agonistic interaction of forces – than a progression towards a goal or the unfolding of a logical, systematic order. For any given entity, Nietzsche writes, 'the form is fluid; the "meaning" is even more so' (GM iii 12).

If development is thus conceived, Nietzsche thinks, the meaning of something is always up for grabs at any given moment. Every link in the 'sign-chain' is marked by the emergence of a new dominant force that impresses upon, directs and orients a new meaning (that is, a new manifestation of will, its 'perspective'); such is its prerogative. Even within organisms, the parts are similarly engaged in a process of struggle and becoming. Each takes on the character of risk and potential perishing, in exactly the same way that the activity of self-overcoming is described in *Zarathustra*:

It is not too much to say that even a partial *diminution of utility*, an atrophying and degeneration, a loss of meaning and purposiveness – in short, death – is among the conditions of an actual *progressus*, which always appears in the shape of a will and way to *greater power* and is always carried through at the expense of numerous smaller powers. (GM iii 12)

That sacrifice, the magnitude of what is surpassed, Nietzsche suggests, might even serve as a standard of measure for the growth of something greater.³⁰

Rather than pursuing a science that investigates what are hypothesized as automatic adaptive responses to changes in the environment governed by laws, Nietzsche questions whether and how one might *effect* an advance in the human species as such. He does not advocate a eugenics that aims at an improvement of the same and directs change along the lines of what is considered as better relative to current prevailing norms and values. Instead, we might describe Nietzsche's project as a kind of pragmatic axiology. How does 'human being' acquire its value? How can that value be transformed and maximized? What would constitute an advance in the meaning of human existence as such? The answers to these questions remain largely undetermined for Nietzsche, but he believes that answering them requires an act of will, a kind of legislation, and the science of *that* has yet to be developed. Nietzsche claims the initiation of that task for himself. His gay science aims to replace the concept of development as adaptation with that of shaping orientations – new goals and ends – by the creation of new interpretations.

Ultimately, what Nietzsche envisages is an integrative mode of philosophizing in which the language of evolutionary science (for example, adaptation, development and so on³¹) is mapped on to, and appropriated for, his project of the poetic transformation of the meaning and making of humanity. Nietzsche's ideas about transformation, incorporation and expulsion are informed by researches into physiological/biological processes.³² He imagines transformative conceptual unification as wedding the fruits of various scientific disciplines and approaches. Such conceptual development – the creation and offering of 'many kinds of causality', as Nietzsche puts it in *Beyond Good and Evil* – is what philosophy brings to the table. Nietzsche conceives this process as having its hand in poetry or art because it issues not merely from the empirical sciences themselves – although it is, as Nietzsche's own efforts attest, informed by them – but rather from a kind of speculative projection. Nietzsche's future philosophy as gay science advances a kind of conceptual poetry whereby scientific inquiry is *oriented* in such a way as to promote an integrative understanding and the estimation of the value of such investigations. It is animated by an inventive spirit that creates concepts that deliver to scientific pursuits the forms of thinking and conceptual formations that set their researches in motion and that supply the paradigms that make new discoveries possible. A gay science, thus conceived, strives to be even more 'honest' than mechanistic science, although it takes its lead to some extent from that approach as it strives to wriggle out from under the influence of morality. It lies *between*, rather than *beyond*, mechanism and teleology, as it preserves the problem of the need to offer an account of apparent purposiveness which both perspectives aim to address. And gay 'science' is not quite *science* – or, it is perhaps at least more art than science – since it is pursued mindful of its potency as an art of interpretation (GM

'Preface' 8). Gay science is at the same time an art of transfiguration (*GS* 'Second Preface' 3) – it potentially plays a role in *reshaping* (reforming or reconstituting, not merely reinterpreting) both the objects of its inquiry and the inquirers themselves.

Notes

- 1 See, for example, Jörg Salaquarda, "'Art is More Powerful than Knowledge": Nietzsche on the Relationship Between Art and Science', *New Nietzsche Studies*, 3: 3/4 (1999), 1–11.
- 2 Like the Provençal troubadours, to whom he likens himself in subtitled his *Die fröhliche Wissenschaft* 'la gaya scienza', Nietzsche strives to introduce new possibilities for language, new means of giving expression to our ideas, which do not merely describe what we already experience but rather make new experiences possible. Gay science accomplishes this through its artistic shaping and reformation of conceptual structures and metaphoric formulations that are drawn from contemporary scientific views and particular phenomena and are then applied to the practice of both science and philosophy.
- 3 See, for example, Christoph Cox, *Nietzsche: Naturalism and Interpretation* (Berkeley, CA: University of California Press, 1999) and Wolfgang Müller-Lauter, *Nietzsche: His Philosophy of Contradictions and the Contradictions of His Philosophy* (Urbana and Chicago: University of Illinois Press, 1999), which I discuss below.
- 4 Numerous other treatments of the relation between will to power and its scientific basis and/or relevance to philosophy of science are available. See, for example, R. Lanier Anderson, 'Nietzsche's Will to Power as a Doctrine of the Unity of Science', *Studies in History and Philosophy of Science*, 25 (1994), 729–50; George Stack, *Nietzsche: Man, Knowledge, and Will to Power* (Hollowbrook: Durango, 1994); idem, *Lange and Nietzsche* (Berlin: de Gruyter, 1983); Stephen P. Schwartz, 'The Status of Nietzsche's Theory of Will to Power in Light of Contemporary Philosophy of Science', *International Studies in Philosophy*, 25 (1993), 85–92.
- 5 I am fully aware of the scholarly controversy surrounding discussion of Nietzsche's so-called concept of 'will to power'. My use of 'will to power' here indicates it as 'emerging', and is not meant to suggest that Nietzsche had any single, definite sense in which he used the phrase, or that he had a full blown *theory* in which will to power would play a central role. Rather, I agree with those who remind readers that Nietzsche's ideas about will to power changed over time, that he never wrote a work in which will to power featured as the central thesis (indeed, that he abandoned at least one plan to execute such a project), and that any account of will to power that rests solely on evidence drawn from Nietzsche's unpublished (and possibly even *discarded*) writings is suspect at best. My goal here is not to offer an account of what Nietzsche meant by will to power, but rather to illustrate how the general idea of will to power as it is characterized in his published writings (and enhanced by drawing on the evidence in his notebooks) grows out of, and is continuous with, longstanding interests that range back to his early publications and plans for others. A well-developed understanding of Nietzsche's conception of the *agon* allows us to do precisely that and situates Nietzsche's developing ideas about will to power in a context that sees such an idea as part of a larger whole.
- 6 Christoph Cox, *Nietzsche*, especially pp. 213–45.
- 7 Compare, for example, Nietzsche's claim that the world is not striving towards a final state because it would have reached it already, and this 'fact' (why this should be a 'fact'

is unclear) refutes philosophical and scientific views that postulate such terms of motion. Mechanistic theory is cited as an example (*KSA* 13, 11[72]).

- 8 Cox, *Nietzsche*, pp. 226, 216 and 220.
- 9 A recent translation and reconstruction of this project has been prepared by Paul Swift, 'On Teleology since Kant', *Nietzscheana*, 8 (2000), 1–20.
- 10 Nietzsche, quoted in *ibid.*, p. 8.
- 11 *Ibid.*, p. 12.
- 12 *Ibid.*, p. 18.
- 13 See, for example, *GS* 39. For a discussion of a concept of health that is allied with Nietzsche's conception of the *agon*, see Alfred I. Tauber, 'A Typology of Nietzsche's Biology', *Biology And Philosophy*, 9 (1994), 25–44.
- 14 I qualify Nietzsche's exemplar as '(his own) Heraclitus' because, like his discussions of Homer and (arguably) Socrates, there is much that is invented by Nietzsche himself in his discussions of Heraclitus. On this matter as it relates to Heraclitus, see Artur Przybyslawski's 'Nietzsche Contra Heraclitus', *Journal of Nietzsche Studies*, 23 (Fall 2002), 88–95.
- 15 See, for example, Cox, *Nietzsche*, pp. 233–35.
- 16 I discuss how Nietzsche figures Homer as his exemplary 'revaluator of values' in my 'The Problem of Homer', *Nietzscheforschung*, 5/6 (1999), 553–74, and in 'Nietzsche Contra Homer, Socrates, and Paul', *Journal of Nietzsche Studies*, 24 (2002), 25–53.
- 17 See my 'Of Dangerous Games and Dastardly Deeds: A Typology of Nietzsche's Contests', *International Studies in Philosophy*, 34 (2002), 135–51.
- 18 Karl Ernst von Baer, *Festrede zur Eröffnung der russischen entomologischen Gesellschaft im Mai 1860* (Berlin, 1862).
- 19 In *BT* 24, Nietzsche associates the *Weltkind* with the Dionysian principle.
- 20 The context of the passage is a longer section that is aimed at criticizing Darwin's views. I designate this interpretive activity as 'play', although will to power, obviously, need not be conceived exclusively as playful. My specific word choice here is based on the fact that Nietzsche's emphasis is on a process that he conceives as essentially *creative*. I reserve the term 'agonistic' for a specific form of playful struggle, one that follows the form of contest and the creative mode of action it facilitates as outlined in 'Homer's Contest'.
- 21 These views reflect Nietzsche's understanding of the ideas of Wilhelm Roux. See Müller-Lauter, *Nietzsche: His Philosophy of Contradictions*, chapter 9. See also Gregory Moore's *Nietzsche, Biology, and Metaphor* (Cambridge: Cambridge University Press, 2002), especially chapter 1.
- 22 On the relation between ascetic ideals and science, see David Owen, 'Science, Value, and The Ascetic Ideal' in Babette E. Babich and Robert S. Cohen (eds), *Nietzsche, Epistemology, and Philosophy of Science: Nietzsche and the Sciences, II* (Dordrecht: Kluwer, 1999), pp. 168–78, and Babich, *Nietzsche's Philosophy of Science: Reflecting Science on the Ground of Art and Life* (Albany, NY: SUNY Press, 1994), especially chapter 5.
- 23 For Nietzsche, the concept 'species' is as much a human invention as the concept 'individual'. See Wolfgang Müller-Lauter, 'On Judging in a World of Becoming: A Reflection on the "Great Change" in Nietzsche's Philosophy' in Babette E. Babich and Robert S. Cohen (eds), *Nietzsche, Theories of Knowledge, and Critical Theory: Nietzsche and the Sciences, I* (Dordrecht: Kluwer, 1999), pp. 168–71. Müller-Lauter argues that, for Nietzsche, what defines and sustains a species is its *habitual* interpretations that have become conditions of existence. Thus, it would seem that, when Nietzsche mentions a particular species, he is also calling attention to the habit that sustains it *as* that species. In this way we might consider being human a habit, one we conceivably might overcome on the way towards becoming something else. It is worth

considering this idea at greater length. Is this anticipated overcoming of the habit of the human intended to introduce a new habit, or, in the course of overcoming the habit of being human, does one strive to overcome habituation itself? If the latter, the *Übermensch* as the form of life on the developmental horizon would not be a new species, but it would not be human either.

- 24 Keith Ansell Pearson, *Vivoid Life: Perspectives on Nietzsche and the Transhuman Condition* (London: Routledge, 1997), p. 105.
- 25 *Ibid.*, pp. 105–106.
- 26 *Ibid.*, p. 117.
- 27 *Ibid.*, p. 120.
- 28 Richard Schacht, *Making Sense of Nietzsche: Reflections Timely and Untimely* (Urbana and Chicago: University of Illinois Press, 1995), p. 190.
- 29 *Ibid.*, pp. 190–91.
- 30 I take it this is what Nietzsche means when he asks about the sacrifice of humanity as a whole, as the passage (*GM* ii 12) continues: ‘humanity as a whole sacrificed to the prosperity of a single *stranger* species of man – that *would* be an advance’ (Kaufmann’s translation emended). Such a reading stands in stark contrast with those who see Nietzsche here embracing the sacrifice of great masses of (presumably less worthy) people for the sake of their noble betters. Whether and how such a sacrifice, in the interest of genuine advancement or evolution, might be effected is considered in *Thus Spoke Zarathustra*: ‘All beings so far have created something beyond themselves; and do you want to be the ebb of this great flood ...?’ (*Z* ‘Prologue’ 3).
- 31 On Nietzsche’s appropriation of the language of biology and medicine, see Malcolm Pasley, ‘Nietzsche’s Use of Medical Terms’ in Pasley (ed.), *Nietzsche: Imagery and Thought* (London: Methuen, 1978), pp. 123–58, Scott Podolsky and Alfred I. Tauber, ‘Nietzsche’s Conception of Health: The Idealization of Struggle’, in Babich and Cohen, *Nietzsche, Epistemology, and Philosophy of Science*, pp. 299–311.
- 32 Robin Small offers an engaging discussion of Nietzsche’s use of the terms ‘incorporation’ and ‘expulsion’ in ‘Disturbing Thoughts and Eternal Perspectives: Some Uses of Symbolism in Nietzsche’, *New Nietzsche Studies*, 3: 3/4 (1999), 29–44.

Chapter 9

Nietzsche’s Conceptual Chemistry

Duncan Large

In the section of *Ecce Homo* devoted to a retrospective appraisal of *Human, All Too Human*, Nietzsche uses the opening paragraphs for an account of the genesis of the book, which he calls, at the outset, ‘the memorial of a crisis’ (*EH* ‘Human, All Too Human’ 1). The crisis to which he is referring is, of course, his break with Wagner, which he dramatizes here as having been ‘precipitated’ by his disgust at the inaugural Bayreuth Festival of August 1876. In paragraph 3 of this section, though, he admits that, around this time, he was plunged into a more serious existential crisis which led him to question not just his relation to Wagner, but all that he had been doing in his intellectual and professional life over the previous decade. Impatient with himself and with his floundering among philological ‘idealities’, he was overcome by a longing for ‘realities’, he tells us, and describes how he roused himself from his ten-year philological slumber when ‘[a] downright burning thirst seized hold of me; thenceforward I pursued in fact nothing other than physiology, medicine and natural science’ (*EH* ‘Human, All Too Human’ 3).

From the point of view of anyone interested in examining Nietzsche’s relation to science, this hyperbolic claim is a key passage in his writings. It betokens one of those periodic occasions in Nietzsche’s career when he takes stock and expresses an unease about his own ‘calling’ (*Beruf*), wondering whether he ought not perhaps to be doing something more meaningful than lecturing on Classics in Basle and writing books that no-one reads. For those who *have* read Nietzsche’s books, though, this passage is intended as an explanation of how he came to write a book – *Human, All Too Human*, together with its ‘supplements’ the *Assorted Opinions and Maxims* and *The Wanderer and His Shadow* – which is so very different from what had gone before (*The Birth of Tragedy* and the *Untimely Meditations*), a difference which is announced programmatically in the very opening paragraph of the 1878 text, entitled ‘Chemistry of Concepts and Sensations’ (*HH* 1).

It is from this paragraph that I have derived my title, and my aim in this chapter is a very straightforward one, namely to examine the role – or at least a few aspects of the role – that chemistry plays in Nietzsche’s thinking, set against the backdrop of his ambivalent relation to the natural sciences in general. For it is surely significant that, from the list of ‘physiology, medicine and natural science’ which Nietzsche gives us in *Ecce Homo*, he should actually choose chemistry as his emblematic scientific discipline here, as a cure for Wagnerism and for his earlier metaphysical excesses. I want, then, to examine what Nietzsche means by ‘chemistry’: what it represents to him, and why he should therefore choose it above other scientific disciplines – not only here – as representative of his own method. Analyses of Nietzsche’s relation to the natural sciences have tended to focus on

considering this idea at greater length. Is this anticipated overcoming of the habit of the human intended to introduce a new habit, or, in the course of overcoming the habit of being human, does one strive to overcome habituation itself? If the latter, the *Übermensch* as the form of life on the developmental horizon would not be a new species, but it would not be human either.

- 24 Keith Ansell Pearson, *Viroid Life: Perspectives on Nietzsche and the Transhuman Condition* (London: Routledge, 1997), p. 105.
- 25 *Ibid.*, pp. 105–106.
- 26 *Ibid.*, p. 117.
- 27 *Ibid.*, p. 120.
- 28 Richard Schacht, *Making Sense of Nietzsche: Reflections Timely and Untimely* (Urbana and Chicago: University of Illinois Press, 1995), p. 190.
- 29 *Ibid.*, pp. 190–91.
- 30 I take it this is what Nietzsche means when he asks about the sacrifice of humanity as a whole, as the passage (*GM* ii 12) continues: ‘humanity as a whole sacrificed to the prosperity of a single *stronger* species of man – that *would* be an advance’ (Kaufmann’s translation emended). Such a reading stands in stark contrast with those who see Nietzsche here embracing the sacrifice of great masses of (presumably less worthy) people for the sake of their noble betters. Whether and how such a sacrifice, in the interest of genuine advancement or evolution, might be effected is considered in *Thus Spoke Zarathustra*: ‘All beings so far have created something beyond themselves; and do you want to be the cbb of this great flood ...?’ (*Z* ‘Prologue’ 3).
- 31 On Nietzsche’s appropriation of the language of biology and medicine, see Malcolm Pasley, ‘Nietzsche’s Use of Medical Terms’ in Pasley (ed.), *Nietzsche: Imagery and Thought* (London: Methuen, 1978), pp. 123–58, Scott Podolsky and Alfred I. Tauber, ‘Nietzsche’s Conception of Health: The Idealization of Struggle’, in Babich and Cohen, *Nietzsche, Epistemology, and Philosophy of Science*, pp. 299–311.
- 32 Robin Small offers an engaging discussion of Nietzsche’s use of the terms ‘incorporation’ and ‘expulsion’ in ‘Disturbing Thoughts and Eternal Perspectives: Some Uses of Symbolism in Nietzsche’, *New Nietzsche Studies*, 3: 3/4 (1999), 29–44.

Chapter 9

Nietzsche’s Conceptual Chemistry

Duncan Large

In the section of *Ecce Homo* devoted to a retrospective appraisal of *Human, All Too Human*, Nietzsche uses the opening paragraphs for an account of the genesis of the book, which he calls, at the outset, ‘the memorial of a crisis’ (*EH* ‘Human, All Too Human’ 1). The crisis to which he is referring is, of course, his break with Wagner, which he dramatizes here as having been ‘precipitated’ by his disgust at the inaugural Bayreuth Festival of August 1876. In paragraph 3 of this section, though, he admits that, around this time, he was plunged into a more serious existential crisis which led him to question not just his relation to Wagner, but all that he had been doing in his intellectual and professional life over the previous decade. Impatient with himself and with his floundering among philological ‘idealities’, he was overcome by a longing for ‘realities’, he tells us, and describes how he roused himself from his ten-year philological slumber when ‘[a] downright burning thirst seized hold of me: thenceforward I pursued in fact nothing other than physiology, medicine and natural science’ (*EH* ‘Human, All Too Human’ 3).

From the point of view of anyone interested in examining Nietzsche’s relation to science, this hyperbolic claim is a key passage in his writings. It betokens one of those periodic occasions in Nietzsche’s career when he takes stock and expresses an unease about his own ‘calling’ (*Beruf*), wondering whether he ought not perhaps to be doing something more meaningful than lecturing on Classics in Basle and writing books that no-one reads. For those who *have* read Nietzsche’s books, though, this passage is intended as an explanation of how he came to write a book – *Human, All Too Human*, together with its ‘supplements’ the *Assorted Opinions and Maxims* and *The Wanderer and His Shadow* – which is so very different from what had gone before (*The Birth of Tragedy* and the *Untimely Meditations*), a difference which is announced programmatically in the very opening paragraph of the 1878 text, entitled ‘Chemistry of Concepts and Sensations’ (*HH* 1).

It is from this paragraph that I have derived my title, and my aim in this chapter is a very straightforward one, namely to examine the role – or at least a few aspects of the role – that chemistry plays in Nietzsche’s thinking, set against the backdrop of his ambivalent relation to the natural sciences in general. For it is surely significant that, from the list of ‘physiology, medicine and natural science’ which Nietzsche gives us in *Ecce Homo*, he should actually choose chemistry as his emblematic scientific discipline here, as a cure for Wagnerism and for his earlier metaphysical excesses. I want, then, to examine what Nietzsche means by ‘chemistry’: what it represents to him, and why he should therefore choose it above other scientific disciplines – not only here – as representative of his own method. Analyses of Nietzsche’s relation to the natural sciences have tended to focus on

other disciplines, with a concentration on physics or medicine, physiology and the life sciences.¹ This is hardly surprising since these are the areas in which Nietzsche read the most and which can be seen perhaps to have the greatest impact on his intellectual development;² in fact, the most sustained treatment of my theme – Alwin Mittasch's pamphlet *Friedrich Nietzsches Stellung zur Chemie* – dates back to 1944.³ My argument will be that Nietzsche's relation to chemistry has been insufficiently addressed so far, and that his apparently sudden enthusiasm for chemistry in *Human, All Too Human* must be appreciated in the context of a preoccupation with the subject which, in fact, spans his intellectual career, for chemistry surfaces at strategic moments as a recurrent theme in Nietzsche's writings.

The passage in *Ecce Homo* in which Nietzsche describes his 1876 crisis actually mirrors very closely his assessment of an earlier crisis, namely the moment of decision he faced in January 1869 on hearing of his impending election to the chair of Classical Philology in Basle – at precisely the point when it seems he was beginning to despair of philology altogether, after years as a star pupil (in Classics, at least) at Schulpforta and under Ritschl's supervision in Bonn and Leipzig. In a letter of January 1869 to his close friend Erwin Rohde, Nietzsche, reflecting wryly on the vicissitudes of fate, breaks the news that has just intervened to dash their common 'dreams of a Parisian future': 'just last week I was going to write to you and suggest that we study chemistry together, that we throw philology where it belongs, among the household effects of our forefathers' (*KGB I/2*, 16 January 1869). Even before Nietzsche's professional philological career gets under way, then, he is conceiving of philology and chemistry as contrasting – if not opposing – modes of existential possibility, of 'Philologie und Chemie im Kampfe',⁴ and he is tempted by the latter's seductive lure. Steffen Dietzsch, writing on 'Nietzsches französischer Traum', refers to this letter of 1869 as one of the frequent instances of Nietzsche's beguilement by the possibilities of Paris, a city he never actually managed to visit but which – all the more so for that reason – exercised a persistent and powerful influence on his philosophical imagination,⁵ but it seems to me that one can just as well treat this episode as exemplifying 'Nietzsches chemischer Traum', too. Nietzsche's knowledge of chemistry up to this point may have been very slender indeed, and his reading in chemistry always lagged behind his reading in other natural scientific disciplines, yet however hare-brained and abortive this 1869 scheme of studying chemistry in Paris may sound, the fact that he should entertain the notion at all undoubtedly betokens a strong interest in chemistry, at least in principle – on the level of a desire for an alternative mode of existence which Nietzsche subsequently fulfils, I want to argue, by more indirect and metaphorical means.

In commenting on this same episode of 1869, Mittasch muses: 'what if Nietzsche had carried out his plan [perhaps one should say, the aspect of his plan which Mittasch takes as relevant] and begun studying chemistry, for instance with O.L. Erdmann and H. Kolbe in Leipzig: would we be counting him nowadays among our great German chemists?'⁶ In his conclusion, Mittasch goes some way towards answering this question when he remarks: 'There can hardly be a similar case in the history of natural philosophy, of a thinker with so little detailed knowledge of chemistry advancing to such far-reaching reflections on the basic questions of

chemistry.'⁷ This may sound to us now like some rather special pleading for a thinker who, as Mittasch admits, was in matters chemical little more than a talented dilettante; however, my concern is not to argue the merits of Nietzsche's contribution to chemical thought, but rather to analyse the contribution of chemistry to his thought. For Nietzsche did not throw in philology and pursue a career in chemistry, of course; instead, he took up the post in Basle and published *The Birth of Tragedy*, to which I want now to turn.

Nietzsche's Critique of *Wissenschaft*

In the light of Nietzsche's abortive plan to abandon philology in favour of chemistry it is perhaps surprising that only three years later his first major publication should problematize *Wissenschaft* to such a degree. Indeed, when he comes to reassess the book in the preface to the second edition of 1886, 'Attempt at a Self-Criticism', it is this aspect that he chooses to stress, indulging in what we might now call an interesting piece of 'spin doctoring' after the event. For, as he casts his eye back over his first-born of 14 years previously, he deliberately *recasts* his whole endeavour – a book which concerns itself so centrally with problems of aesthetics and the 'eternal aesthetic justification' of the world – as a problematization of *Wissenschaft*: 'What I then got hold of ... – today I should say that it was the *problem of science* [*Wissenschaft*] itself' (*BT* 'Self-Criticism' 2; cf. *GM* iii 25). An important point to bear in mind here, of course – as ever when Nietzsche thematizes *Wissenschaft* – is its broad, more generic semantic field in the German language in contrast to the narrower, more technical sense of the English translation, 'science'. Nietzsche associates *Wissenschaft*, naturally enough, with *Wissen*, knowledge and the process of cognition in general – thus in *The Antichrist* he is able to interpret the drama in the Garden of Eden as hinging on the acquisition of *Wissenschaft* (*A* 48), and back in *The Birth of Tragedy* *Wissenschaft* is treated as just another compound from *Wissen*, cognate with the *Wissenspyramide der Gegenwart* (*BT* 15: 'pyramid of knowledge in our own time') or such concepts as *Wissensmeer* (*BT* 18: 'ocean of knowledge') and *Wissenskultur* (*BT* 18: 'intellectual culture') – all the products of man's *Wissensgier* (*BT* 15: 'hunger for knowledge') which finds its summation in the *Wissenstrieb* (*BT* 18: 'drive for knowledge') of Goethe's *Faust*.

In *The Birth of Tragedy* it is Socrates who is the archetypal *Wissenschaftler* and villain of the piece: Socrates is the 'Mystagog der Wissenschaft' (*BT* 15: 'mystagogue of science'), the embodiment of hypertrophied reason. As Nietzsche writes in a contemporary notebook: 'In Socrates the principle of science [*Wissenschaft*] forces its way in' (*KSA* 7, I[27]). The problem that sets in with Socrates, Nietzsche argues here – 'The Problem of Socrates', as he will put it in *Twilight of the Idols* – is that thought begins to get ideas above its station: it aims at universality and believes it can 'fathom the nature of things' (*BT* 15), which leads to what Nietzsche considers an insidiously optimistic belief in progress that he condemns as a form of escapism, an evasion of the fundamentally Schopenhauerian, pessimistic truth of the gravity and senselessness of existence. As he puts it in the 'Attempt at a Self-Criticism', 'Is scientificity [*Wissenschaftlichkeit*] perhaps merely a fear and evasion of pessimism?' (*BT* 'Self-Criticism' 1).

The pernicious influence of Socrates, the 'theoretical man' *par excellence*, still persists in our contemporary age in the person of the academic scholar (*Gelehrter*), Nietzsche argues in section 18 of *The Birth of Tragedy*, and the scholar is a type whom he will continue to hound relentlessly in later texts. In the second *Untimely Meditation* the target is academic historians; in *Beyond Good and Evil* he devotes an entire division, 'We Scholars', to the problem of 'the scholar, the average man of science' (BGE 206), at the same time explicitly declaring his own interest by his use of the first person plural. The polemic continues in *On the Genealogy of Morals* (GM iii 23–25), and right up to *Ecce Homo*, where he compares the scholar to a match which has to be rubbed against something in order to catch light: 'The scholar ... replies to a stimulus (– a thought he has read) when he thinks – finally he does nothing but react' (EH 'Clever' 8). For Nietzsche, then, scholarly 'activity' is but 'reactivity', and the scholar's ideal of 'objectivity' is merely an 'indifference behaving objectively' (HL 6). This sense of indifference is for Nietzsche but typical of his *wissenschaftlich* age which is indifferent to values in general and lacks the stamp of any personal style. It is an age which he condemns as nihilistic, as unable to believe in the values it had previously held (KSA 12, 5[71]) – an age which, to use one of Nietzsche's favourite criteria, lacks *taste* and finds all previous values merely insipid.

'Chemistry of Concepts and Sensations': Sublimation

Nietzsche's recipe for bringing excitement and, above all, discrimination back to the jaded European palate turns out, at first sight paradoxically, to have the natural sciences as its main ingredient. In his writings after *The Birth of Tragedy* and the *Untimely Meditations* there comes a distinct caesura and a reorientation in his philosophy which has a rehabilitation of science as one of its main features – in an 1877 notebook he even quotes Socrates repeatedly with approval: 'People who have no scientific culture are talking through their hats when they discourse on serious, weighty matters, and are presumptuous. Socrates is still right' (KSA 8, 23[17]; cf. 23[121]).⁸ *Ecce Homo* dramatizes the shift, as we have seen, as an aspect of Nietzsche's disaffection with Wagner and with the 'crudition' (*Gelehrsamkeit*) of his profession. The picture is rather more complicated than this account of a simple, catastrophic conversion would suggest, though, on the one hand, even in the early 1870s – and largely in connection with the course of lectures he gave in 1873 on the 'pre-Platonic' philosophers and their science,⁹ as Schlechta and Anders showed in 1962 through an examination of the books he borrowed from the University Library in Basle, ordered from his bookseller and so on¹⁰ – Nietzsche was keeping himself informed about contemporary developments in the natural sciences. On the other hand, he refused to embrace the natural sciences uncritically even after this supposed 'turn', for even in the 1880s there are still what he refers to in a note as 'the nihilistic consequences of present-day natural science' (KSA 12, 2[127]) to be reckoned with, and as Gilles Deleuze highlights, what Nietzsche objects to is contemporary science's reduction of differences: 'the scientific mania for seeking balances, the utilitarianism and egalitarianism proper to science'.¹¹ This 'mania' shows itself in the shape of three closely allied scientific phenomena which Nietzsche continues to

isolate and attack – logical identity, mathematical equation and physical equilibrium – all of which smack, to him, of nihilism (the nihilistic reduction of difference). In the third essay of the *Genealogy*, science is found to be in the service of the ascetic ideal, and here post-Copernican astronomy is in the dock as a paradigm case of man's 'will to self-belittlement', as having a 'humiliating and degrading effect' (GM iii 25).

In response to the nihilism of logic, mathematics, physics and astronomy, then, Nietzsche holds up chemistry as the great restorer of differences. The first evidence of this shift is revealed to the public from the very beginning of *Human, All Too Human*, where 'Chemistry of Concepts and Sensations' is positioned as the first paragraph and thus given programmatic significance. In place of 'metaphysical philosophy', Nietzsche argues here, what is required is a new kind of 'historical philosophy ... which can no longer be separated from natural science', a 'chemistry of concepts and sensations' to teach us that there is no such thing as 'unegoistic action', for example, just as the Kantian notion of 'completely disinterested contemplation' is also an illusion: 'both are only sublimations [*Sublimierungen*], in which the basic element seems almost to have dispersed and reveals itself only under the most painstaking observation'. Nietzsche continues:

All we require, and what can be given us only now the individual sciences have attained their present level, is a *chemistry* of the moral, religious and aesthetic conceptions and sensations, likewise of all the agitations we experience within ourselves in cultural and social intercourse, and indeed even when we are alone. (HH 1)

At the outset of *Human, All Too Human*, then, Nietzsche revalues the natural sciences positively, at the same time differentiating between them and privileging chemistry, the science of selection, as the select science. Philosophical chemistry, for Nietzsche, is an answer to grand scientific abstractions, for it is a critical, analytical and, above all, differentiating science which establishes and explores minute transmutations – Peter Heller describes Nietzsche's conception of chemistry here as a 'doctrine of transformations'.¹² Nietzsche associates chemistry with the kind of genealogical 'questions about descent and beginnings' which, he argues, humanity is all too keen to repress, and with his new method he is seeking in effect to practise a kind of inverted conceptual alchemy, revealing the base origins of what otherwise passes for gold: 'what if this chemistry gave the result that even in this area [of culture and society] the most splendid colours are obtained from lowly, indeed despised materials?'¹³

The message of this (al)chemical manifesto is that contradictions are to be seen as sublimations rather than opposites – Nietzsche's chemical 'principle of the excluded middle' is far preferable to the logical one, for it privileges becoming over being and emphasizes the contiguity of the two 'opposite' poles, as well as the reversibility of the operation which mediates between them. The supposed opposition which Nietzsche is most keen to deconstruct is, of course, that which determines moral judgements, the opposition between 'good' and 'evil'. The next division of *Human, All Too Human*, 'On the History of the Moral Sensations', shows him already beginning to put his new principles into practice with a discussion of the 'Twofold Prehistory of Good and Evil' (HH 45), and it finishes with a passage

stressing that 'between good and evil actions there is no difference in kind, but at the most one of degree. Good actions are sublimated [*sublimierte*] evil ones: evil actions are coarsened, brutalized good ones' (*HH* 107). It is in the first essay of the *Genealogy* that this insight is given its fullest development, with the twin oppositions of 'good and evil', 'good and bad' being analysed out as sublimations of power relationships; in the second essay Nietzsche then produces his most sustained analysis of the phenomenon of sublimation, treating the manifestations of 'higher culture' as so many 'sublimation[s] and subutilization[s]' of cruelty (*GM* ii 7).

'Gay Science'

Almost 30 years before Freud, then, Nietzsche is using a notion of 'sublimation' which systematically reduces sociocultural, political and psychic events to steps in a chemical process.¹⁴ (At the same time, of course, it still resonates with echoes of the aesthetic sublime, which it subtly subverts.) The term 'sublimation' is, moreover, just one salient example of the chemical idiom which Nietzsche adopts, and which is also in evidence, I would argue, when he talks of the 'reactivity' of the scholar, when he analyses the process of contemporary cultural 'dissolution' (*Auflösung*; *BGE* 200; *KSA* 12, 5[71]), or proposes the 'formula [*Formel*] for my happiness' (*TI* 'Maxims' 44; *A* 1). Nietzsche's use of chemical formulations (or formulae) in his prescriptions itself undergoes a transformation, although, I want to suggest that whereas in the first section of *Human, All Too Human* (1878) he sets out his new chemical principle programmatically in a manifesto for a new method of philosophical *analysis*, by the time of *The Gay Science* (1882) he has worked out a powerful corollary which involves switching from the metaphor of chemical analysis to that of chemical synthesis as a metaphor for a lived philosophy of existential responsiveness and artistic creativity in the laboratory of the world (*KSA* 13, 15[8]).

Nietzsche's 'gay science' is an implicit 'existential imperative', to borrow Bernd Magnus's phrase:¹⁵ in *The Gay Science* itself we are urged, as free spirits, to take risks and to 'live dangerously' (*GS* 335); in the preface to the second edition of *Human, All too Human*, written in 1886, we find ourselves being enjoined to live life resolutely, 'experimentally' (*HH* 'Preface' 4; cf. *D* 432). As an 'experimental philosophy' (*KSA* 13, 16[32]), then, Nietzsche's affirmative philosophy of heroic *amor fati* in the 1880s still derives its methodology from the scientific laboratory, and the superiority of the natural sciences over other *Wissenschaften* in respect of this experimentalism is particularly evident from a juxtaposition in the third essay of the *Genealogy*. Here the legitimization crisis of *Wissenschaft* – which is denounced as a 'means of self-narcosis' because it still pursues truth rather than pursuing the more adventurous 'truth' of the Assassins, the true free spirits, that 'nothing is true, everything is permitted' (*GM* iii 24) – is itself presented by Nietzsche in experimental, 'free spirit' mode: 'the value of truth must for once be experimentally called into question' (*GM* iii 24).

The continued importance of 'philosophical chemistry' to Nietzsche even in 1888 is attested to by his returning to rework the *Human, All Too Human* passage on 'Chemistry of Concepts and Sensations' in the January of that year (*KSA* 14, p. 119),

grafting on some of the new positions typical of his later philosophy. He is more extreme now about how his 'historical philosophy' is 'an inverted [*umgekehrte*] philosophy', how it has no traces of a (Kantian) 'An-sich' but is explicitly defined as a 'true *philosophy of becoming*' ('*eigentliche Philosophie des Werdens*'), as a 'chemistry of basic concepts [*Chemie der Grundbegriffe*] ... these latter presupposed as having become and still becoming'. In general, Nietzsche now grafts on his mature perspectivist position and supplements the chemical vocabulary with metaphors drawn from optics, psychology and medicine in order to produce a more composite 'research methodology' (*Methodik der Forschung*).

Conclusion

It is nevertheless clear that the premises incorporated in the 'chemical manifesto' of ten years previously remain fundamental to his thinking, and although other scientific vocabularies may have come to the fore in the intervening years – Mazzino Montinari writes of the 'waft of hospital air' that emerges from *Twilight of the Idols*, for example,¹⁶ and Michel Serres, in similar vein, writes of the antiseptic archness of *The Antichrist*¹⁷ – the persistence of a strain of what I am calling 'conceptual chemistry' in Nietzsche's writings is not to be overlooked. Nietzsche may not have read as much on the subject as he did on many others, but that does not prevent him drawing on the metaphorical resources of a 'science of transformations' at various key points, just as Friedrich Schlegel (in the *Athenäum-Fragmente*) or, more pertinently in a Nietzschean context, Goethe (in *Elective Affinities*) had before him. In the end, then (and *pace* Mittasch), 'Nietzsche's conceptual chemistry' is evidence less of a preoccupation with cutting-edge natural scientific debate than with the – by now long-established – philosophico-poetic potential of transmuting the concepts of chemistry themselves into metaphors.

Notes

- 1 See, for example: Daniel A. Ahern, *Nietzsche as Cultural Physician* (University Park: Pennsylvania State University Press, 1995); Keith Ansell Pearson, 'Nietzsche contra Darwin', in *Virid Life: Perspectives on Nietzsche and the Transhuman Condition* (London: Routledge, 1997), pp. 85–122; Alain Juranville, *Physique de Nietzsche* (Paris: Denoël/Gonthier, 1973); Gregory Moore, *Nietzsche, Biology and Metaphor* (Cambridge: Cambridge University Press, 2002); Malcolm Pasley, 'Nietzsche's Use of Medical Terms', in Malcolm Pasley (ed.), *Nietzsche: Imagery and Thought* (London: Methuen, 1978), pp. 123–58; Paul J.M. van Tongeren, 'Physician and Sculptor', in *Reinterpreting Modern Culture: An Introduction to Friedrich Nietzsche's Philosophy* (West Lafayette, IN: Purdue University Press, 2000), pp. 1–13. On Nietzsche and science more generally, see: Babette E. Babich, *Nietzsche's Philosophy of Science: Reflecting Science on the Ground of Art and Life* (Albany, NY: SUNY Press, 1994); Babette Babich and Robert S. Cohen (eds), *Nietzsche and the Sciences*, 2 vols (Dordrecht: Kluwer, 1999); Niels Helsloot, *Vrolijke wetenschap: Nietzsche als vriend* (Baarn: Agora, 1999); Robin Small, *Nietzsche in Context* (Aldershot: Ashgate, 2001); 'Symposium on Nietzsche's "Time-Atom Theory" Fragment', *Journal of Nietzsche Studies*, 20 (2000), 1–81.

- 2 See Thomas Brohjer's essay 'Nietzsche Reading and Knowledge of Natural Science: An Overview' in Chapter 1 of this volume.
- 3 Alwin Mittasch, *Friedrich Nietzsches Stellung zur Chemie* (Berlin: Verlag Chemie, 1944). See also idem, *Nietzsche als Naturphilosoph* (Stuttgart: Kröner, 1952).
- 4 The allusion is to Nietzsche's 1875 notebook on 'Wissenschaft und Weisheit im Kampfe' (*KSA* 8, pp. 97–120), published in English translation as 'The Struggle Between Science and Wisdom', in *Philosophy and Truth: Selections from Nietzsche's Notebooks of the Early 1870s*, ed. and trans. Daniel Breazcale (Atlantic Highlands, NJ and London: Humanities Press, 1979), pp. 127–46.
- 5 Steffen Dietzsch, 'Nietzsches französischer Traum', unpublished paper presented at the conference 'Nietzsche in Cosmopolis. Der französische Nietzsche', Stiftung Weimarer Klassik, Weimar, December 1994.
- 6 Mittasch, *Friedrich Nietzsches Stellung zur Chemie*, p. 8.
- 7 *Ibid.*, p. 34.
- 8 On Nietzsche's changing approach to Socrates, see Sarah Kofman, *Socrates: Fictions of a Philosopher*, trans. Catherine Porter (London: Athlone Press, 1998), pp. 219–41.
- 9 See Nietzsche, *The Pre-Platonic Philosophers*, ed. and trans. Greg Whitlock (Urbana and Chicago: University of Illinois Press, 2001).
- 10 Karl Schlechta and Anni Anders, *Friedrich Nietzsche: Von den verborgenen Anfängen seines Philosophierens* (Stuttgart: Frommann, 1962).
- 11 Gilles Deleuze, *Nietzsche and Philosophy*, trans. Hugh Tomlinson (London: Athlone Press, 1983), p. 45; cf. Babich, *Nietzsche's Philosophy of Science*, pp. 136–40 ('Science and Nihilism').
- 12 Peter Heller, "'Chemie der Begriffe und Empfindungen.'" Studie zum I. Aphorismus von "Menschliches, Allzumenschliches I"', *Nietzsche-Studien*, 1 (1972), 210–33 (211).
- 13 On the specifically alchemical associations of Nietzsche's 'revaluation of all values', see Richard Perkins, 'Nietzsche's *opus alchymicum*', *Seminar*, 23 (3) (1987), 216–26.
- 14 For a comparison of Nietzsche and Freud in this respect, see Paul-Laurent Assoun, 'L'homologie des "psycho-analyses": la métaphore chimique', in *Freud et Nietzsche*, 2nd edn (Paris: Presses Universitaires de France, 1998), pp. 148–52.
- 15 See Bernd Magnus, *Nietzsche's Existential Imperative* (Bloomington: Indiana University Press, 1978).
- 16 Mazzino Montinari, 'Nietzsche lesen: Die Götzen-Dämmerung', *Nietzsche-Studien*, 13 (1984), 69–79 (76).
- 17 Michel Serres, 'Corruption – *The Antichrist: A Chemistry of Sensations and Ideas*', trans. Chris Bongie, in Thomas Harrison (ed.), *Nietzsche in Italy* (Saratoga, CA: ANMA Libri, 1988), pp. 31–52 (p. 32).

Chapter 10

Wonder, Science and the
Voice of Philosophy

Tracy B. Strong

*Viele versuchen umsonst das Freudigste freudig zu sagen
Hier spricht endlich es mir; hier in der Trauer sich aus.*

Many endeavoured in vain joyfully to speak profoundest joy;
Here at last, in the tragic, I see it expressed. (Hölderlin, *Sophocles*)

The Birth of Tragedy and the source of philosophy

In the *Poetics*, Aristotle had famously argued that the high point of tragedy was the moment of *anagnorisis*, the moment at which the protagonist recognizes himself for what he is. Thus, in the *Oedipus Tyrannos*, this moment of insight is the catalyst that leads Oedipus to blind himself. We can be known to ourselves, Aristotle seems to argue, and the purpose of tragedy is to produce self-knowledge. Nietzsche, also famously, had noted in the preface to the *Genealogy* that 'we are unknown to ourselves, we seekers of knowledge' (*GM* 'Preface' 1). This is a claim, I believe and have argued, not that we should come to 'know ourselves,' but that claims to self-knowledge are in the end self-defeating and that the purpose of philosophy should not be self-knowledge if by self-knowledge we mean the self knowing the self. If knowledge is perspectival, as Nietzsche avers, then this means at least that final and definitive knowledge of oneself – of one's identity, as we call it – is not only not possible but that the attempt to pursue it will be harmful, even nihilistic. Philosophy, as we shall see, requires and produces acknowledgement rather than knowledge – that is, it requires others and neither a tacit nor an explicit positing of a privileged position. All is maculate.

In the end – or at the beginning – the main focus of *The Birth of Tragedy* is not Wagner but Aristotle. In *The Gay Science*, Nietzsche notes that Aristotle certainly 'did not hit the nail on the head when he discussed the ultimate end of Greek tragedy' (*GS* 80). Arguing in *The Birth of Tragedy* against the centrality of the idea of *katharsis* for the tragic, he claims rather that tragedy produces *Verwandlung* (transformation) or *Verklärung* (transfiguration) and *not* (self-)recognition:² the self is not found but achieved; the picture is not that of turning around but of a path. For Nietzsche, successful tragedy constitutes the sealing of a change not so much in what one is, but in the naturalness by which one is able to deal in one's life and history with the historically evolving conditions that affect a culture (see, for example, *PTA* 1).