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Some reflections on the SAJS – an unbroken thread in our national life since 1905

Significance:

A scholarly journal that is national in its base and truly multidisciplinary in its scope is a key instrument for bridging not only the divides between disciplines but also those between policymakers and policy implementers, on the one hand, and scientists and scholars, on the other. The *South African Journal of Science* has achieved this in different ways during its 120-year history, and is set to continue to play an essential role in the future.

The *South African Journal of Science* (SAJS) has made available for 120 years – through continuous publication, distribution and accessible library storage and access – many of the big ideas of a host of South African scholars from many disciplines, always recorded in words that have been carefully chosen to convey meaning both to a broad range of academic readers and to the public at large. In each case, those words have supplied the evidence and/or the argument for the ideas put forward: the essence of ‘Science’. The format and publication mode has not always been the same through this long history, as will be described below, but the basic intention of multidisciplinary, excellence and relevance (local and more broadly) has been constant.

I have had an association with the SAJS for over 50 years. First, it was as an author who contributed research papers that I thought were of interest to a wider audience than was the usual case. Later I wrote many articles for the ‘front section’, after negotiating the transfer of the Journal to the Academy of Science of South Africa (ASSAf) while chairing the ASSAf consensus panel on scholarly publishing in South Africa, and becoming, for a while, the Chair of the SAJS Editorial Board. The pieces I wrote had mostly to do with ASSAf reports and other activities, including a Presidential Lecture in 2003¹ on why ASSAf is an academy of ‘Science’ and not of ‘Sciences’. There was also a guest leader on ASSAf’s 20th anniversary in 2016.² I had a further spell as an Associate Editor for medical/health papers, and most recently I have supplied a number of book reviews. You could say the SAJS is in my blood. Why?

The first reason is that every scientist, anywhere, and especially one who teaches at both under- and postgraduate levels, needs to cover both the deep science of the research projects currently under way, as well as the highlights of progress in the entire discipline concerned, and even other disciplines. This is for the maintenance and indeed continuing expansion of both specialised and generally contextual academic authority. Using automated services prompted by key words launched into the cybersphere usually ends in a narrowing of perspective, and reduction of the ability to perform what is loosely called disruptive science, where germs of new ideas in one discipline or field are often creatively stimulated in another by reading ‘outside the box’. A better solution in my experience is to choose a limited set of journals, regular informed scanning of which will give a sense of active control to the ‘keeping up with the literature’ process, and allow a secondary back-up system to be designed to catch ‘the pearls’ that may appear from time to time in journals outside of the favoured set.

An important elaboration of this kind of balanced reading practice can be found in the prominent role that the two leading international multidisciplinary journals, *Nature* and *Science*, play in the daily lives of the majority of working scientists worldwide. They are designed selectively to attract articles of great actual or potential significance in many fields, which are published quickly in weekly issues, each with abstracts that summarise their message in comprehensible language, plus frequent ‘News and Views’ perspectives on the significance of the new findings and ideas behind them. The full articles are there to digest when interest is sparked. Few discoveries of real importance in any field outside of the humanities will escape appearing in this convenient and readily digestible form. A number of other journals play similar if much lesser and more regional roles. In 2005, it was shown in a purely bibliometric study that the SAJS ranked 14th amongst these kinds of journals in the world, ahead of every other developing country³, the result of three decades of effort mainly by Dr Graham Baker, a new full-time editor who had been assigned by the editor and chair of *Nature* to convert a then languishing publication into a regional version of itself⁴. For a scientist working in South Africa, it becomes a very sensible thing to add the SAJS to the two international leaders on one’s regular reading list to ensure that one keeps up with key developments in the country where one is working. The SAJS strives to offer exactly what this recommendation presupposes – content that is maximally useful to two categories of its most crucial readership, working scientists, scholars and students, on the one hand, and policymakers at various senior levels, on the other (as elaborated further below). And this would be the case particularly within and for this country, but also for possible use by many other African countries.

There are two determinants of what appears in the SAJS at the present time: the authors who decide to submit their manuscripts to this rather than to another journal (and who may be enticed to do so by a well-publicised journal policy), and the editors’ discretion in deciding to publish a paper supported by the independent referees concerned, in the (very likely) event that there are more submitted papers that are thus supported than there is room for in the Journal’s present bi-monthly digital space allocation. The ‘regional go-to multidisciplinary journal’ model would predicate a ‘front section’ of editorials, selective book reviews and obituaries, summaries of ASSAf consensus and forum reports (which I might add have been lacking lately) and public statements, and ‘commentaries’ of a particular kind (see below). The ‘back section’ would comprise peer-reviewed research letters, articles and highly selective reviews, all with crystal-clear abstracts, and all reporting new work that is of interest beyond a narrow circle, ideally a solid study in one discipline that has obvious resonance in others, or a study that successfully combines the perspectives and methodologies of more than one discipline.

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Producing the above content in the SAJS ensures that it retains its significant place in South Africa's science/knowledge system, and caters for the one large category of its readership already mentioned – the scientists and scholars and their graduate students, etc. But what about the other category also mentioned – the policymakers, at various senior levels?

Like the two international leaders, *Science* and *Nature*, the SAJS also seeks to bring scientific insight to those who have control of the state resources to develop the nation in all its facets. Unlike the two leading journals, however, the SAJS is published by a national science academy. When ASSAf was formed in 1996, it resolved to use the combined and considerable multidisciplinary strength of its Membership primarily for the benefit and advancement of society, meaning the people of this nation – 'Science for Society'. It has developed a number of modalities to achieve this goal, ranging from major 'consensus studies' conducted by multidisciplinary panels generating policy advice by focusing on already existing evidence, to convened forums doing the same thing but in a shorter time frame, and regular or ad hoc commissioned policy papers or public statements. This approach creates an additional role for the SAJS as an ASSAf publication – publishing evidence-based, authoritative material that can and should influence public policy. The Academy has already made many improvements in the editing, management, and distribution of the Journal, including sending out thousands of notices about the contents and import of new issues, many reaching precisely the kinds of policymakers who can benefit from them in their areas of responsibility. These innovations in relation to the SAJS have been ably summarised by my successor as Executive Officer of ASSAf, Roseanne Diab.⁵ But there are more tales to tell.

I was long aware that the Journal had originally (from 1905 to 1949) been quite a different animal from what it is today. It was first published by a newly established local body then called the 'South African Association for the Advancement of Science', colloquially shortened to S₂A₃, during a period of intense discussion and planning activity involving the still-separate but adjacent four British colonies recovering from the devastation of the Anglo-Boer War. [In many ways this resembled the multiple planning forums of the early 1990s before the democratic transition in South Africa.] The annual meetings of the S₂A₃ continued after the Union and were held in various cities. They mainly comprised invited lectures by prominent scientists and scientifically literate public servants, administrators, engineers and industrialists. Manuscripts of the presentations at each meeting were edited and published in one annual volume of the SAJS. The S₂A₃ soon developed 'Sections' to cater for more discipline-specific material, some of it representing articles presenting original research, but always published the broad-based but highly authoritative 'presidential lectures' of each section and that of the overall S₂A₃ president.

I have taken the trouble (over some months) to go through all the since-digitised issues of this kind that were published between 1905 and the present. [I must admit that I was prompted to do this by my careful scrutiny of Beinart and Dubow's magisterial book entitled *The Scientific Imagination in South Africa*⁶ which I had the privilege of reviewing for the SAJS⁷, and which referred frequently to papers published in the SAJS at various times and in various contexts.] I can honestly say that it was a journey worth taking. As somebody who has spent most of his working life as a scientist but was fortunate enough to be initially schooled by great scientists who were acutely aware of the history of ideas, I could see a great tapestry of exploratory endeavour with a constant developmental focus for a young country. What is more, that focus was clearly much more inclusive of the whole population than I had anticipated, taking into account the major background issues of historical colonial expansion and the subsequent consolidation of a white industrialised 'nationhood' in most of the country requiring the labour of its other people but granting them no rights. A number of articles addressed such issues in a variety of ways, but by far the majority of the lecture-articles represented the sorts of unbiased and inclusive expert reviews of soil quality, insect control, mining technology, natural resources, skills development, transport, etc. that any government would have been very pleased to have at its disposal. Many of the civil servants featured as published

lecturers, including one prime minister, several ministers, and many heads of state entities and institutions, were clearly able to hold their own intellectually with the scientific elite of the country.

It was interesting to find that another watershed in the country's history, World War II, also featured a peak of planning and re-organisation, shown by a published symposium in 1942 on 'thinking ahead for the postwar period'. This began in Volume 39 of the SAJS with a double act by the giants behind then prime minister Smuts's state-led industrial-based development (Eskom, Iscor, the Industrial Development Corporation, CSIR, etc.), Drs HJ van der Bijl and HJ van Eck, both with extremely impressive academic credentials. Their concise but highly significant papers were forward-looking, remarkably liberal politically (for their time), and authoritative in a way that signified clarity of vision and confidence.^{8,9} The then Liberal Party's Margaret Ballinger weighed in with views on social upliftment and widening political rights that did not seem at odds with the mood of the symposium.¹⁰ Finally, Minister JH Hofmeyr, also a considerable intellectual, summarised the consensus views and mood of the meeting and added his own angles on many aspects.¹¹ Good things may sometimes come from great disasters, but the country's political history most unfortunately took a different course in this case, despite maintaining the strong industrial momentum for decades in the ways so well chronicled by Beinart and Dubow. The main point to be made here is that these speakers were addressing a gathering of scientists and scholars, and that the context was one of spreading the powerful developmental notion of a "commonwealth of knowledge", the heading of one of Beinart and Dubow's chapters relating to this time. It is clear from the record in the SAJS articles that the link between the then government and the scholarly community, defined as including highly qualified applied-science practitioners as well as full-time academics or researchers, was very close and direct at that time.

A particularly cogent example of this kind of 'consilience' (the word coined by Edward O. Wilson to signify the essential unity of all knowledge despite the need to address particular classes of problems with structured 'disciplines'¹²) is the presidential lecture given in 1934 by the remarkable geologist Alex. L. du Toit.¹³ He was then the main authority on South African geology ('The Geology of South Africa', 1926¹⁴), including applied aspects relating, for example, to mining, and contributed decisively to our modern conceptual understanding of continental drift through his detailed comparison of strata and many other features in South America, Australia and Africa ('The Wandering Continents', 1937¹⁵), which topic was the subject of another significant article in the SAJS.¹⁶ The aforementioned presidential lecture was entitled 'Some Considerations upon Agriculture and Mining in South Africa' and dealt in great depth with the implications of the underlying geological formations and ongoing processes on what were then the two principal economic drivers of the country. Du Toit's grasp of matters not strictly in his own domain was staggering (he had obviously taken good advice from trusted colleagues) – climate, geography, water resourcing, crop growth, stock farming and economics in the case of agriculture, and prospecting, mining technology, markets and costs in that of mining – all were dealt with in a comprehensive fashion but always in relation to what the author really knew about, namely the earth under our national feet, so to speak. Much of the news was not good, but solutions were proposed.

There are many other examples of outstanding scientists and scholars providing contemporary 'master classes' of this kind, recorded forever in the pages of the SAJS in its first half-century. [They differ from the modern 'review article' which is usually a summary and synthesis of a sub-field of a discipline, and may have little to interest or teach people from outside the sub-field concerned.] Because the papers started life in each case as a lecture in the context of an audience intensely committed to the development of a young country, the lecturers/authors usually strongly contextualised their presentations/articles in precisely the way Du Toit did in his 1934 presidential lecture on agriculture and mining in relation to local geology. The question arises as to whether present-day Alex du Toits can still find an opportunity to submit and publish such papers, and have them be taken seriously by policymakers? Present-day South Africa has a much more diverse set of organisations and entities that offer public lectures at various times of the year, such as the National

Science and Technology Forum; the National Research Foundation; the Council for Scientific and Industrial Research; the Human Sciences Research Council; the residual S₂A₃ functioning mainly in Gauteng; we have two sectoral academies, the Royal Society of South Africa and the Suid-Afrikaanse Akademie vir Wetenskap en Kuns; an Academy of Engineering of South Africa; and our inclusive national science academy, ASSAf, the only one with a well-developed multidisciplinary journal which is the SAJS. Cooperation amongst several or all of these bodies could in principle resurrect a single annual conference, or a family of authoritatively convened and coordinated public lectures that could serve to generate the kinds of powerfully insightful and persuasive lecture-publications of the glory days of the S₂A₃ and the SAJS... but is it actually necessary?

The editors of the SAJS over the last 50 years, assisted more recently by associate editors to broaden the catchment for valuable submissions, have made every effort to garner and publish potentially policy-influencing science, and my perusal of all the issues in this period has confirmed a steady trend to the kinds of papers that do precisely what those published in the first half-century of S₂A₃ annual conferences did – papers with an intense focus on national development and its promotion through the application of scholarly and scientific thinking. Most welcome is the inclusion in a seamless manner of many papers of this type from the humanities and social sciences. Authors are essentially self-convening themselves into contributing papers that build a ‘commonwealth of knowledge’. I was actually astonished to note the extent to which the goal has been achieved of making sure that a regional ‘must-read’ multidisciplinary journal also plays a vital national role of bringing solutions to the table that are supported by evidence and backed by scholarly authority. The Academy as publisher of the SAJS thus makes a major bottom-up contribution to policymaking, in addition to its other modes of generating reliable advice on national problems impeding the building of a good future for *all* the country’s citizens.

Declarations

There are no competing interests to declare. There is no AI or LLM use to declare.

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