How has South Africa's scientific landscape changed?

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This volume, produced by the Academy of Science of South Africa, is a particularly useful survey of the current state of a range of scientific disciplines in South Africa, including the humanities. Although common themes emerge in nine-self contained chapters, the book is not unified by a common analytical or conceptual approach; it was not intended to be so. Perhaps this is why the editors conclude with the plangent comment: `There are likely few who have had the perseverance to read this book from cover to cover…'.

A thoughtful introduction by Johann Mouton and Wieland Gevers provides some historical context and synoptic comment. They offer telling empirical data on key questions, such as expenditure on research and development, research output, citation indices in foreign and local journals, intellectual demography, and comparative institutional strengths. Not surprisingly, the volume provides overwhelming evidence to show that the system of apartheid had a far-reaching effect on the development of the sciences in 20th century South Africa and that its legacy continues to exert a baneful influence on the present.

However, the story is not quite so straight-forward. In the case of many powerful disciplines – physics, chemistry and engineering, for example – the modernising era of high apartheid proved a boon. Large-scale state investment in areas considered vital to military security, coupled with prestige projects deemed crucial to white national pride, supported a large and often highly successful research infrastructure. The late-apartheid period (post-1976) and the vogue for commercial solutions in the 1980s, led to a withdrawal of support from many areas of `basic' research and an adoption of market-based applied research. In the case of the CSIR, the effects were mostly negative. By contrast, the first years of post-apartheid governance were generally kind to science. Economic growth and fresh state approaches to the oversight and management of scientific research, led to a significant increase in funding in real terms from a low in 1993; funding now approaches 1% of GDP. Major initiatives, such as the Square Kilometre Array radio-telescope and the Pebble Bed Modular Reactor, have benefited from this increased investment. The recovery of international credibility and goodwill has also been a powerful agent of progress.

This broad narrative of renewal is by no means consistent across the sciences and it is not difficult to discern serious problems and challenges. Fairly typical is the report on the state of earth sciences which, after making a strong case for South Africa's `unique and globally relevant natural history', goes on to bemoan `funding constraints, increasing student numbers, pressure to redress past imbalances in the racial composition of the student population, and an ageing, predominantly white male teaching staff'. Declining resources are probably a global phenomenon. Nevertheless, the problem of inducing rapid social `transformation' in educational institutions (which are by their nature conservative and slow to embrace change) has been a particular challenge in the post-apartheid era. According to Gevers and Mouton, black authors, who now constitute a third of university faculty, contribute only 10% to knowledge production. Ageing of the faculty base is an associated problem: in many scientific fields, published research by authors over 50 years of age constitutes half the total corpus, while output by the under-30s is generally on the decline.

This volume contains a wealth of information, which scholars with an interest in particular disciplines will find of great interest. Yet, the volume's 'survey and snapshot' approach seems to be a distinct limitation. Readers with more synoptic interests have to read between the lines. Some chapters are written in an upbeat style, albeit with hints of 'boosterism', while others are cast in more pessimistic tones, which may or may not reflect the outlook and age of their authors. The jointly-written chapters tend to be less well presented than those written by a single author, though they are not necessarily less informative. Few chapters are deeply contextualised or historicised. Exceptions include the treatment of the humanities and social sciences by Peter Vale, as well as archaeology and palaeoanthropology, by Alan Morris. Although the humanities and social sciences are characterised dispiritingly as historical `orphans', there are underlying parallels with the natural sciences: both benefited to some extent from the `nationalisation' of knowledge under apartheid, even if, in the case of the humanities and social sciences, it was the culture of opposition to apartheid that underpinned its moral and intellectual drive.

This book largely achieves what it sets out to do, despite the constraints of the discipline-specific chapter breakdown. It would have been even more interesting had the authors attempted to develop a comparative or thematic approach. Attention to questions, such as the changing role of scientific institutions, funding patterns, applied versus fundamental research, and the effects of intellectual isolation and subsequent reintegration into the world community, could have been further elaborated, had they been considered within more capacious frames of reference. Integrating the role, importance and effect of 'indigenous knowledge', a term which is briefly mentioned in several chapters, would have been relevant and insightful. Continuing links with the pre-apartheid era, combined with South Africa's unique natural, physical and historical endowment, continue to make the country internationally attractive as a scientific 'laboratory'. Yet, this aspect of the global–local dynamic is insufficiently developed. Fortunately, there is sufficient detail contained in this volume to help scholars interested in such ideas develop these and other concerns more systematically. ■

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