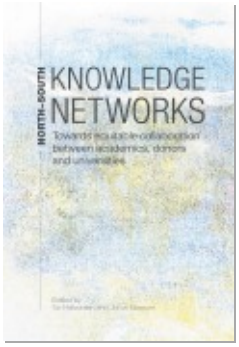
North-South Knowledge Networks Towards Equitable Collaboration Between



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CHAPTER
2

‘The first philosophers were astronomers’: Curiosity and innovation in higher education policy

John Higgins

Construction of the first phase of a massive new astronomy project is due to begin in southern Africa and Australia in 2018, at a preliminary cost of approximately US$730 million (Kahn 2015). The intention is to build the world’s largest radio telescope, one that enables astronomers to monitor and survey the sky in unprecedented detail. This means, for instance, that astronomers should be able to ‘see’ how the first stars and galaxies were formed after the Big Bang, gain a better understanding of ‘dark energy’, and help in the search for extraterrestrial intelligence.[1] In addition to facilitating this fundamental astronomical research, the project – which is one of the largest collective scientific endeavours in history – also promises to yield significant innovations and improve capacity in engineering and ICT. Scientists and engineers will have to rise to the challenges presented by the phenomenal amount of data capture, transmission and processing involved, which is expected to exceed all the data traffic on the entire existing internet.

The project – the Square Kilometre Array (SKA) – involves the building and co-ordination of hundreds of thousands of high- and mid-frequency observation dishes in southern Africa, mostly concentrated in South Africa’s semi-arid desert region, the Karoo. At the same time, and operating in conjunction with these dishes, up to a million

low-frequency antennae will be set up in Australia. As an international project, the SKA's costs will be shared by some twenty different countries, although the precise amounts to be paid by each country are still to be decided.

The decision to divide the physical location of the instrument between the two main competitors for the bid – Australia and South Africa – came on 25 May 2012, and in September of that year, South Africa's Human Sciences Research Council hosted a celebratory conference on the 'Re-emergence of Astronomy in Africa: A Transdisciplinary Interface of Knowledge Systems'. At the conference, South Africa's Minister of Science and Technology, Naledi Pandor, who fought hard for South Africa's bid to participate in the project, gave the opening address (see Pandor 2012). I begin this chapter by interrogating some of the remarks she made when framing that conference.

A striking feature of Pandor's presentation was her marshalling of powerful arguments in favour of the SKA. This was clearly a response to questions posed by organisations such as the National Science Foundation (NSF) in the USA, as well as the scepticism displayed by some of her fellow parliamentarians. At the centre of her arguments was the question: is it really desirable to devote such a significant portion of national research financing to astronomy? As the NSF put it – with the condescension characteristic of so many Northern donors: 'You are actually wasting money and Africans have no business in the astronomy sciences. Cure your people first. Feed your people first' (see Pandor 2012). As if challenges around hunger, healthcare, poverty and unemployment are not common currency for both 'North' and 'South'.

In addressing this and similar questions, Pandor chose to emphasise the economic and the ideological dimensions of the SKA project. She pointed to the potential for capturing foreign direct investment, and for boosting job creation and skills training, not only in the astronomical sciences but also in IT and a wide variety of engineering disciplines. Above all, she emphasised the desire to 'enhance Africa's scientific capacity' and its consequent standing in the world (Pandor 2012).

The success of the SKA project is likely to bring economic as well as wide-ranging political and ideological benefits to South Africa and other participating countries. In Pandor's bold vision, the SKA project

could help to enable a significant (and much needed) strengthening of South Africa's scientific and technological capacities, while improving its general standing in the global knowledge economy.

This is all well and good. In this chapter, though, I focus on a dimension of the SKA project that was (at least in my recollection and in my notes from the event) strikingly absent from Pandor's apologia. This dimension was an intrinsic interest in astronomy itself, and the potential harvest of understanding and interest that the project promises to yield to both specialists and the wider public. I examine this absence and the likely reasons for it, as a way of pointing to some of what I believe to be the ultimately damaging limitations of current higher education policy, both in South Africa, but also across the world. I hope that focusing on this absent dimension will enable us to get a better grip on the necessary and dynamic relations between curiosity and innovation that are too often marginalised by the templates that currently dominate higher education policy.

The appeal of the Hubble

Let us begin by thinking back to an immediate precursor to the SKA project, the Hubble Space Telescope, which was launched on 24 April 1990, and is still in operation. In 2010, Charles Bolden, NASA scientist and pilot for one of the early missions sent out to do some repairs and improve the Hubble's performance, wrote:

> We grossly underestimated the importance and appeal of [the Hubble] … I wish I better understood how and why it captivates people around the world in a way no other scientific instrument has before. Hubble takes us on a journey beyond what we know. It is a time machine that has managed to capture the minds and imaginations of people around the world. (Bolden 2010: 8)

Bolden seems to have focused narrowly on the Hubble as a 'scientific instrument'. He seems to have been surprised at the intensity of public

interest in astronomy and the power that it holds to 'captivate people around the world', to 'capture [their] minds and imaginations'.

And, indeed, who can not love astronomy? Is there anyone who has never looked up into the night skies with awe and wonder? Can anyone see the images made available by the Hubble, of the Sombrero Galaxy, or the birth of a star, or a black hole, without experiencing powerful feelings of wonder and curiosity? These are precisely the feelings that Bolden wanted to understand better, and the first step in my argument is to suggest that the work of the German philosopher, Ludwig Feuerbach, may help us grasp what eluded Bolden, and what Pandor neglected in her opening address.

This is, I suggest, the simple and powerful appeal of astronomy, with its grounding in the fundamental, and perhaps defining, human trait of curiosity. For this reason, I drew part of the title of this chapter from Feuerbach's line that 'the first philosophers were astronomers', which comes from his influential study, the *Essence of Christianity*, published in 1841, and then, on account of its success, was reissued with a new preface in 1843. In my view, Feuerbach put his finger on the problem identified by Bolden – the question of why the Hubble 'captivates people around the world in a way no scientific instrument has done before'. For Feuerbach,[2] the interest in astronomy runs deep, and embodies the curiosity and ability to contemplate or self-consciously reflect on the world that is widely held to be a constitutive trait of the human animal. 'Man alone,' as Feuerbach wrote (in the sexist idiom of his time),

> has purely intellectual, disinterested joys and passions; the eye of man alone keeps theoretic festivals … theory begins with the contemplation of the heavens. The first philosophers were astronomers. It is the heavens that admonish man of his destination, and remind him that he is destined not merely to action, but also to contemplation. ([1843] 1989: 5)

With his emphatic repetition of the word 'contemplation', Feuerbach signalled the binary opposition between (positive) contemplation and

(negative) action that came, in his socially situated argument, to carry much of his political criticism of the egotistical commercial society that surrounded him, as well as the theoretical emphasis he wished to place on the priority of contemplation over action.

Feuerbach was an iconoclastic figure who challenged the received ideas of his time. To his younger followers, his work was particularly important as it seemed to successfully demolish the theological underpinnings and consequent legitimacy of the authoritarian Christian state of Frederick William IV's Prussia.[3] Feuerbach went so far as to question the Christian belief in the immortality of the soul, and argued that the essence of religious belief was nothing other than the essence of humanity, projected onto the idea and attributes of a Christian deity. In brief, and as he put it, 'Man' – and this is the 'mystery of religion' – 'objectifies his being and then again makes himself an object to the objectivised image of himself thus converted into a subject' (Feuerbach [1843] 1989: 29–30). In the early 1840s, as Engels famously put it, 'Enthusiasm was general; we all became at once Feuerbachians' (Engels [1888] 1977: 592). Marx similarly insisted that it 'is only with Feuerbach that positive, humanistic and naturalistic criticism begins' ([1844] 1992: 281).

Despite Feuerbach's considerable influence in his own time, it is probably true to say that his name is all but unknown today outside the confined conversation of a small circle of professional scholars. For those who do know of him, it is mainly as the object and addressee of one of the shortest yet most influential texts in the Western philosophical and political canon, Marx's *Ad Feuerbach,* or as it has become known, his *Theses on Feuerbach*.

Marx's *Theses on Feuerbach*

Many have noted the importance of the *Theses on Feuerbach* for orthodox Marxism.[4] Engels, when publishing some hastily scribbled notes as an addendum to his *Ludwig Feuerbach and the End of Classical German Philosophy*, canonised them as 'invaluable … the first document in which is deposited the brilliant germ of the new world outlook' (Engels

[1888] 1977: 585). Most other accounts have followed suit, up to and including Althusser's admittedly more complex and conflicted analysis of the relationship between Marx and Feuerbach.[5]

Let me instead isolate and examine just one dimension of Marx's argument in the *Theses:* the binary opposition between contemplation and action that Feuerbach proposed, and that Marx sought to resist and reverse. I hope to show that both this binary opposition and Marx's reversal of it are more complex than they might seem, and also to demonstrate why these arguments are important for considerations of the SKA project and the reigning canons of higher education policy.

In Thesis XI, the final and perhaps most cited of the *Theses on Feuerbach,* Marx famously wrote, 'Philosophers have only interpreted the world, in various ways; the point is to change it' ([1845] 1992: 423). With this closing aphorism, Marx summed up many of his frustrations with Feuerbach, and many of his concerns about his own formative grounding in philosophy.[6]

With regard to Feuerbach, it is important to recognise that Marx's frustrations existed on at least two distinct (albeit related) levels of theory and practice. On a practical level, Marx was disillusioned by Feuerbach's refusal to engage more actively in the ongoing political struggle. On 13 March 1843, Marx complained that Feuerbach 'refers too much to nature and too little to politics' (Marx and Engels 1975: 400). In October of the same year, Feuerbach even declined Marx's suggestion that he write an article criticising Fredrick William IV's appointment of (the once radical but by then conservative) FW Schelling to Hegel's former Chair of Philosophy at the University of Berlin, with the mandate to 'stamp out the dragon-seed of Hegelianism' (Wheen 2000: 54).

Feuerbach did, indeed, interpret the world differently from the ways in which his own mentor, Hegel, had done. In theoretical terms, he sought (as did Marx in following him, and in seeking to extend and correct his theory) to replace Hegel's mystical idealism with realist materialism. This materialism was to be firmly grounded in a sensuous apprehension of the external world, and constituted a renewed scientific empiricism, alert to what Feuerbach regarded as exciting developments in the natural sciences.[7]

For Marx, though, as he put it in the first of the *Theses*, Feuerbach shared the 'defect of all hitherto existing materialism', in that 'the thing, reality, sensuousness, is conceived only in the form of the *object or of contemplation*, but not as *sensuous human activity*, practice, not subjectively' (Marx [1845] 1992: 421, emphasis in original). For Marx, Feuerbach remained trapped in the passive empiricism that Hegel's active idealism had – for all its faults – superseded. In this empiricism, the subject is unable to act, and becomes merely a passive receiver of experience. From this perspective, contemplation is simply *Anschauung* (the mirroring of an external world), and the human subject's capacity for agency, labour and the transformation of the external world – precisely the elements of Hegel's thought that Marx praised and wished to retain – go unrecognised.[8] For Marx, Feuerbach's emphatic emphasis on contemplation over action missed this key dimension in Hegel's thought – the dimension of 'sensuous human activity, practice'. From this perspective, Feuerbach was guilty of regressing to an unmediated form of pure empiricism, in which there was no possibility of articulating the necessary link between theory and practice.

Indeed, Feuerbach's *Essence of Christianity* set up a binary opposition between contemplation and action, in which the sphere of contemplation was overemphasised, and the dimension of action was unduly denigrated. For Marx, Feuerbach was mistaken in seeing the theoretical or 'contemplative' attitude as 'the only genuine human attitude', and in setting against this an idea of practice negatively 'conceived and fixed only in its dirty-Judaical manifestation' (Marx [1845] 1992: 421–422).

In using the phrase 'dirty-Judaical', Marx was referring to the ways in which the negative pole of Feuerbach's binary opposition was charged with a racial bias that ran deep in his thinking, and, indeed, constitutes a significant dimension not only of his history of philosophy, but of German and European philosophy as a whole.[9]

Feuerbach's history of philosophy, which drew on but diverged from Hegel's influential narrative, identified Jewish thought as the main culprit in the wellspring of obsessive egotism that characterises modern commercial society. In the racialising manner of his day, Feuerbach attributed this to the Jewish people, remarking that 'Utilism is the

essential theory of Judaism', ([1843] 1989: 113). He went on to argue that

> the Jews have maintained their peculiarity to this day. Their principle, their God, is the most practical principle in the world, – namely, egoism; and moreover egoism in the form of religion. Egoism is the God who will not let his servants come to shame. Egoism is essentially monotheistic, for it has only one, only self, as its end. Egoism strengthens cohesion, concentrates man on himself, gives him a consistent principle of life; but it makes him theoretically narrow, because indifferent to all which does not relate to the wellbeing of self. Hence science, like art, arises only out of polytheism, for polytheism is the frank, open, unenvying sense of all that is beautiful and good without distinction, the sense of the world, of the universe. The Greeks looked abroad into the wide world that they might extend their sphere of vision; the Jews to this day pray with their faces turned towards Jerusalem. ([1843] 1989: 114–115)

For Feuerbach, 'Practical perception is a dirty perception stained with egotism' ([1843] 1989: 196, translation amended), while action is negatively identified with a 'purely practical view' that 'subordinates Nature only to the ends of egoism'. This egoism 'contains and expresses nothing but the command to make nature – not an object of thought, of contemplation, but – an object of utilisation' ([1843] 1989: 117). In this, Feuerbach covertly criticised the emerging commercialism of his day, but in terms that were highly charged with the anti-Semitic thinking of his time.[10]

Against this 'purely practical view', Feuerbach put forward a 'theoretic view of Nature', and its embodiment of the precepts of the Greek philosopher Anaxagoras, that humans are 'born to behold the world' and that the 'standpoint of theory is the standpoint of harmony with the world' (Feuerbach [1843] 1989: 113).[11]

For Marx, of course, theory never was, and could never be, 'a standpoint of harmony with the world'. Rather it was a means of analysing a

world that might present itself as harmonious, but only so as to conceal its cracks and rifts, and its destabilising inequalities.[12] Little wonder that in establishing his theoretical and political distance from Feuerbach, Marx reversed the polarity of Feuerbach's binary opposition, shifting the emphasis decisively towards practice, and insisting on the 'significance of "revolutionary", of "practical-critical" activity' (Marx [1845] 1992 Thesis I: 422). Accordingly, Marx asserted that 'Man must prove the truth, i.e. the reality and power, the this-sidedness of his thinking in practice' (Thesis II: 422), and argued that 'All social life is essentially practical. All mysteries which lead theory to mysticism find their rational solution in human practice and in the comprehension of this practice' (Thesis VIII: 423). Marx's theoretical and political critique of Feuerbach came together in his famous statement, already cited: 'Philosophers have only interpreted the world, in various ways; the point is to *change* it.'

With a slight change of phrasing, much the same sentiment could be said to animate contemporary higher education policy and its attitude towards academic study. Policy-makers might argue that academics have only interpreted the world; the point is to change it, or, more specifically, the point of higher education is to innovate and contribute to the growth of the economy; that is what change is.[13]

As Roger King (among others) observed:

> Everywhere we find the view (not necessarily well-evidenced) that universities help to provide economic well-being and comparative national advantage through providing the research and the education personnel necessary to enable countries to compete effectively in the global economy. (King 2010: 37)

Similarly, Scandanavian scholars Olsen and Maassen have emphasised that academic teaching and research have been reduced to 'key instruments for economic growth and mastering international competition'. Consequently, as they have observed, the 'possible role of universities in developing democratic citizens, a humanistic culture, social cohesion

and solidarity, and a vivid public sphere' has been almost entirely obliterated (Olsen and Maassen 2007: 7, 9).[14]

The emphasis on applied research, to the exclusion of anything else, is evident everywhere. Note, for example, the World Bank initiative on promoting excellence in the applied sciences in Africa and the recommendations of the 2012 ministerial review of the science, technology and innovation landscape in South Africa, which openly privileges 'applied sciences and experimental development' over other forms of learning and research (MRCNSC 2012). In my view, this emphasis on practice over theory, or applied science over curiosity-driven research, repeats the dynamics of Marx's reversal of Feuerbach's binary between theory and practice, contemplation over action. It is therefore worth returning to Marx's discussion as a way of understanding some of the limitations of the dominant forms of contemporary higher education policy.

Given the reappearance of this opposition between theory and practice, with practice now positively charged, it is worth attending to some of the conceptual difficulties involved in the reversal or inversion. A useful starting point is one of Althusser's remarks concerning Marx's not infrequent recourse to reversal or inversion to characterise his process of critical thinking. With characteristic textual insight, Althusser pointed to the simple fact that the figure or image of inversion or reversal can be 'no more than an image and has neither the meaning nor the rigour of a concept' (Althusser and Balibar 1977: 153). This cautionary note (made *à propos* Marx's general relation to Hegel) is particularly important when it comes to thinking through the formulations of a central canonical text such as the *Theses on Feuerbach* where, as argued above, Marx attempted to invert Feuerbach's binary opposition of theory and practice.

As I have argued elsewhere (see Higgins 2009), canonical citation has a tendency to reduce the complex textuality at work in thinking and writing to the transparency of a pure and authoritative statement. Acting in this way, it embodies the policing functions of canonicity and is generally intended to close an argument rather than open it up for further analysis. Thus the process of potential understanding is

brought to a halt in a way that is both entirely arbitrary and yet culturally (and politically) sanctioned.

The reduction of real textual complexity to the transparency of pure and authoritative statement is particularly apparent in many casual readings (or rather citations) of the *Theses on Feuerbach*. In particular, it is evident in the fact that Thesis XI and its recapitulation of the theory/practice opposition has come to stand as a rallying cry or *mot d'ordre* for many orthodox Marxists.[15]

Nonetheless, going against the grain of an orthodox interpretation, which takes the primacy of practice over theory for granted (as in Stalin's blunt statement that 'theory must serve practice'),[16] a number of commentators have pointed to the real complexity of thought and argument in the hastily scribbled and incompletely articulated *Theses*. This is particularly the case for Thesis XI and its implicit articulation of the theory–practice opposition.

Antonio Gramsci (1978: 334) for instance, argued (against Croce and others) that it was far from Marx's intention to maintain such a binary opposition, and to simply set a commitment to 'practical action' against a commitment to philosophical thinking and analysis. Similarly, in one of the most thorough analyses of the *Theses* that we have, Ernst Bloch insisted that Marx's endorsement of practice must not be confused with an American-style pragmatism, which claims that 'truth is nothing more than the commercial usefulness of ideas' (an apt enough description of the brute core of contemporary higher education policy) (Bloch 1986: 275). Real practice, insisted Bloch, 'cannot take a single stride without having consulted theory economically and philosophically' (277), and he pointed (quite rightly) to the example of Marx's *Capital* which, even on the most cursory reading, embodies something very different from an unthinking commitment to action as an alternative to theory and patient analysis. *Capital* – and indeed Marx's work as a whole – surely shows the need for the most 'painstaking examination' and 'philosophizing contextual exploration of the most difficult reality' (Bloch 1986: 278).

Holding theory and practice as alternatives in a binary opposition, no matter which way round, betrays the complexity of the relations between the two that Marx's work sought constantly to demonstrate.[17]

What is too easily lost in the binary opposition – whichever way you play it – is the necessary interplay between theory and practice. This was the conclusion of all but the most sloganeering of Marxist thinkers.

But is it the conclusion of higher education policy-makers today? Certainly, Minister Pandor's failure to name anything other than the practical benefits and spin-offs of the SKA project in her keynote speech highlighted the pressures on state officials and policy-makers to acknowledge application and not investigation, practice and not theory, conclusion rather than curiosity. The 'most difficult reality' for all those who wish to pay more than lip-service to enabling innovation is that innovation so often emerges from the unintended consequences of research and enquiry. It is therefore crucial to ensure that a portion of academic enquiry is devoted to pure and non-instrumental research.

After all, we would do well to remember that – viewed from a Feuerbachian perspective – the emergence of the natural sciences can be read as an unintended consequence of the deep human curiosity about the stars. Over time, this bifurcated into the two distinct modes of thinking and analysis that we now call astronomy and astrology. Who would have thought that from that pure, driving curiosity about the heavens, the extraordinary international SKA project would emerge? I submit that part of our enthusiasm for this project should be to celebrate human curiosity, and to recognise all that is implicit in Feuerbach's observation that 'the first philosophers were astronomers'.

Ultimately, active curiosity constitutes the middle ground between too simple a binary opposition between contemplation and action, and must be recognised as *central* rather than marginal to higher education policy and practice.

Notes

1 For a full account of, and update on, the project, see the SKA website.

2 As for others, in a tradition extending from Aristotle: for an extremely useful general survey of the tradition, see Fisher (1998), while for a discussion

of astronomy in relation to curiosity, see Adam Smith's 'Essay on Astronomy' (1980).

3 For a useful placing of Feuerbach's politics in the context of their time, see Breckman (2001).

4 For detailed analysis and useful commentary, see Labica (1987).

5 Much of Althusser's work was concerned to repeat, in a more contemporary idiom, the classic orthodox Marxist claims for Marxism as a science, with the breakthrough coming via Marx's decisive break with Feuerbach in and around the Theses. However, Althusser was also consistently and repeatedly drawn to some elements of Feuerbach's thinking. See, in particular, how his interest in Feuerbach's projection theory of religious belief – central to the Essence of Christianity – anticipates the later theory of ideology in 'On Feurbach' in his *The Humanist Controversy and Other Essays* (2003).

6 Marx's remarks were addressed as much to himself as to his former philosophical mentor. In particular, the relationships between philosophy and action are central to Marx's thinking at this time, and prompted in part by his collaborator Moses Hess's 'The Philosophy of the Act' (Hess ([1843] 1964)).

7 For details of Feuerbach's interest in and training in the natural sciences of the nineteenth century, see Wartofsky (1977).

8 As Marx put it, 'Hegel conceives the self-creation of man as a process, objectification as loss of object, as alienation and as supersession of this alienation ... he therefore grasps the nature of labour and conceives objective man – true, because real man – as the result of his own labour' (Marx [1844] 1992: 386, emphasis in original).

9 For a useful account of this in German Idealism, see Mack (2003).

10 Marx – although far from free of casual anti-Semitism, despite his own Jewish blood – pointed out that it is not Judaism that is the problem, but rather the commercial system in which it is embedded and performed. As he argued in his reply to Bruno Bauer's tract, On the Jewish Question, 'Emancipation from haggling and from money ... would be the same as the self-emancipation of our age' (Marx [1843] 1992: 236, emphasis in original).

11 In his *History of Philosophy* ([1892] 1995: 319), Hegel famously praised Anaxagoras as 'a sober man amongst drunkards', as the one who opened

thinking to truly philosophical speculation and credited him with the crucial recognition that philosophy had to deal with the analysis of totality.

12 This point is well made by Emmanuel Renault, who rightly noted how 'philosophy will fight against the world by exposing the irreconcilable contradictions, of which negative dialectic is the theory' (Renault 1995: 39, my translation).

13 For a fuller discussion of this element in higher education policy, see my book, *Academic Freedom in a Democratic South Africa*, particularly Chapter 5, 'Making the case for the humanities' (Higgins 2013).

14 For a detailed account of the democratising features of humanist education, see Nussbaum (2010), and for an excellent general critique of current trends in higher education, see Collini (2012).

15 Labica's wise conclusion is worth noting here, and particularly his emphasis on how 'the different theses are much more complex than they at first appear', and that on many occasions their different interpretations mark the line between orthodoxy and heterodoxy in the Marxist tradition (Labica 1987: 125, my translation).

16 Quoted in Gramsci (1978: 334).

17 For two useful recent guides to the complexity of Marx's thinking in *Capital*, see Harvey (2010) and Jameson (2013).

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