

The Wartime Correspondence (1939–1945) between South African Geologist A. L. du Toit and Indian Geologist D. N. Wadia

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Abstract

A. L. du Toit (1878–1948) was one of the most famous South African geologists, known internationally for advocating the idea of Continental Drift. D. N. Wadia was an outstanding Indian geologist, well known for his contributions to Himalayan geology and his book entitled “Geology of India”. Du Toit and Wadia met in 1938 at the Indian Science Congress held in Calcutta, after which they corresponded during the Second World War, exchanging books and papers. Their letters reveal their war-time preoccupations with finding rare mineral resources. Because of Wadia’s posting to Colombo as Government Mineralogist, du Toit questioned him with regards to the fit of Ceylon (Sri Lanka) in relation to other fragments of the Gondwana supercontinent, like India, Madagascar and Antarctica. This correspondence is a rare example of “South-South” co-operation between two eminent geologists from countries that were then part of the British Empire.

Key words: du Toit, Correspondence, Gondwana reconstruction, Palaeoposition of Ceylon, Strategic minerals, Wadia, World War II.

1 Introduction

Dr. Alexander Logie du Toit (1878–1948) (Figure 1) was one of South Africa’s most famous geologists, being the author of three highly influential, as well as controversial, books: “The Geology of South Africa”, “Geological Comparison of South America and South Africa”, and “Our Wandering Continents” (du Toit, 1926, 1927, 1937). Du Toit was an enthusiastic supporter of the ideas of Alfred Wegener (1924), concerning the former existence of large supercontinents, and their breaking apart through

the process of continental drift. Du Toit started his professional career as a field geologist with the Geological Survey of South Africa and its precursors (1903–1919), followed by a stint as hydrogeologist, working for the Irrigation Department in South Africa (1919–1927). He then became Consulting Geologist for De Beers, the world’s largest diamond mining and exploration company, from which he finally retired to his home in Pinelands, Cape Town, in 1941 (Gevers 1950). In 1937 du Toit spent four months travelling to Europe, where he attended the 17th International Geological Congress in Moscow, USSR (Master 2017). At this meeting he should have made contact with Dr. D. N. Wadia, of the Geological Survey of



Figure 1 South African postage stamp, issued in 1991 showing Dr. A. L. du Toit, and his palaeocontinental reconstructions.

India, who was supposed to present a paper on Tectonics of North India in the Session on Tectonics of Asia, which du Toit had attended. However, Wadia was not allowed to attend this congress by the Indian Geological Survey (Gee 1937), although his paper nevertheless was published in the conference proceedings (Wadia 1940). In December 1937 du Toit travelled to India, where he spent two months, visiting various diamond projects, and attending the Jubilee of the Indian Science Congress, which was held in Calcutta (now Kolkata) in January 1938, with the Geology Section under the Presidency of D. N. Wadia.

The Indian Science Congress Association had been founded in 1913, with its main objective being to promote and advance the cause of science in India, through the means of holding Annual Science Congresses, and the publication of proceedings, journals and transactions. Its inaugural annual meeting held in Calcutta on 15-17 January 1914, had been modeled on those of the British Association for the Advancement of Science. In 1935, at the initiative of the Indian Science Congress Association, a National Institute of Sciences of India (NISI) was established as an all-India body of scientists, with the object of promoting growth of science in India and harnessing scientific knowledge to national welfare (Parthasarathy and Singh, 1992). The Silver Jubilee of the Indian Science Congress was to be held in January 1938 in Calcutta (where it was originally founded), under the Presidency of

Lord Ernest Rutherford, but after his premature death in October 1937, Sir James Jeans, the renowned astronomer, took over as President. For the Silver Jubilee Congress, it was decided to invite, for the first time, foreign scientists, among whom was Alex du Toit.

Darashaw Noshewan Wadia (1883–1969) was an Indian geologist who established his reputation working in the Himalayas (Wadia 1940; Thakur 2003; Glasby 2009), and by publishing one of the best known books on the geology of India (Wadia 1919, 1939). Wadia's book was the first popular book on the geology of India following the comprehensive tomes of Medlicott and Blanford (1879), and it was originally titled "Geology of India for Students" (Wadia 1919). It appeared in many further editions, the last being the sixth (Wadia 1966). Wadia always signed his letters as "D. N. Wadia", and that is how he was universally known. He spent most of his career with the Geological Survey of India. After he retired from the Survey in 1939, he worked as Government Mineralogist in Colombo, Ceylon (Sri Lanka) until 1944, when he was appointed as Minerals Adviser to the Department of Planning and Development in New Delhi. He continued working as adviser to the Indian Government following the Independence of India in 1947. After his retirement he received many awards, both national and international, including notably the Lyell Medal of the Geological Society, and election as a Fellow of the Royal Society in 1957 (Stubblefield 1970). The Wadia Institute of Himalayan Geology in Dehra Dun was named after him in 1976. In 1984 the Government of India honoured Wadia by releasing a commemorative postage stamp bearing his image (Figure 2).

Aside from a shared interest in the regional geology of the Gondwana continents, another link between du Toit and Wadia is that they had both collaborated with Francis Cowper Reed, an invertebrate palaeontologist at Cambridge University. Reed had described Carboniferous fossil molluscs from Argentina collected by du Toit, and Palaeozoic fossils from the Himalayas sent to him by Wadia (Reed 1927, 1934). Du Toit met Wadia during the Silver Jubilee Indian Science Congress in Calcutta, which opened on 3 January 1938 (Anon 1938). Wadia's signature appears together with those of other attendees, in du Toit's (1937–1938) Indian notebook. Du Toit (1938) recorded in his diary that because he had problems with his cheque, he managed to hear only a part of Wadia's address to the Congress on the 8th January. On the 12th January 1938,

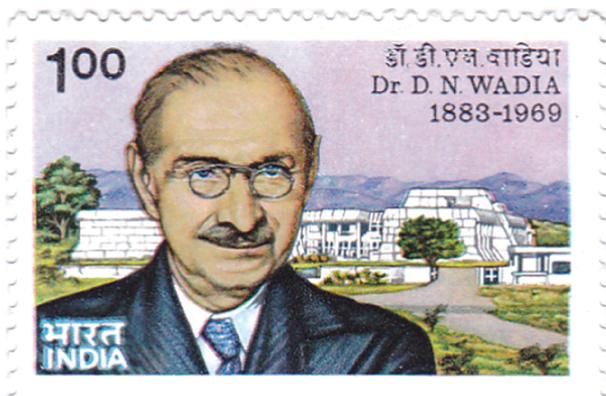


Figure 2 A postage stamp, issued in 1984 showing Dr. D. N. Wadia, and the Wadia Institute of Himalayan Geology, named after him.

after returning from a visit to a coalfield, du Toit spent a day in Calcutta (before catching a night train to Bombay), and had lunch with a distinguished group that included Darashaw Wadia, Sir Leigh Fermor¹, Lady Fermor, and Alexander Heron.² That same afternoon, du Toit had tea with Dr Wadia, and Dr and Mrs Sahni.³ The du Toits left India by ship from Bombay on 19th January 1938, arriving in Lourenco Marques (now Maputo, Mozambique) on 7th February, and after an overnight train journey, arrived home in Johannesburg on the 8th February. The very next day, du Toit (1938) recorded in his diary: “sent book to Wadia”. This can only be a reference to his recently published book, “Our Wandering Continents” (du Toit 1937). Wadia’s reply was received by du Toit on the 2nd April 1938 (du Toit 1938). In the first surviving letter of their correspondence (du Toit to Wadia, 19 April 1939), du Toit thanks Wadia for a revised edition of his book “Geology of India” (Wadia, 1939), which Wadia must have

¹Sir Lewis Leigh Fermor (1880–1954), a pioneer of Indian Precambrian geology, was Director of the Geological Survey of India (1932–1935), and became a Fellow of the Royal Society (1934). In the early 1900s, Du Toit and Fermor had both studied under Professor John Wesley Judd at the Royal College of Science (now Imperial College) in London. Following their meeting in India, they continued to exchange papers and letters.

²Dr Alexander Macmillan Heron (1884–1971) had been Director of the Geological Survey of India (1935–1939).

³Dr Birbal Sahni (1891–1949) was the first Indian to obtain a PhD in palaeobotany, and was the founder of the Birbal Sahni Institute of Palaeobotany (now the Birbal Sahni Institute of Palaeosciences) in Lucknow. After his death, his work was continued by Mrs Savitri Sahni (Gupta 1978).

sent in early 1939, soon after its publication, in reciprocation for du Toit’s book, the mail in those days taking about a month to be delivered between India and South Africa.

The correspondence between du Toit and Wadia is significant for several reasons. Firstly, it is between two of the most famous geologists in their respective countries (both have had postage stamps issued with their portraits and their achievements highlighted, Figures 1 and 2). In addition, the correspondence shows up unexpected and previously unknown links between geologists from different countries, which were then under British colonial rule. Finally the correspondence is evidence for du Toit’s continued preoccupation with Gondwana reconstructions, in the years following the appearance of his book “Our Wandering Continents” (du Toit, 1937), even though no further works on the subject were published by du Toit in his lifetime⁴.

2 The correspondence

2.1 Du Toit to Wadia, 19 April 1939

P.O. Box 4565,
Johannesburg, S. Africa
April 19, 1939

Dr D.N. Wadia
Geological Survey, Calcutta

Dear Dr Wadia,

It was particularly generous of you to present me with a copy of that fine revision of your well known “Geology of India”⁵, which I shall always treasure for personal reasons. For such, many many thanks!

There has been a distinct delay in this acknowledgment, for of course I had first to read through the most vital portions & furthermore to compare them with the text of the original edition. May I therefore congratulate you on so fine a volume which crystallises the work of numerous survey men labouring for years in a

⁴The second, revised edition of his 1927 work, “A Geological Comparison of South America and South Africa”, was published posthumously, in Portuguese translation only (du Toit, 1952).

⁵Wadia (1939). This was the second edition of Wadia (1919). Which became such a popular introductory book on Indian geology and eventually went to 6 editions, ending with Wadia (1966).

truly vast country. It must stand for years to come as the standard source of information on your fascinating country, though to the author it must be vexing to be witness to all the new discoveries becoming known while the pages are still fresh. Still, that is a state of affairs that cannot be altered.

I shall be most pleased to refer to make use of it when referring to Indian geology & feel sure that it will give much of value. An immense improvement is the coloured Geological Map, which will fill a much needed want. Unfortunately such maps are troublesome to prepare & print, though absolutely necessary for the person not knowing India.

Where so much has been given, it would be unfair to criticize, though I should have liked seeing a short review of India pictured as a part in the surrounding continental masses; its evolution under various hypotheses, so that students could get a better idea of the origin of their land, which is so linked with the surrounding regions.

On p. 154 there is a peculiar statement, namely that the “Upper Carboniferous” comes between the “Permo-Carboniferous” & the “Uralian”. On p. 129 the Table, taken from Fox⁶, requires alteration in regard to the strata in Brazil, the succession given being long out of date. I wonder where he got it from.

With very many thanks again & all good wishes for your continued success in writing about Indian Geology.

Yours sincerely,
Alex du Toit

2.2 Wadia to du Toit, 15 October 1939

Department of Mineralogy,
Torrington Square
Colombo
15th October 1939

⁶Dr Cyril S. Fox was Director of the Geological Survey of India (1939–1943) (Fox, 1947). Du Toit had corresponded with Fox, who ended up supporting his ideas on Continental Drift.

Doctor Alexander Du Toit
P.O. Box 4565,
Johannesburg (South Africa)

My dear Doctor du Toit,

It was a very agreeable surprise to receive from your publishers a presentation copy of your “Geology of South Africa”.⁷ I am grateful for this gift, which I shall value highly.

You have indeed done a great service to geologists and scientists abroad in presenting the structure and stratigraphy of the “desert Continent” in this attractive volume. The amount of detail you have been able to condense into these pages, the sumptuous plates, maps and drawings as well in the exhaustive treatment of different branches of South African Geology, the work is really of a monumental type and will remain a reference book for a long time.

I trust you are well and in full strength and cheer. The prospects of the International Geological Congress being held in July next in London seem rather uncertain. I am still looking forward to attend it and meet old friends there.

Best wishes and thanking you once again,

Yours sincerely
D. N. Wadia

2.3 Wadia to du Toit, 18 February 1944

Torrington Square
Colombo
18th Feb. 1944

Dr Alexander L. Du Toit, F.R.S.
University, Cape Town

Dear Dr Du Toit,

It was indeed a very great pleasure to receive your letter of Dec 29. I am grateful to you for your generous words about the award of the Lyell Medal by the Geological Society.

It is my turn to send you my congratulations, belated but none the less sincere for the great distinction of fellowship of the Royal Society of

⁷This was the second edition, which was published in 1939 (du Toit 1939).

London conferred on you last year. That coveted honour ought to have come to you years earlier. We owe to you some striking and fruitful ideas on earth's interior and dynamics.

Since 1939 after my retirement from the Indian Geological Survey I have been working in Ceylon. The Archaeans of Ceylon have been a novel and at first a rather baffling experience to me after the vast canvas and the varied theme of N.W. Himalayan geology. On retiring next year from Ceylon I hope to finish the writing of the Kashmir – Hazara Memoir, which has been pending these many years and which I expect will be a more congenial job.

India, like South Africa, has been turned into an arsenal for war munitions of all kinds and the mineral industries there have seen a remarkably quick uptake after their ineffective struggles of past years.⁸ Asbestos has a bright future in the days to come; it will be one of the re-building materials of the war-damaged world. I hope minerals will not take up all your time, but leave you full measure to build up your new synthesis. Without being an enthusiastic Wegener's follower myself, I think you have produced the most acceptable synthesis of the agencies in the earth's interior on which the whole fabric of his theory depends.

The war outlook is becoming more and more cheerful and the day may not be far off when re-unions of scientific workers such as that of January '38 will again be possible.

Thanking you again for your kind wishes, I remain, with high regards,

Yours sincerely,
D.N. Wadia

2.4 Du Toit to Wadia, 12 September 1944

2 Bye Way, Pinelands
Cape Town, 12 Sept. 1944

Dr D. N. Wadia, M.A., F.G.S.
Government Mineralogist
Ceylon.

⁸Wadia (1943a) discussed the role of minerals in the war economy.

Dear Dr Wadia

Very many thanks for your nice letter of 18th Feb. with its news of your doings in Ceylon since leaving the Geological Survey of India. I sincerely hope that after your retirement you may be able to undertake the memoir on Kashmir, an area about which you know so much & which has disclosed so many important & fascinating problems.

It must be a novelty working on the archaeans rather than the Palaeozoics & such like, though you will have fewer ranges to climb, I presume, though the exposures may not be so fine. I am much interested in the production of parapyroxenites, etc, from the syntaxis of calcareous strata, just as in Madagascar. We have one exceptionally fine instance in the Transvaal. Doubtless you have been very busy trying to develop the output of scarce war minerals, in which Ceylon is so rich. In Tanganyika the Geol. Survey has been most successful in a similar policy, thereby has been justifying the expenditure on it in the eyes of those in "high" quarters who hold the purse-strings.

I can quite believe that the mineral and industrial progress in India must have been great during the past few years, & I trust that such development may be maintained after the war-during the reconstruction period.

I am off for a month in the north on asbestos, which continues to prove an attractive subject, despite its mineralogical aspect. I should like to do more on other & less developed aspects of Continental Drift but the opportunities for leisurely research are rather few as it happens; one gets drawn into so much work for scientific societies & such like. You should receive a reprint of an article in the Am. Jl. Sci.⁹ which has called forth a strong criticism from Longwell¹⁰ & will be assaulted by Bailey Willis¹¹, so I am advised. Unfortunately my critics ignore the wealth of data that has been assembled, or

⁹Du Toit (1944).

¹⁰Longwell (1944).

¹¹Willis (1944).

that can be collected from all parts of the earth, pick out special points for attack. I am afraid that Daly¹² is right in saying, that, until an acceptable cause for such drift can be put forward, the hypothesis will only remain an hypothesis. Perhaps I am over-optimistic in believing such a cause will be discovered.

The war news is marvelous these days & makes one confident that peace is not so far distant, after which we all trust that the re-unions of scientific workers may again become possible—to quote the closing paragraph of your letter.

With kindest regards & best wishes,

Yours sincerely,
A. L. du Toit

2.5 Du Toit to Wadia, 7 January 1945

2 Bye Way, Pinelands,
Cape Town.
South Africa
7th January, 1945

Dr. D. N. Wadia,
Government Mineralogist,
Torrington Square,
Colombo, Ceylon.

Dear Dr. Wadia,

It was good of you to put me on the list of those to whom the new publication “Records of Department of Mineralogy” will be sent, and I have pleasure in acknowledging through the enclosed slip the first number with its four interesting papers.

Ceylon geology has always attracted me from the time when Coomaraswamy contributed there to¹³, though of course his outlook was far narrower than yours. I have been studying with keenness your views¹⁴ on the three Ceylon peneplains and feel that you have made out

an excellent case for block-faulting. Such induces me to ask whether there is not perhaps any evidence for horizontal as well as vertical displacement of this island. In my restoration under Continental Drift, Ceylon—in its present position in relation to India— somewhat spoils the fit with the other lands. Were it positioned say 100 miles further west such would be a great improvement. Now I should like to know if a more careful comparison of the structural and metamorphic lines of Ceylon with those of Peninsular India would not bring out some discordance between the two masses. The information given by you on p. 31 is insufficient to settle this point, which I fancy is an important one. You may not be aware that L. C. King has in such fashion indicated the high probability of a gigantic horizontal shift between the W. and S. parts of New Zealand.¹⁵ In similar fashion I have found that the archaean grain in Madagascar, taken along with a Mesozoic arch, effectively pins down that island to within narrow limits off Dar- es-Salaam.

With your access to the literature of Mysore state, etc, as well as some personal knowledge of that region, you will doubtless be able to say something positive in reply. All the same, I should not like to waste your valuable time on such crack-brained ideas, were it not that I felt that the resemblances between the basement rocks (and minerals) of S. India, Ceylon, Madagascar, Mozambique and Antarctica are just too remarkable with those lands, spaced as they are to-day.

I wish that circumstances would permit a closer comparison of these lands by experts, but perhaps the war is getting closer to its end than some of us are inclined to believe.

In the meantime with kindest regard and best of good wishes for the New Year and many thanks,

Yours sincerely,
A. L. du Toit.

¹²Professor Reginald Daly, Harvard University.

¹³Ananda Coomaraswamy (1877–1947) was a pioneer of the geological study of Ceylon (Sri Lanka), publishing 27 articles between 1900 and 1907 (Ranganathan and Srinivasan Rao 2001). He then abandoned geology and later became an eminent philosopher and historian of Indian arts and religion (Sorkhabi 2008).

¹⁴Wadia (1943b).

¹⁵King (1939).

2.6 Wadia to du Toit, 23 March 1945

Department of Planning and Development
Secretariat, North Block,
New Delhi, dated 23-3-45

Dr Alexander L. du Toit
2 Byeway, Pinelands,
Cape Town
South Africa.

My dear Dr. du Toit,

I thank you very much for your letter of the 7th January which reached me at Delhi on my arrival there to take charge of new duties as Mineral Adviser to Planning and Development Department, Government of India.

The point you have raised regarding possible displacement Ceylon Island could have undergone from its primitive position of a hundred miles to the west, is highly intriguing. While I am greatly struck myself by the remarkable resemblances between the basement graphite and thorianite-bearing gneisses of Madagascar and Ceylon, I am also impressed by the evidence of the close structural and even stratigraphic continuity of the Ceylon Archaeans with those of Cape Comorin and of Madras Coast.

I am sending copies of your letter to Mr. B. Rama Rao, Director, Mysore State Geological Dept., and Mr. L. J. D. Fernando, Government Mineralogist, Colombo (Ceylon), my successor, and requesting them to furnish you such data as they have collected on this interesting subject, from their own independent observations. The occurrence of a large patch of Miocene Limestone (Jaffna Limestone) on the North-West of Ceylon, more or less contemporaneous in age to the Quilon beds of Travancore, may suggest a movement of the type you suggest, but there may be other explanation of the phenomenon. I am unable to suggest a drift movement of Ceylon to the N.-E., of several hundred miles, if the grain of the Archaeans establishes the fact that the Island of Ceylon has always remained a part of the Deccan, only recently severed from the mainland by relatively minor

subsidence. However, this is a subject in which your studies have been more profound than mine which are confined to structures largely. I hope you will soon be in receipt of the views of the two geologists which may throw more light on the subject.

I trust you are perfectly well and fit busy with your important economic war work for Government. With the end of the war almost in sight, it will be a pleasure to meet you on a second visit to India and to learn more about your work.

With kind regards and best wishes,

Yours sincerely,
D.N. Wadia.

2.7 Du Toit to Wadia, 20 November 1945

2 Bye Way, Pinelands,
Cape Town.
20th November, 1945.

My Dear Dr. Wadia,

Many thanks for your letter of the 23rd March, which I received late in April and which has been left unanswered until now, much to my regret.

It is a pleasure to see that you now have a new post in India as Mineral Adviser to Planning and Development. I hope that your new duties may prove congenial and that your wide knowledge may prove of considerable service in the scheme of re-organization in India.

I was much interested in your remarks regarding the possible displacement of Ceylon Island and note that you were good enough to send copies of my letter to Mr. B. Rama Rao, Director, Mysore State Geological Dept., and Mr. L. J. D. Fernando, Government Mineralogist, Colombo, for such information as they might be able to supply. So far, unfortunately, I have received no answer from either, but possibly they have many other more important matters to attend to. Incidentally I have been in correspondence with Dr. B. Rama Rao on another

matter.¹⁶

It will interest you to learn that I received a visit in January from a Mr. H. C. Javeri, who is a large diamond merchant of Bombay. He was most anxious that I should visit India to report on a Diamond Concession which has been granted to him in the neighbourhood of Bellary. I informed him that it was practically impossible for me to do this work, but strongly suggested that he should get in touch with you on the hopes that you might be prepared to undertake that task. So far I have heard nothing further from him, nor have you mentioned that matter in your letter.

Now that the war is over there is slackening of economic work and it is possible for me to return to my researches again.

I remain,

Yours very sincerely,
A.L. du Toit.

2.8 Wadia to du Toit, 17 December 1945

Department of Planning and Development
Secretariat, North Block,
New Delhi.
17th Dec., 1945.

My dear du Toit,

I was glad to receive your letter of 20th November and regret to learn that neither B. Rama Rao nor Fernando has sent you their views regarding Indo-Ceylon drift-movements or any information within their personal knowledge or observation which may throw light on the subject. I am sure some facts may be forthcoming from them & I shall write to them again.

I should think the Indian diamond industry needs systematic re-investigation by experts acquainted with modern diamond mining industry. As you have much first-hand knowledge and experience of mining at Kimberley and

also of placer mining, I would suggest your re-considering Mr. Javeri's invitation to visit his concessions near Bellary and advise him on extraction possibilities. Javeri has not seen me or written to me about the matter, but if he does so, I cannot advise him better than to suggest his obtaining the advice of a South African geologist with knowledge of Kimberley.

My present work as Mineral Adviser in the Planning and Development, Government of India, is interesting in many ways. The Indian mineral industry has undergone a material change during the war years and more developments are coming, to judge from the efforts that are being made both by Government and our industrialists.

With kind regards and best wishes for the New Year,

I remain,

Yours sincerely,
D. N. Wadia

3 Discussion

The Indian Science Congress of January 1938 in Calcutta was a great opportunity for du Toit to meet geoscientists working in India, both British and Indian. Aside from Wadia, du Toit also met and corresponded with other Indian geoscientists, including Birbal Sahni in Lucknow and Rama Rao in Mysore.

In his letter (1) of 19 April 1939, du Toit not only thanked Wadia for sending him a revised copy of his "Geology of India" (Wadia, 1939), but also revealed that he already had in his possession a copy of the first edition of that book (Wadia, 1919), which he then meticulously compared with the revised edition, to find out what had changed. This further illustrates how deeply knowledgeable du Toit was concerning the geology of other regions of Gondwana, something that he had already shown in his two previous books (du Toit, 1927, 1937), and this impression is reinforced later in this letter when he criticizes the stratigraphic column for Brazil, derived from Fox, as being outdated. His *modus operandi* of comparing different editions of the same work came out of his own habit of continually updating and revising his information about

¹⁶According to his diary, du Toit (1939b) wrote letters to Rama Rao on 23rd March and 17th April, 1939, received letters from him on 5th June and 18th September, 1939, and he replied to Rao again on 10th October 1939. They continued to correspond until 1947 (du Toit 1947).

regional geology, and his own books went through many editions. Du Toit was only too aware of how, during the writing process, new information constantly streaming in from around the world made his writing obsolete and in need of correction. Hence his comments to Wadia:

“to the author it must be vexing to be witness to all the new discoveries becoming known while the pages are still fresh. Still, that is a state of affairs that cannot be altered.”

Du Toit commends Wadia for including a geological map, which was “sorely needed”, and an “immense improvement”. His comment that “unfortunately, such maps are troublesome to prepare and print” comes out of his own experiences of producing his geological maps for his geological survey reports and his books (du Toit, 1926, 1927, 1937). Although loathe to criticize, du Toit nevertheless corrected a few minor points, but expressed a wish that there should be an introductory section that would situate the geology of India in relation to the geology of the surrounding countries- something that was critical to his own views of drifting and colliding continents. This is advice that Wadia followed, and the last edition of his book (Wadia 1966) was much expanded.

It is not known if Wadia replied to du Toit’s letter of 19 April 1939. The next preserved letter (2) in the correspondence is from Wadia to du Toit, 15th October 1939, in which he thanks du Toit for having sent him, via his publishers, a copy of the 2nd edition of his “Geology of South Africa” (Du Toit 1939a). Du Toit was in the habit of making lists of correspondents all over the world, to whom he would send copies of his papers by mail. Those correspondents whose opinions he especially valued, he placed on a typed list which was forwarded to his publishers Oliver & Boyd, in Edinburgh, who were instructed to mail copies of his books directly to the recipients, with his compliments. At the end of this letter, Wadia comments that prospects of the International Geological Congress being held in London the next July (1940) seemed rather uncertain, but he was still looking forward to attending it and to meet old friends there. The previous month, Hitler had invaded Poland, provoking Britain and France to declare war on Germany, followed by the USSR invading Poland from the east- events which were all recorded with alarm in du Toit’s diary (du Toit, 1939b). This was the start of the

Second World War, and it led to the postponement of the planned London International Geological Congress until 1948.

On 29th December 1943, du Toit sent a letter to Wadia (not preserved), in which he congratulated Wadia for being the recipient of the Lyell Medal of the Geological Society of London. Du Toit apparently also told Wadia about his interest in asbestos, a mineral that was then in great demand. Wadia (3), in his reply of 18 February 1944, belatedly congratulated du Toit for the honor of having been elected a Fellow of the Royal Society in 1943, an honor that Wadia was himself to receive thirteen year later. Wadia remarked how baffled he was by the geology of Ceylon, after the “panorama” of Himalayan geology that he had been used to. He expressed the hope to be able to finish his memoir on the geology of Punjab. It is unclear whether he was referring to his Memoir of 1928 (Wadia, 1928), which still needed work, or whether he was working on another report. In a reference to du Toit’s (1929) work on Continental Drift, which he had received in 1938, and had read, Wadia commented:

Without being an enthusiastic Wegener’s follower myself, I think you have produced the most acceptable synthesis of the agencies in the earth’s interior on which the whole fabric of his theory depends.

He echoed the opinion of many other sceptics who, although not ardent followers of Wegener’s ideas of Continental Drift, nevertheless felt that du Toit had put the best case for it in his 1927 book (du Toit 1927; Master 2016).

Du Toit replied (4) on 12 September 1944. He expressed an interest in the formation of para-pyroxenites. He supposed that Wadia was following the policy of using the war to get funding to develop the exploitation of rare minerals, and mentioned a similar policy being pursued in Tanganyika (later to become the major part of Tanzania). Du Toit had worked in Tanganyika in diamond exploration for De Beers, and had maintained contact, through correspondence, with several directors of the Geological Survey of Tanganyika. He mentioned that he was taking a month off to work on asbestos. He was later to publish his work on asbestos as his last major contribution to economic geology (du Toit, 1945). Du Toit also enclosed a

reprint of his paper in the *American Journal of Science* (du Toit, 1944), which was a rejoinder to a paper published the previous year by mammalian specialist George Gaylord Simpson (1943). He also mentions that his paper had been severely criticized by Yale professor Chester Longwell (1944), and he had heard it was going to be “assaulted” by Bailey Willis (1857–1949) a strong opponent of Continental Drift (to whom du Toit had sent a copy of “Our Wandering Continents” in 1937; Master, 2016). Willis (1944) published a polemical essay dismissing the idea of Continental Drift as a fairy tale, “ein Märchen”. The debate between Simpson (1943), du Toit (1944), Longwell (1944) and Willis (1944) has been discussed at length by Newman (1995), Oreskes (1999) and Frankel (2012).

After having been placed on the mailing list for “Records of Department of Mineralogy” in Colombo, Ceylon, and having received their latest issue, du Toit wrote to Wadia (5) on 5 January 1945. Du Toit had received a copy of a paper by Wadia (1943) in which he discussed the role of block faulting in the origin of the three great peneplains of Ceylon (which had first been recognized by Adams, 1929). This evidence for faulting then induced du Toit to enquire whether there was not any evidence for horizontal displacement of the island. He suggested that if the island of Ceylon were positioned about 160 km further west than its current position in relation to India, it would make a great improvement in the detailed fit of the continents in a Gondwana reconstruction that he had made (which was never published). He wanted to

“know if a more careful comparison of the structural and metamorphic lines of Ceylon with those of Peninsular India would not bring out some discordance between the two masses.

I should not like to waste your valuable time on such crack-brained ideas, were it not that I felt that the resemblances between the basement rocks (and minerals) of S. India, Ceylon, Madagascar, Mozambique and Antarctica are just too remarkable with those lands, spaced as they are to-day”.

In his reply (6) of 23 March 1945, Wadia, who had by now moved to New Delhi, said that he was intrigued by the idea of Ceylon having been further to the west, and he was struck by the resemblance between the basement graphite- and thorianite-bearing gneisses of Ceylon and

Madagascar, as well as the structural and stratigraphic continuity of rocks between Ceylon and the Madras Coast of South India. He passed on du Toit’s letter to two geologists, Rama Rao in Mysore State, South India, and his own successor in Colombo, Mr Fernando, with requests to pass on any information to du Toit. He felt unable to support a translation of Ceylon by “several hundred miles” to the NE, if the structural grain in its basement rocks (“Archaeans”) were continuous with structures in South India, indicating that Ceylon was part of the Deccan shield. He nevertheless conceded that his arguments were only structural, and suggested that du Toit’s studies were more profound, and that results from the two other geologists contacted may throw more light on the matter. It is interesting to note that Adams (1929) made the same observations regarding the continuity of structures from Ceylon to South India. Referring to the rocks of Ceylon, he stated (Adams 1929):

This coincidence of the direction of the coast line with the strike of the gneiss which forms the country rock is also seen in southern India on the Coromandel Coast.

In his last letter (7) of 20 November 1945, du Toit thanked Wadia for having forwarded his letters to Rama Rao and Fernando, but noted that he had not yet heard from either of them, adding that perhaps they had more important things to do. The war had ended a couple of months before, leading to a slackening of economic work, allowing du Toit the possibility of returning to academic work. Du Toit mentioned that he had received a request to examine a diamond prospect near Bellare in India, but had turned it down. Wadia (8), in his reply promised to contact Rama Rao and Fernando again. He urged du Toit to reconsider the diamond prospecting offer, since India lacked expertise in this field. Alternatively he suggested that he would recommend that another South African with expertise in the Kimberley diamond fields be recommended for the work. He looked forward to new developments in the mineral industry of India, judging from the efforts of government and industrialists.

As the war had progressed, and developments looked more favorable for the prospects of its ending, the sentiments expressed by both du Toit and Wadia in their letters became more optimistic, with both hoping for a resumption of international scientific meeting and contacts. Du

Toit planned to attend the 1948 International Geological Congress in London, and had even paid his registration fees, when he died very suddenly and unexpectedly on the 25th February 1948. Thus he and Wadia were never to see each other again since their meeting in Calcutta in January 1938.

The war-time correspondence between du Toit and Wadia is a rare example of “South-South” co-operation between two eminent scientists from countries that were then part of the British Empire (South Africa and India). It shows how personal contacts between geologists, made during international meetings such as the International Geological Congress and the Indian Science Congress, were the catalysts for further exchange of information, whether published or not, and for extending these exchange networks. The letters reveal that, well into his “retirement”, du Toit continued to grapple with the problems of the reconstruction of the supercontinent of Gondwana, and he wrote to various colleagues in India and Ceylon (Sri Lanka) to bring their particular expertise to bear upon the problems he had identified. The letters also show how the two prominent geologists, both experts on the geology of their respective countries, had also been drawn into the war effort, to use their knowledge in the search for strategic mineral deposits, on behalf of the British Empire during the Second World War.

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