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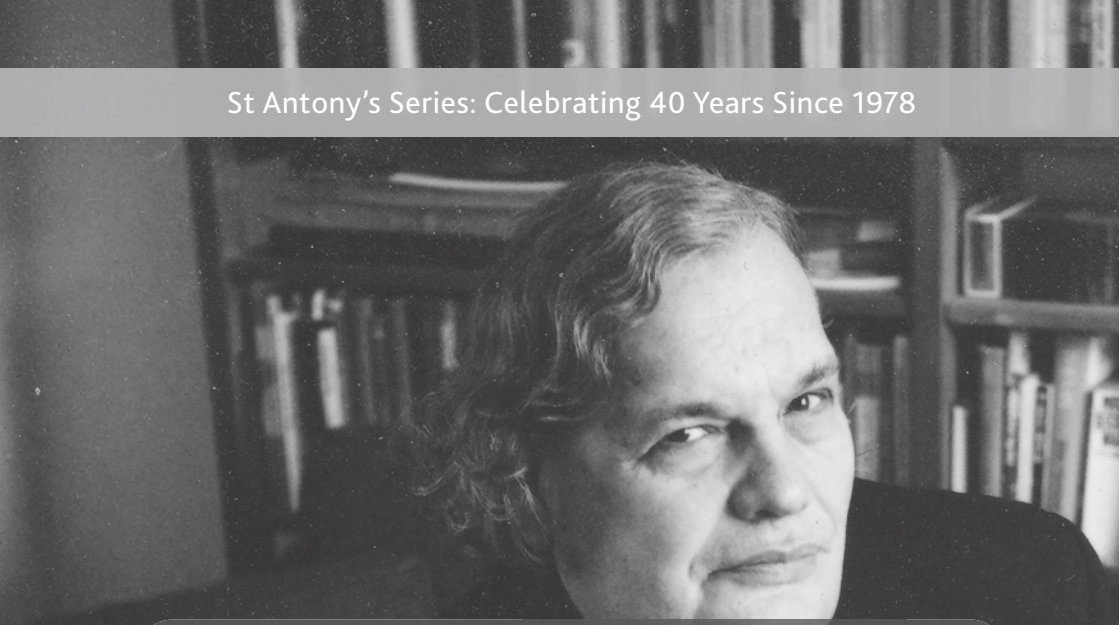

Time, Science and the Critique of Technological Reason

Essays in Honour of Hermínio Martins

Edited By José Esteban Castro, Bridget Fowler, and Luís Gomes

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Editors

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Essays in Honour of Hermínio Martins

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About the Book

This festschrift commemorates the legacy of UK-based Portuguese sociologist Hermínio Martins (1934–2015). It introduces Martins' wide-ranging contributions to the social sciences, encompassing seminal works in the fields of philosophy and social theory, historical and political sociology, studies of science and technology, and Luso-Brazilian studies, among others. The book features an in-depth interview with Martins, short memoirs and twelve chapters addressing topics that were central to his intellectual and political interests. Among these stands out his critique of Thomas Kuhn's theory of scientific revolutions and his work on the significance of time in social theory, cultural revolutions in art and science, and the interweaving between technoscientific developments and sociocultural transformations, including the impact of communication and digital technologies, and of market-led eugenics. Other themes covered are Martins' work on patrimonialism and social development in Portugal and Brazil, and his analysis of the state of the social sciences in Portugal, which reflects his highly critical appraisal of the ongoing marketization and neoliberalization of academic life and institutions worldwide.

Hermínio Martins, 1975, Lisbon, Portugal
Photograph taken by Margaret Martins

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Notes on Contributors

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Bridget Fowler is Emeritus Professor of Sociology at the University of Glasgow. Having had the good fortune to be introduced to sociology by Hermínio Martins and a few other great teachers, she now specializes in social theory, Marxist-feminism and the sociology of culture. Her publications include *The Alienated Reader* (1991), *Pierre Bourdieu and Cultural Theory: Critical Investigations* (1997), *The Obituary as Collective Memory* (2007), Pierre Bourdieu: Unorthodox Marxist? in ed Simon Susen and Bryan Turner, *The Legacy of Pierre*

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Steve Fuller is Auguste Comte Professor of Social Epistemology in the Department of Sociology at the University of Warwick, UK. Originally trained in history and philosophy of science, Fuller is best known for his foundational work in the field of 'social epistemology', the name of both a quarterly journal that he founded in 1987 and the first of his more than 20 books. In 2014 Fuller completed a trilogy relating to the idea of a 'post-' or 'trans-'human future, all published with Palgrave Macmillan. His latest books are *Knowledge: The Philosophical Quest in History* (Routledge) and *The Academic Caesar* (Sage) and is completing a book entitled *Post-Truth: Knowledge as a Power Game* (Anthem). Fuller was awarded a D.Litt. by Warwick in 2007 for sustained lifelong contributions to scholarship. He is also a fellow of the Royal Society of Arts, the UK Academy of Social Sciences, and the European Academy of Sciences and Arts.

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Luís Gomes participated in Hermínio Martins' weekly Portuguese Tables at St Antony's, Oxford, from which university he gained his DPhil. He is Deputy Director of the Stirling Maxwell Centre for the Study of Text/Image Cultures, an authority on Portuguese literature in the late sixteenth and early seventeenth centuries, and the author of many publications on Vasco Mousinho de Quevedo, as well as works on learning Portuguese. He is University Lecturer in Hispanic studies at the University of Glasgow, UK.

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Frankfurt School (1979, reissued 2014), *Culture, Modernity and Revolution: Essays in Honour of Zygmunt Bauman* (eds. with Ian Varcoe), *The Sociological Revolution: From the Enlightenment to the Global Age* (1998, paperback 2002), *Norbert Elias: Post-philosophical Sociology* (2007) and, as editor or co-editor, several volumes of *The Collected Works of Norbert Elias* (2006–2014) as well as numerous articles on sociological theory and the sociology of knowledge. He is also an active member of the *Figurational Research Network of the Norbert Elias Foundation* (http://www.norberteliasfoundation.nl/network/index.php).

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Charles Turner graduated from Durham, completed his PhD at Goldsmiths College, University of London and is Associate Professor at the University of Warwick. His research interests are in the areas of social and political theory, collective memory and history, and Europe after communism. His publications include *Modernity and Politics in the Work of Max Weber* (1992) and *Investigating Sociological Theory* (2010), whilst he has edited (with Robert Fine) *Social Theory After the Holocaust* (2000), (with Ralf Rogowski) *The Shape of The New Europe* (2006) and (with Mark Erickson) *The Sociology of Wilhelm Baldamus: Paradox and Inference* (2010).

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Hermínio Martins taught until retirement. His most recent monographs are *Latin America: A New Interpretation* (2006 second revised edition 2010) and *Democratization: Theory and Experience* (OUP, 2002) and various edited publications include *Shifting the Balance: The Obama Administration and the Americas* (2010).

Introduction

Bridget Fowler

Hermínio Martins (1934–2015) was an exemplary academic. He had, quite simply, a great mind: he was analytically penetrating, extraordinarily well-read and endowed with a remarkable memory. He had acquired—perhaps from his early exile—an unerring sense of what was ethically or politically important. Both original and rigorous, Martins was also effortlessly amusing in his dissection of fashionable intellectual trends. In brief, he was a distinguished social theorist. A highly acclaimed professor in the Iberian-Brazilian academic world, he deserves to be much better known in Anglophone social science.

The contributions gathered together in this festschrift recapitulate some of his major well-known themes whilst further developing and elaborating on his thought in significant ways. Both newcomers to his work and those who remember him fondly will enjoy Helena Jerónimo's

I am very grateful to my fellow editor, Esteban Castro, for reading and rereading this introductory essay and making invaluable comments for its improvement. Needless to say, the final responsibility for its content is my own.

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excellent interview, in which his voice comes through with particular clarity and power. The present introductory chapter aims to offer a further perspective on his chief accomplishments.

Martins' thought was endlessly fertile right up to his death. But four concerns emerge consistently over the years—patrimonialism and development in Portugal and Brazil; the conceptualisation of time, social transformation and the theory of scientific revolutions; technoscientific and digital advances; and finally, marketisation, particularly of the neoliberal public university. The works dealing with these main themes show the progression of a thinker from being a dissident functionalist to a Western Marxist with structuralist leanings, underpinned by an enduring allegiance to Weber and a left-Durkheimian historical sociology. Throughout this odyssey, he honed his own radical humanism whilst exploding current theoretical delusions. Not least amongst his targets were the ultra-individualism of contemporary evolutionary biologists and the discursive idealism of extreme social constructionists.

Patrimonialism and Development in Portugal and Brazil

Born in Mozambique in 1934, then a Portuguese colony, Martins' first publications (1967, 1968, 1969 and 1971) were devoted to the Portuguese and Brazilian political regimes. These early studies in historical sociology, enriched by a wide-ranging conceptual framework, trace closely the rise and structural base of the Estado Novo [New State] Portuguese dictatorship, which took power in 1929, became consolidated under António de Oliveira Salazar as P. M. in 1932 and was reinforced in 1968 by Marcelo Caetano. This was the regime that had forced Martins into exile in Britain, in 1951. He charts vividly the swelling ranks of resistance to this anti-democratic government despite the heavy penalties of torture, death and imprisonment. Subsequent to his writing, it was these opposition forces, headed by the military, which deposed and exiled Caetano in the Carnation Revolution of 1974.

Amongst their significant sociological features is, firstly, his argument that repressive social structures are not unique to 'totalitarian' societies,

like Nazi Germany or Stalin's USSR, but are found also in authoritarian dictatorships such as the Estado Novo regime, with its corporatist ideology of 'integralismo Lusitano' [Lusitanian integralism] (1968: 303–06; 1969). In particular, the pervasive censorship—especially the blocking of critical history—was not specific to Nazi Germany or Stalinism. The Salazarian regime banned opposition, strikes and any discussion of alternative visions of society. The State deployed both 'negative coefficients' and 'positive coefficients' to retain power. Thus what he calls the 'optimum coefficient of terror', between 500 and 2000 annual executions, was sufficient to repress active sources of resistance (1968: 329). Alongside this, the regime ensured the doxic hold of official collective memory, not least via the emotional appeals of its charismatic leaders and the ceremonies of its compulsory youth movement (1969).

Secondly, Martins was prescient in demonstrating how a traditionalist regime such as Estado Novo was able to modernise the economy in a capitalist direction. For Portugal was slowly opened up to foreign capital, including industrial investment, although its greatest beneficiaries were still the large feudal landowners from whom the integralist leaders came (1968: 307, 331; 1971: 67). This theoretical interest in a 'reactionary modernism' or 'reactionary nationalism' (1968: 335) was to become one of the distinctive hallmarks of his work (see also 1998). But he also recognised that such modernisation possessed inner contradictions or limits. Most notably, the military investments to sustain the large Portuguese Empire were economically irrational: in later years, between 40% and 45% of annual budgets were dedicated to colonial war (1968: 331) (cf. Anderson 1962: 90).

For Martins, Portugal's singularity in relation to Northern European societies originated from the frailty of its urban bourgeoisie in pioneering a hegemonic, anti-traditional civic ethos (1971: 63). That the middle class was kept weak was due partly to the scarcity of medium-size towns, partly to the absence of a 'sturdy yeoman class' or rural gentry. Indeed, Martins portrays this as a 'neoliberal' (1971: 63) social order in which capitalism was adopted and *fostered from above* to suit the needs of the upper-class elite. It was a 'classist' rather than an 'apparatic' dictatorship, one in which State contracts, 'familistic oligopolies', cooptation mechanisms and a complicit Catholic hierarchy blocked agrarian transformations (1971: 63).

Portugal thus lacked the rational bourgeois ethos and the collective economic goals adopted in British, French or American modernisation: 'This', he stresses, was a 'parasitic involution of capitalism' (1971: 69).

Thirdly, by mapping the international stratification order with its highly developed centre and dependent peripheries onto the internal structures and class composition of the Portuguese regime, Martins revealed a 'bipolar' society, resembling the characterisation that scholars like William Davidson (1947) and others had applied to Latin American countries from the 1940s (1971: 75). In this dual social structure, the bulk of the population was consigned to the internal periphery, whilst the area of modernisation was confined largely to the capital, Lisbon and the northwestern seaboard (Porto) (1971: 75–77). Consequently, the property-owning peasantry within this market-oriented, kleptocratic regime saw their main hope for escape from poverty as lying in emigration. Indeed, certain cities abroad—Paris (the second or third biggest 'Portuguese' city) and Caracas—acquired the aura of 'heterotopia' (1971: 85), spaces of hope which substituted for the collective utopia and socialist goals found in societies with a larger and more autonomous working-class formation.

Lastly, Martins depicted Portugal under Estado Novo as a society that was distinguished by its *homogeneity*, despite the class and gender divisions and the dualistic elements that he had identified. It had an ethnically, linguistically, religiously and culturally unified social structure. Specifically, it lacked those disaffected aristocrats, religious minorities and Jewish intellectuals who elsewhere have been 'sources of aid to subordinate classes in the early, critical stages of class conflict particularly before the consolidation of strong, autonomous, class organizations' (1971: 61), whilst it had 'failed to absorb any significant fraction of its colonial or ex-colonial subjects' (1971: 60). Yet the opposition also possessed secret resources of organisational techniques keeping alive dissent: indeed, we might see Martins' depiction here as similar to novels such as Saramago's *Raised from the Ground* with its unforgettable representation of peasant rebellions against latifundist exploitation ([1980] 2013). The slowly increasing professional classes and urbanised ex-peasant working classes strengthened these opposition forces, producing, after Salazar, a degree of liberalisation (1969: 263). But the requisite

strength of the Portuguese opposition lay in recognising 'the problem of the long haul' so as to avoid being caught in the 'imminence trap' (1969: 257).

In his earliest work, Martins also turned to Latin America (1967). Writing about Brazil with great metaphysical pathos, he charted a world that had just been lost: a distinctively Brazilian 'proto-Keynesian' 'developmental nationalism'. This developmentalism ('desenvolvimentismo') galvanised the country from 1956. With its roots in new structural forces and a new cultural configuration, it was ended summarily by the barbarity of the 1964–1985 military rule: the absent presence of this essay. Made feasible by an unprecedented alliance of Brazilian industrialists, entrepreneurs, planners and the skilled working class, developmentalism aimed at instituting a distinctively national capitalism (we might call it a 'bourgeois revolution' (Davidson 2012)). This entailed radical, bottom-up reforms which aimed to break the power of the coffee-growing latifundist elite, as well as the stagnating force of the externally facing metropolitan capitalist class. Politically, it inaugurated a 'generalised ideological effervescence' to use Martins' Durkheimian language: 'a national developmental *definition of reality*' (1967: 155 (my italics)). Such a movement inaugurated a new 'macrotime', reorganising the nation for rapid modernisation. This, in turn, generated an altered 'microtime' or everyday world, in which clocks, calendars and diaries all testified to a changed quality of national lived experience.

Martins conveyed vividly this sense of altered political possibilities, deploying the Aristotelian language of 'potential'. But his sociological stance was always also a critical realist one: he noted the massive structural obstacles which had to be surmounted—from the power of the landowning elite and their 'patrimonial norms' to the varied impediments of a segmentary division of labour, the hostility of media and the antagonistic interests of the global centre towards the periphery (1967: 160–162). Tellingly, despite an area of consensus permitting the nationalisation of coal and steel, there was no sustained opposition to the direction favoured by liberal international economists. Instead, developmentalism became deflected into a quasi-millennial movement, with charismatic leaders brushing aside the structural barriers to change.

Time, Social Transformation and the Theory of Scientific Revolutions

Martins' first major epistemological essay (1972) was a masterly analysis of Thomas Kuhn's epoch-making philosophy of science (Kuhn 1966 (1962)). It is difficult to recall now the extraordinary impact of Kuhn's theory of the development of natural science via sudden episodic paradigm shifts, sweeping aside, as it did, the earlier critical rationalism of Karl Popper. Martins' distinction was to accept the general historical existence of paradigm changes whilst challenging Kuhn's specific propositions as to the nature and significance of scientific communities. Most specifically, he questioned the contention that a change of paradigm necessarily leads to a change in epistemology and research instrumentation. Martins, like Lakatos, preserved certain key aspects of the critical rationalist epistemological tradition: Kuhn's theory, on the other hand, postulated the radical incommensurability of 'infallible' paradigm constructions.

The synthesis of Martins' earlier historical sociological studies and his study of Kuhn appeared in his well-known *Time and Theory in Sociology* (1974). Here, as Charles Turner points out in his essay, he approaches the central paradox of the period: functionalism was being criticised for 'the bias towards synchrony, atemporality and ahistoricism' but its successor movements, ethnomethodology, symbolic interactionism and phenomenology were equally unadapted to addressing wider historical parameters; even Marxism's newest theoretical developments were 'precisely those of anti-historicism and structuralism' (1974: 247, 249). His argument progresses in two stages: in the first section, he makes a case for a 'functionalist revisionism' or what we might label a 'dissident functionalism'. Within this framework, he aims to chart the emergent functions that go beyond mere tension management but rather look towards a 'future system' even 'functionalist transformation' to end the 'generative instability' (1974: 248). He helps to generate an anti-evolutionist frame of reference with new concepts like 'asynchronisms', 'dysrhythms' and 'breakdown of modernisation', indeed (perhaps bearing contemporary Portuguese society in mind) he stresses that tradition and modernity can coexist in one society. Casting aside the 'cognitivist inflationism' of contemporary microsociology,

he seeks to theorise macrostructures afresh. Ideally he would build bridges from this endeavour to microtheory, with its rigorous pursuit of subjective meanings—although 'there is clearly no immediate prospect of such a sociological millennium' (1974: 252). The key, he suggests, is the 'pluritemporalism' on which Lévi-Strauss places such weight, following Cournot, that is, the different times occurring in different fields (see Martins 1998: 152–158, also Bourdieu 1988: 180).

He memorably addresses the weakness of much contemporary sociological thought, particularly its 'methodological nationalism', despite this being an age of multinational companies. If a break with such a narrow conceptual framework was to be made, then cross-national interrelations needed to be explored, as in dependency theory. Historical social change should neither be understood purely exogamously nor endogamously but both ('isogenously'). It is particularly unacceptable, he aptly remarks, to treat Western societies as possessing purely endogenous changes and non-Western societies as possessing solely exogenous changes.

The final part of *Time and Theory* […] focuses on 'caesurial' or ruptural theories of change, including theories of 'the great transformation': in other words, alternatives to functionalism. Perhaps the most favourably endorsed by Martins is Gellner's sophisticated conceptions of the great, irreversible transition towards urbanisation, industrialisation and a vernacular high culture, although he also points approvingly to Barrington Moore's persuasive and monumental *Social Origins of Dictatorship and Democracy* (1966). In *Time and Theory* […], however, he takes up again some of the themes that he had developed so brilliantly in his chapter on Thomas Kuhn (Martins 1972). In addressing 'caesura' in the form of scientific revolutions, he also opposes Kuhn's anti-rationalist implications that there can be no growth of knowledge:

> But to characterise such discontinuities as essentially and inherently akin to religious conversion […] to imply the minimal import of trans-revolutionary, break-overriding invariants; to deny the growth of knowledge in the sense of increasing approximations to reality which does not simply cancel out and replace earlier states of scientific thought, is indeed to embrace a strict and radically caesurial theory of scientific process and history. (Martins 1974: 283)

Thus, for Martins in *Time and Theory*, sociology must be—as Gouldner had proposed—a reflexive discipline:

> *Sociology is a historicophilosophically reflexive discipline*. To say this is not to assert or imply historical relativism or some stultifying social determinant of truth. The sociology of knowledge need not entail such beliefs [,] as Durkheim's concern with the social epistemology of reason so dramatically showed. (Martins 1974: 287, his italics)

The Technoscientific Ethos, Communications and Digital Media: The Approach from Sociological Theory

Martins published in the early 1990s a pioneering analysis of technological change, strangely entitled *Hegel, Texas: Issues in the Sociology and Philosophy of Technology* (1993). It starts by charting the little-known work of the left-Hegelian, Ernst Kapp, a German exile to Texas, who expanded the Hegelian theory of social transformation by incorporating technological growth. For Kapp, the overall criterion for assessing the efficacy of sociotechnical change was its success in ameliorating humans' imperfections via the improvement of wheelchairs, prosthetic limbs, spectacles and suchlike. This reasserted what Martins designates a tradition of 'finite Prometheanism' (see also 1996: 236, 1998: 156–163). In contrast, a different tradition has emerged since Kapp which Martins diagnoses as a 'Faustian […]. technological expressivism' (1998: 168, also 1993: 228–231). Its major interwar exponents, Spengler, Heidegger and Scheler, adopt a productionist perspective in which technology represents the sovereign will of the ethnoculture, the objectified form of a pure drive to world mastery. The Faustian vision—dismissive of any concerns for democracy, solidarity or justice—invests Western technology with the power of domination over both nature and humankind. Thus, where the Promethean drive envisages reducing the impact of accidents or impairments, the Faustian view of technology aims ultimately at transcending the human species or body altogether, creating a meta-human or transhuman (Martins 2007). In Martins' view, its logical

culmination is immortality, as anticipated in Bernal's extraordinary *The World, the Flesh and the Devil* which envisages certain brains being retained permanently in a cylindrical container after biological death (Bernal 1970 [1929]: 39–46, Martins 2007: 27, 33, fn. 46, 34).

This second, Faustian tradition differs crucially from the first in its 'technological Gnosticism' (2007: 37)—where Gnosticism is defined in part through its aversion to the natural human body ('somatophobia' (2001: 21)) or to nature in general. Predicted as early as the 1920s by the socialist biologist and Oxford-based Bloomsbury Group member, J. B. S. Haldane, this biotechnological project is characterised by innovations such as cerebral implants to gain microscopic or megaloscopic sight, ectogenetic gestation, human cloning and genetic selection (in popular culture, 'designer babies') (Dronamraju 1985: 3, 106–07). Martins explores the potential of this Faustian 'second creation' not just in terms of its capacity for fundamentally altering the human-machine interface but in terms of its hidden epistemological and ethical premises (see 1993, 1996: 237–240, 2001, 2007, 2013). In particular he extracts from its key exponents' works a covert possessive individualism and ethical nihilism, often masked by their iconoclastic atheism (2001, 2007, n.d.-a, n.d.-b).

Martins' successive studies of these themes, such as *Technology, Modernity, Politics* (1998) and the often wryly humorous *Goodbye Body!*, offer also a 'metatheoretical' framework situating his historical sociology of technology (2001). The Ancient Greeks contrasted the corporealist, continuist and plenist outlook of the Stoics, with its abhorrence of a vacuum and emphasis on abundance, against classical atomism which led directly to mechanical materialism. The former, more attractively, posit human needs and the wholeness—or holism—of the human. Indeed, a crucial line of descent connects the Stoic corporealist view to Renouvier's holism of the human and from that to Durkheim and Mauss's 'total social phenomenon'. In contrast, the classical atomistic view has chiefly identified the human with the mind and the mind with the brain; all are reductively considered in the purely *physicalist* terms of information processing, genetic transmission and so on (see Ells' memoir beneath).

Martins then addresses the economics of the body or rather its notable absence (2001: 16). For neither current mainstream economics nor its dissenting rivals - post-Keynesian, Kaleckian, Marxist, radical - have analysed

the new markets for sperm, ova and other body parts, the 'universal body shop' or 'genetic supermarket' (2001: 17, 2007, 2013: 32–33). He seeks to contrast this globalised, legal, 'black' or 'red' market for the body with alternative modes of supplying urgent needs. Of these, the paramount model, as he rightly says, is the generalised altruism implicit in the British blood donation model, theorised, following Mauss, in Titmuss's classic *The Gift Relationship* (1970). It might be preferable to call this 'reciprocity' rather than 'altruism', but the essential difference of both from the marketisation for needs remains obvious. What specifically characterises the market for such products now is the globalisation of trade, leading to unanticipated matches in which infertile women may be supplied with eggs from those they regard as 'others'. In a series of vivid accounts, Martins discusses the nature and implications of the new technologically facilitated market, moving from the sale even of kidneys in India for Western patients to the possible future Rawlsian 'ethical' imperative: the duty to reproduce oneself with the best genetic selection available (2007: 18)!

In this respect, another underlying dichotomy powers his later thought: that we are moving from 'forced political eugenics' (of the Nazi era or 1960s' Sweden) to 'a market in future bodies [an obligation to pursue]' perfectionism [in bodily] genetic enhancement' (2001: 18, 2007: 35). More succinctly, we are moving into an era of 'microutopia of microeugenics'. (2001: 18) At the moment, hip and knee replacements (etc.) are offered in many countries on the basis of need, via socialised medicine. The key question for Martins is whether we will move forward into a 'macrobiotic medical state' on an *egalitarian* foundation or whether recipients will become a 'macrobiotic caste', recruited in the future solely by their ability to pay. He poignantly labels the latter prospect a new human 'apartheid'[1] where the positional goods will be various forms of genetic and bodily enhancement, leading to relative deprivation for those denied them (2001: 18 fn. 41, 2007: 30, fn. 43).

Perhaps the most trenchant of his analyses is that of the 'reprogenetic revolution' in synthetic biology. Explored through the leitmotif of a biographical trajectory of potential technological choices, Martins pursues once again the dichotomy between the Promethean and the Faustian in his *Paths to the Post-Human* (2007)[2] and *Firms, Markets, Technology* (2013). For what has opened up in the Promethean tradition are the

medical advances in IVF that allow infertile couples to have one or even more than one child. The recent advance, however, is both socially and medically more of a novelty: where a *fertile* heterosexual woman uses IVF:

> because being economically and professionally independent, they want to have children with the maximum freedom, whenever they want, without sex, without partners, without love, without the vexations of personal relationships. (Martins 2013: 4)

Martins is right, but he fails to comment that they may indeed have wanted love but not found it; moreover, even in many societies such as the USA, despite a proud self-image of gender equality, the brevity of maternity leave still makes ordinary reproduction hazardous.

The advent of both genetic counselling and IVF has meant that on the emerging market for sperm and eggs, a search for certain criteria for the hierarchy of desirable matches has emerged, inevitably relating to prices. Indeed, in a nice riff on this point, Martins suggests that a much quicker and easier solution to the problem of hierarchically ranking the quality of universities' research output, as in the British REF (Research Excellence Framework), would just be to take the relative prices of their female students' eggs as the rationale:

> The oocytes of Harvard undergraduettes (sic) fetch the highest price by far in the relevant marketplace in the USA […] relative to those of other women students in other American universities: in fact, there appears to be a strong correlation between this list and the international ranking of universities in the North American case. That being the case, it might be cheaper and far less time-consuming to determine the ranking of universities, at least of American ones […] by this price list, than by the tedious procedures that have been set up in the last decade for this purpose. (Martins 2013: 40–41)

Underlying Martins' explorations of the 'new Copernican Revolution' with its merger of information science and technology are wider sociological issues. First, as in the caesura of *Time and Theory* and the exploration of the meanings of development in *Technology, Modernity, Politics*, there is a continued concern for the nature of social change or

what in the nineteenth century was called 'progress'. He argues persuasively that whilst there is undoubtedly no such thing as aesthetic progress and, so far at least, no moral progress, it is indeed reasonable to talk of technological progress. But the development of technology cannot be understood on a gradualist model—rather as well as 'piecemeal modifications' […] 'bursts of radical invention and innovation take place and the pace of techno-economic change is accelerated' (n.d-a: 6). Technological change can even be halted: he points to Japan in the seventeenth century where gunpowder and printing were prohibited. Of paramount importance, some new technologies may cease altogether: collective memory of the indispensable *tacit* knowledge that had underpinned their invention may be deliberately eradicated. Martins cites Donald MacKenzie and Graham Spinardi who have argued compellingly for this potential in the case of nuclear weapon technology (1998: ch. 10) (cited n.d-a: 11).

In his last works, Martins addresses Darwin's conception of evolution as 'endless forms of life most beautiful' (Darwin, cited: n.d.-a: 8, 19) but which is in fact likely to be shaped by the new and final Copernican Revolution, the new eugenics (2007: 19–20). Recent evolutionary biology, with its reprogenetic revolution, has being advanced by two rival theories, molecular and molar genetics (2001). Molecular genetics is a 'physicalist' theory based on ultra-determinist and atomist premises vis-à-vis nature and society, whilst the molar (mass) genetics is based on the probabilistic revolution, the acceptance of limits to determinism and reproduction as the consequence of both genes and non-genetic processes. The current genetic debate (or war) with the 'selfish gene' pitted against the 'selfless gene' is waged on the one side by molecular theorists like Richard Dawkins and Daniel Dennett, militant irreligionists who are also *scientistic* (or positivist) in their worldview, and on the other side by the protagonists of molar genetics, like the late Jacques Monod, concerned with the nature of both the Anthropocene age and the planet (cf 2007: 41). The former are blinkered by their physicalist metaphysic, adopting an atomistic ontology, an ethical nihilism and an extreme individualism: the vocabulary of computing supplies their key metaphor (n.d.-a). Crucially, they possess no model of the causal powers of the social—for institution making or collective creativity (n.d.-b: 8). Their worldview has indeed certain social affinities to the proliferation of flexible social

arrangements, zero-hour contracts and temporary employment which testify to the 'enduring capacity of market democracy' (n.d.-b: 8). In brief, Martins isolates a new form of possessive individualism in the radical evolutionism of molecular genetic biologists, with its pursuit of flexible short-term market outcomes.

Interestingly, this argument is expanded to the social sciences. For Martins has also developed a powerful critique of recent theoretical assessments of the body, viewing social constructionism as adopting an extreme version of the 'sociocentric predicament' (2001: 23). Social constructs, he argues, now incorporate the whole of the society, economy and even aspects of nature, downgrading the material elements of the body:

> The contemporary world is full of materialists who rejoice that matter has finally been abolished (instead of matter, information and everything is information), cornucopian economists who claim that wealth is immaterial (in one sense), professed sensualists who loath monkish or Calvinist asceticism and yet want to overcome the grossness of the (organic) body once and for all […]. (Martins 2001: 21)

Thus whilst he would certainly accept that culture feels like a second skin or second nature (see, e.g., Bourdieu 2001: 3–28), he is also concerned that the brute materiality of life, especially bodies, is being disregarded (see also Wainwright and Turner 2006).[3] At root, argues Martins, *radical* social constructionism is based on an 'over-socialised view of the body' ('no extra-discursive bodies here!').[4] But it is also crucial to avoid a twin theoretical distortion: an 'over-strategic image of human beings' encapsulated in Gary Becker and rational choice theory, as well as games theory (n.d.-a: 16). Based on these foundations, Martins has advanced a critical sociology of the body, prompted by contemporary trends to 'technogenesis', coupled with what Brenner has usefully conceptualised as 'market fundamentalism' (Brenner 2006). Indeed, he has convincingly extrapolated from the post-1970s' turbo-charged capitalism (Brenner 2006) and the emergent international genetic supermarket, the rise of a physicalist biological individualism complicit with a new market-based eugenics (2007). He has warned us poignantly of the biotechnologists'

'hubris': '[M]oral imagination and civic courage of a high order will be needed to resist the tyranny of technological possibilities' (1998: 174 (see also 2007: 41)).

A 'precautionary ethic' about new syntheses of man and machine lies behind his critique (see 1996). But he also has a different, radical humanist vision, more in tune with the needs of the climate and the Enlightenment. Against extreme social constructivism, relationship-free reproduction and repressive desublimation, he imagines a Kapp-like future. In this, technology might assist those with impairments and sterility rather than developing designer babies for the elite, ectogenetic pregnancies to save the figure, cloned humans to feed narcissism and brains in a vat to evade death (2007: 18, 20). Indeed, in a Bloch-like exploration of an alternative 'principle of hope', his use of Trotsky's Promethean image of a humankind liberated from poverty, oppression, inequality and a stultifying division of labour is what stands out. Hence the memorable ending to his *Hegel, Texas* essay, in which he cites *Literature and Revolution* [1925] and the potential for many to become like Aristotle, Goethe or Marx, rather than the present flowering of the few alone, a tiny minority of 'geniuses' (1993: 236).

Digital Democracy, the Neoliberal University and Marketisation

Martins broaches the transformed relations between the market and other social institutions in various works, including those governing the latest information technologies. Perhaps the most arresting is his indictment of the so-called university reforms, particularly in the light of the university depicted by Kant, Humboldt and other Enlightenment philosophers. This earlier public university served several ends, amongst them, the cultivation of individuality, the pursuit of knowledge and the formation of members of the professions. The contemporary university, on the other hand, is understood by governments and media as pre-eminently training students for the needs of the professional and skilled labour market, along with the provision of the basic research