

# Race, Kidney Transplants, Immunosuppression Research, and White Supremacy under Apartheid, 1960–80

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**Abstract.** This paper uses the history of kidney transplantation in South Africa as a lens through which to write a racialized, micro history that illustrates the politics of medical discoveries and medical research at one of South Africa's most prestigious medical research universities, the University of the Witwatersrand (Wits) in Johannesburg. Between 1966 and the 1980s, the Wits team became the most advanced and prolific kidney transplant unit in the country. Yet the racist, oppressive Apartheid system fundamentally shaped these developments. Transplantation, as this paper shows, became an elite medical procedure, performed by a select group of white doctors on mostly white patients. For these doctors, transplantation showed their medical prowess and displayed the technical advancements they were able to make in research and clinical practice as they strove to position South Africa as a significant international player in medical research, despite academic boycotts and increasing sanctions. Transplantation became a symbol of white supremacy in a country where the black majority were excluded from anything but the most basic health care.

**Keywords.** kidney transplantation, Apartheid, medicine, University of the Witwatersrand, race, racism, surgery, surgeons

**Résumé.** Cet article s'intéresse à l'histoire de la transplantation rénale en Afrique du Sud. Il adopte une approche micro-historique afin de mettre en relief les dimensions raciales des découvertes et des recherches réalisées dans l'une des plus prestigieuses universités de recherche médicale d'Afrique du Sud, l'University of the Witwatersrand (Wits) à Johannesburg. Entre 1966 et les années 1980, l'équipe du Wits est devenue l'unité de transplantation rénale la plus avancée et la plus prolifique du pays. Le système raciste de l'apartheid a pourtant profondément orienté cette évolution. La

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transplantation rénale est en effet devenue une technique médicale élitiste, pratiquée par un groupe restreint de médecins blancs sur des patients majoritairement blancs. Pour ces médecins, la transplantation permettait de démontrer les progrès techniques qu'ils étaient capables de réaliser alors qu'ils tentaient de poser l'Afrique du sud en acteur important de la recherche médicale internationale, malgré les boycotts universitaires et les sanctions politiques de plus en plus nombreuses. Dans un pays où la majorité noire n'avait accès qu'aux soins de santé les plus élémentaires, la transplantation rénale est donc devenue un symbole de la suprématie blanche.

**Mots-clés.** transplantation de reins, apartheid, médecine, Université du Witwatersrand, race, racisme, chirurgie, chirurgiens

In 1967 South Africa become synonymous with the history of organ transplantation, when the enigmatic Christiaan Barnard performed the first human heart transplant at Cape Town's Groote Schuur Hospital.<sup>1</sup> Lewis Washkansky, the patient, regained consciousness and lived for eighteen days following the transplant. He died from pneumonia because the immunosuppressants needed for his body not to reject the transplanted heart left him susceptible to infection. His donor, twenty-five-year-old Denise Darvall, had been seriously injured in a car accident earlier that day. What is much less well known is that Darvall's kidneys, as well as her heart, were donated. Her kidneys went to ten-year-old Jonathan van Wyk, whose transplant was done in the Non-European Section of Karl Bremer Hospital in Bellville in the Western Cape. This was significant for two reasons: because it was the first kidney transplant in the Cape, but also because van Wyk was "coloured," a legal racial category in South Africa.<sup>2</sup> The placing of a white person's kidney into a body of colour was anathema in Apartheid South Africa.<sup>3</sup>

It was, however, news of the first heart transplant, rather than the kidneys transplanted at the same time, that circulated the globe.<sup>4</sup> Ayesha Nathoo, in her work on the impact of early heart transplants on the medical system and public perceptions of it, argues that while heart transplants were portrayed as revolutionary surgeries that were symbolic of scientific achievement and medical progress, they also stirred up heated debates around medical ethics globally. These debates centred on the nature of death, ethical issues surrounding the donation and receiving of organs, and the rules governing such new procedures.<sup>5</sup> Nathoo shows how, against this background, doctors fought to maintain their image as the transmitters of the advanced, specialized, revolutionary medicine that transplants

symbolized and to maintain professional autonomy.<sup>6</sup> While these issues were being debated very publicly in the global media, similar and yet distinct issues were also playing out in the context of kidney transplantation in South Africa.

This paper shows the ways in which the development of the most advanced and prolific kidney transplant unit in the country – the one based at the University of the Witwatersrand (Wits) in Johannesburg and its teaching hospitals – sought to portray a specific image of transplantation. For this team, kidney transplantation was an elite medical procedure that demonstrated these doctors' medical prowess and displayed the technical advancements they were able to make in research and clinical practice as they strove to position South Africa as a significant international player in medical research, despite academic boycotts and increasing sanctions. My approach differs from those of Nathoo, who focuses on heart transplants in Britain; Hamilton, who focuses on organ transplantation in Europe;<sup>7</sup> and Schlich, who focuses on transplantation in an earlier period.<sup>8</sup> By focusing specifically on kidney transplantation in Apartheid South Africa, I can investigate how issues of transplantation – like all areas of medicine in South Africa – was fundamentally intertwined with the working of the Apartheid state. This shaped research, clinical practice, and the image the team strove to present in very specific ways.

In a broader context, David Livingstone has argued that “geography matters in scientific inquiry.”<sup>9</sup> For Livingstone, sites, regions, and circulations are important in shaping how science is produced and how knowledge is disseminated. The dissemination in turn shapes the science – hence “circulation.”<sup>10</sup> Similarly, the Wits kidney transplant team's work was shaped by the hospital site, the country in which they worked, and their interactions with the international medical and scientific community. At the Wits medical school and its hospitals, rooted in the South African context of the Apartheid period, transplantation became a symbol of white supremacy in a country that excluded the black majority from anything but the most basic health care. A select group of white, male doctors performed kidney transplants on mostly white patients. These surgeries became a symbol of white South Africa's technological and medical advancement and the value of biomedicine. This in turn shaped, as Livingstone has shown, the very cultures in which this science was produced.<sup>11</sup> Despite growing international isolation and sanctions, the Wits kidney transplant team were deeply enmeshed in the

worldwide circulation of transplantation knowledge as both providers and recipients.

For much of the Apartheid period, academic boycotts and sanctions operated informally. In 1957 the idea of an academic boycott as a way of putting pressure on the South African state was first raised at an academic freedom conference in London. This had little effect, and many prominent scholars continued to travel to South Africa and collaborate with South African scholars. In 1965 a more concerted effort from British academics saw an increase in South African academic isolation.<sup>12</sup> In the 1980s there were increasing calls from the African National Congress in exile, with the support of the United Nations and other advocacy groups, for a more specific strategy for academic boycotts and sanctions.<sup>13</sup> Solomon Benatar, emeritus professor of medicine at the University of Cape Town and anti-Apartheid activist, explains that within the medical and scientific sector, academic sanctions meant denying or excluding physicians and others from attending or hosting educational, cultural, and scientific meetings and conferences. These sanctions included refusals to collaborate with South African scholars, lecture in South Africa, or invite South Africans to lecture abroad. The international academic community also called on journals and academic presses not to publish any scholarship or experimental work conducted in South Africa.<sup>14</sup> Yet those involved in transplantation at Wits travelled, engaged in international collaborations, published in international journals, and hosted international conferences. This suggests that these boycotts had little effect on the Wits transplant team. This group of doctors were among a small group of white South African medical elites who were able to mobilize their personal connections and exploit the value of their work to circumvent these restrictions. Simultaneously, the integration of this group into international medical and research networks allowed for the sharing and development of medicine knowledge both at home and abroad.

While providing a detailed empirical history of the research, and to a lesser degree the clinical practice, of the elite kidney transplant team that developed at the Wits Johannesburg Hospital, I develop an analysis of how these doctors manoeuvred and understood their own actions within the Apartheid frame and how we can interpret this. I argue that what developed was a masculine, audacious culture that drove both medical developments and some ethically questionable experiments. Thomas Schlich, in his 2010 book on the origins of organ transplantation, argues that while transplant

surgeons in the early twentieth century strove to highlight the novelty of these advanced scientific surgeries, this view soon faded and was replaced by a sentimental view that sought to encourage organ transplantation and donation.<sup>15</sup> My work shows a different response from surgeons, who right into the late 1980s sought to promote transplantation and unique, forward-looking, scientific medicine – what one of my interviewees described as “science fiction medicine.”<sup>16</sup>

This paper draws on material gathered from the Wits University Archives, the records of the Wits Faculty of Health Sciences, and material housed at the Adler Museum of Medicine. The paper also draws on personal papers, in particular those of Professor Bert Myburgh, the leading doctor in the creation of the Wits team, which contain records, documents, photographs, and published and unpublished papers that reveal much about the day-to-day conditions they faced and the ethical issues they grappled with. They also shed light on how various research projects developed over time and where the funding came from. Finally, the paper draws on a series of oral interviews undertaken between 2016 and 2018 in Johannesburg and Cape Town. I have interviewed fifteen members of the Wits transplant team, including surgeons, urologists, people who were medical interns at the time of these early operations, transplant co-ordinators, nurses, and scientists working with the team. I was also able to interview a number of specialists who were working at other institutions at the time. In total, thirty oral interviews were conducted ranging between thirty minutes and two hours each. To undertake these interviews, I obtained ethics approval from both the University of Saskatchewan (Behavioural 16–81) and Wits University (HREC Clearance M150154).

### **Why Kidneys?**

In the popular imagination and in the history of medicine, heart and, to a slightly lesser extent, lung transplants have captured world attention.<sup>17</sup> These are rather dramatic operations with complex conceptual issues. The heart is also a symbol, a symbol of love, of life, and of the emotional centre. There is nothing symbolic or romantic about kidneys, the body’s waste removal system, which, like garbage collection, you only really appreciate when they do not work. It is understood that one cannot live without a working heart, but dialysis is seen as a good alternative to working kidneys. However, being hooked up to a dialysis machine three times a week

for four hours is not only incredibly limiting but also has numerous negative side effects, and does not give a patient more than 10–20 percent kidney function.<sup>18</sup> Kidney transplants are life-changing and life-saving and far more common. In fact, kidney transplantation is cheaper for the health care system than dialysis in the medium to longer term.<sup>19</sup>

In the first decade of transplantation in South Africa, the Cape Town team performed ten heart transplants.<sup>20</sup> In the following decade (1974–83), forty-nine heart transplants were performed countrywide on forty-three patients, with a 60 percent survival rate at one year and 36 percent at five years.<sup>21</sup> In the first decade of kidney transplantation, the Wits team performed over 232 transplants. Between 1968 and 1972 the success rate was 86 percent at one year and about 70 percent at five years. These were among the best rates in the world.<sup>22</sup> In 1973 a countrywide survey of dialysis and transplantation services was undertaken.<sup>23</sup> At that time there were five transplant programs in South Africa. The Wits Johannesburg Hospital (now known as Charlotte Maxeke Johannesburg Academic Hospital) had the largest program, with ninety patients with surviving grafts. Groote Schuur Hospital in Cape Town had twenty-six patients with surviving grafts, and H.F. Verwoerd Hospital (now known as Steve Biko Academic Hospital), another ‘white’ hospital in Pretoria, had twenty-four. Addington Hospital in Durban had a single patient with a surviving graft.<sup>24</sup> Baragwanath Hospital (now known as Chris Hani Baragwanath Academic Hospital), which served black patients in the Wits complex, reported three patients had surviving grafts.<sup>25</sup> This latter statistic and the story around these transplants is far more complicated than this number suggests, and I shall return to this below.

The doctors who researched, performed, and developed renal transplantation at the Wits Johannesburg Hospital found a niche for themselves that gave them professional and personal satisfaction. They developed an elite, and rather closed, team that was almost impossible for outsiders – especially women – to break into. Rene “Dokkie” Botha, who headed up the transplant unit in the 1970s, explains that in the beginning “it was not the routine run of the mill operation that most of the registrars could do; this was a select little group. An ivory tower within the ivory tower.”<sup>26</sup> Tony Meyers, a leading professor of nephrology at Wits, who was a registrar and then renal consultant during these early years, remembers transplantation as “one of the very early pioneering events of great scientific

value and great therapeutic excitement.”<sup>27</sup> Studying this rather pedestrian organ and the journey it takes from one body to another can tell us much about the politics of race in the history of medicine, the development and circulation of medical knowledge, and the history of surgery.

Literature on the history of kidney transplantation in South Africa, or Africa more generally, is virtually non-existent, apart from a number of papers written by doctors themselves recording medical developments in transplantation.<sup>28</sup> There is, however, a growing body of literature emanating from social science, ethics, and policy perspectives. This work tends to focus on either the ethics of organ transplantation or, more specifically, organ trafficking. Another strand of the literature attempts to understand why people do or do not donate organs.<sup>29</sup> In the South African context, much of the latter tries to explain the decline in donors in South Africa since the early 1990s.<sup>30</sup> Finally, there is a substantial literature focusing on the debates around the value of organ transplantation – especially kidney transplants – in a resource-poor setting.<sup>31</sup>

What is missing is a strong historical analysis that can put these debates in context. The broader project on which this paper is based uses an in-depth study of the rise and fall and rise of the Wits Renal Transplantation Program as a window into the social, economic, and political world of medicine in Apartheid and post-Apartheid South Africa. This paper looks at the first episode in the development of the kidney transplant program at Wits.

## General Background

South Africa has a long history of racial segregation dating back to the arrival of the first European (mostly Dutch) settlers in 1652 and the French Huguenots slightly later. The discovery of diamonds (1867) and gold (1884) stimulated both increased immigration, especially from England, and conflict between the Dutch and the British for colonial control. The collateral damage happened to black South Africans, who faced increasing oppression and segregation. In May 1910, the British achieved their goal of cementing white rule. This did not, however, bring peace to the country. Afrikaner Boers,<sup>32</sup> the descendants of the Dutch and French, waged a continual low-scale war against both the British and local black ethnic groups in order to gain self-determination. It took three decades for the Afrikaners to prevail. When they did, in 1948, it marked

the beginning of Apartheid rule, which entrenched white Afrikaner supremacy in ideology and policy.<sup>33</sup> Fundamental to Apartheid was the absolute segregation of races. The Population Registration Act (Act 30) of 1950 officially divided the South African population into three major groups: black, white, and coloured (mixed-race). The Apartheid government put in place legislation to cover every aspect of life, and the medical system was no different. Access to medical schools for black, Indian, and coloured students was highly restricted. Wits and the University of Cape Town (UCT) granted permission for a small number of black students to study alongside white students, but their access to teaching hospitals, registerships, and specialization was vastly limited.<sup>34</sup> In 1951 the University of Natal Faculty of Medicine opened its doors to black and Indian students, and in 1976 the Medical University of Southern Africa (MEDUNSA) was opened in Ga-Rankuwa, north of Pretoria, the country's capital.<sup>35</sup> MEDUNSA was established specifically to increase the number of black doctors trained in the country to serve the black population, especially in the homelands.<sup>36</sup>

Under Apartheid, the health care system was immensely complex. Health authorities at state, provincial, and local levels all had overlapping remits. If a hospital was linked to an academic institution, such as Wits, another level of complexity was added.<sup>37</sup> This had both positive and negative effects. While bureaucratic duplication and a lack of organization hindered health care delivery, the complex overlapping system allowed savvy doctors, nurses, and administrators to play different parts of the system against each other, often for their own benefit or that of the patients. This administrative structure also often meant that doctors could work out of the gaze of politicians or medical bodies. Links between Wits' teaching hospitals and the university also meant that these hospitals were able to provide innovative treatment and, importantly for this paper, provided a framework within which to produce internationally recognized research.<sup>38</sup> In the main, hospitals remained segregated until 1990. Health care and health care facilities for black patients were fundamentally inadequate and inequitable.

### **In the Beginning: "We Gotta Do Transplants, Like Tomorrow..."**

The first kidney transplant on the African continent took place in 1966, a year before the legendary heart transplant in Cape Town and



a decade after the world's first successful kidney transplant done in Boston, USA in 1954. The surgery took place at the Johannesburg Hospital.

In the wake of the 1954 transplant, South Africa joined the worldwide drive to introduce kidney transplantation programs. Dr. Gus Gecelter, a well-known urologist who was a surgical resident at the time, remembered that there was a conversation where the residents were told, "We gotta start doing transplants, like tomorrow, '... And everybody started rushing around. That's how it was, it was fortitude, and those days, I think Wits was the leader of the pack."<sup>39</sup> Indeed it was fortitude, but there had been a longer build-up to the introduction of transplantation at Wits than Gecelter suggests. Wits surgeon Johannes Albertus (Bert) Myburgh had started preliminary experimental work on transplantation in the early 1960s. In 1964–65 he spent a year at the University of Utah in Salt Lake City to gain experience with transplantation, immunology, and rejection.<sup>40</sup> At the same time, Dr. James Jordaan, head of urology at Wits, travelled to France to explore their transplant programs.<sup>41</sup> Both men wanted to drive the creation of the transplant unit at Wits. Ultimately, Professor Sonny du Pless, head of surgery, favoured Myburgh.

Myburgh was an ambitious man; in fact, a number of his colleagues suggested that he aimed to win a Nobel Prize.<sup>42</sup> He was born on 31 May 1928 in the small town of Lindley, in what was then the Orange Free State. He attended a local high school, where he matriculated with straight distinctions. He was also an avid sportsman, playing first XV rugby for UCT as well as obtaining provincial and national colours in athletics. He graduated from the medical school at UCT in 1950. In 1952 he was awarded the Rhodes Scholarship and spent four years in Oxford as a senior house officer and registrar at United Oxford Hospitals. Returning to South Africa in 1956, he accepted a surgical registership at Coronation and Johannesburg Hospitals – both Wits teaching hospitals. He remained at Wits and the Johannesburg Hospital until his retirement in 1994.<sup>43</sup> Myburgh was promoted to professor in 1967 and delivered his inaugural lecture, "Clinical and Experimental Organ Transplantation," on 25 August 1969.<sup>44</sup> By this time, he and his team had done twenty-eight kidney transplants. Myburgh reported that "all the patients are alive and all but one have functioning grafts."<sup>45</sup> This clearly does not include the three failed transplants done in 1966.

In 1966 Myburgh arranged for Professor Thomas Starzl, the world's leading expert on transplantation based at the University

of Colorado, to take up a six-week visiting professorship at Wits. Starzl mentions Myburgh and Wits in his autobiography, proudly recording his role in starting the “first kidney transplant program in Africa.”<sup>46</sup> Starzl referred to Myburgh as “Bertie,” showing his fondness for the man. In Starzl’s assessment, “Myburgh went on from this start to make many contributions to transplant surgery. A very talented man.”<sup>47</sup> High praise from a world-renowned transplant surgeon who could be very dismissive of people he worked with.

Before the transplants could take place, the team spent the last two weeks of August 1966 training in the morgue. Gecelter remembers, “He [Starzl] said, ‘Well we have to teach you the technology of transplants.’ So we went down to the mortuary.... And he, got a couple of cadavers, and he dissected them, put them into transplantation.”<sup>48</sup> Starzl’s visit was seen as a momentous occasion. In their co-authored, unpublished history of end-stage renal failure in South Africa, key members of the medicine and surgery departments wrote, “There was a wild scurry to buy the clamps suitable for his [Starzl’s] needs. This was the first time that the hospital gave a person *carte blanche* to buy whatever he wanted at a moment’s notice.”<sup>49</sup> Peter Cleaton-Jones’ memory of Starzl was that he shook hands like “a limp-turkey,” which Cleaton-Jones assumes was to protect his hands, vital for his career as a surgeon.<sup>50</sup> Bad handshakes aside, in the mid 1960s, the visit of the preeminent American transplant surgeon to Wits was an important event. It put Wits on the intellectual map and showed that the university and hospital would go to any lengths to be the first to do a successful kidney transplant on the African continent.

The first two kidney recipients were John Van Zyl and Ms. J. Belleville. Unsurprisingly for South Africa at this time, both were white. Both patients received related living donor (RLD) kidneys on 25 August 1966. Both operations went smoothly, but the recipients lived only three and eleven months, respectively. Shirly Winters was the third recipient, and the first to receive a kidney from a deceased/cadaver donor (CD). The operation went smoothly and Winters survived, but her body rejected the kidney within a few months. The same thing happened to the next two cases. In a media interview in 1966, Myburgh noted that “the surgeon has outstripped the scientist in this field. Technically, organ transplantation is a relatively simple procedure but the reasons for the almost invariable failures have yet to be elucidated.”<sup>51</sup> The central reason for the failures was rejection. Rejection occurs when the transplant recipient’s immune

system attacks the transplanted organ. Understanding rejection and developing a way to suppress the immune system and prevent organ rejection became Myburgh's mission. Myburgh and his research drove the kidney transplant program at Wits in its early years. For his research into rejection, his main subjects were chacma baboons, which are indigenous to Southern Africa and are among the largest of the monkeys.

Fourteen of Myburgh's early patients ultimately rejected the kidneys. Of the first group, two of the recipients received their kidneys from identical twins, and in both of those cases there were no immunological problems. One of these was the first transplant in Johannesburg to have a long-term successful outcome. It was done on 11 January 1968. The patient was Kantam Govender, who received a kidney from his twin brother and lived for thirty years with the new kidney. Significantly, this was the first transplant to be done on a non-white patient (Govender was classified as Indian) and was done at an all-white hospital, something I shall return to below.

Few immunological problems were found in a third RLD transplant, a father donating a kidney to his twelve-year-old son. Myburgh pointed out that there was a substantial difference in survival rates between those who received kidneys from RLD and those who received CD kidneys.<sup>52</sup> This was clear worldwide and led to research on blood and tissue matching, the practical utilization of which was still decades away. Smit recounts how Myburgh's competitiveness actually highlighted the advantage of related donors:

Some preliminary experiments were going on, especially in the light of the people in the Cape at the time were doing kidney transplantation in baboons ... but there was something special about the baboons in the Cape. Because they were caught here in the Cape Point Peninsula and there was much inbreeding in these baboons ... the Cape surgeons had very good transplantation results in their baboons because they were a very inbred population.... Whereas in the Transvaal where we lived, the baboons were caught from farms that were widespread in the area.... We could never repeat the kind of results that the Capetonians obtained.<sup>53</sup>

This reinforced the point that related donors did better in transplant surgeries. However, it was impossible for all transplants to be from related donors, and Myburgh lamented in his inaugural lecture that “we have not attained the ultimate biological goal of clinical organ

transplantation, namely the production of specific immunological tolerance or the acceptance of the graft by the host as ‘self.’<sup>54</sup> The search for immunological tolerance drove his research in two areas: antilymphocyte globulin and total lymphoid irradiation. This paper focuses on the latter.

### **Myburgh, Smit, and Total Lymphoid Irradiation**

Total lymphoid irradiation (TLI) is the delivery of ionizing radiation to the lymph nodes in order to prevent an immune response. For this to work, Myburgh and his team needed a different set of skills. By coincidence, someone with just those skills was looking for a new job – Jacobus Andre (Koo) Smit:

In 1970, or there about, there appeared articles from overseas, from Dr. Simon Slavin in Israel and Dr. Strober in America about the fact that if they gave fractionated irradiation to mice. This irradiation would give rise to tolerance.<sup>55</sup> ... Of course this interested Professor Myburgh and Professor du Plessis.... No other university in SA was working on this at the time and du Plessis was always trying to put Wits at the forefront.... And I was the only one in South Africa who did that sort of [thing], and had a biochemical background with a knowledge of irradiation.<sup>56</sup>

Smit finished his degree in chemistry at the University of Pretoria and wanted to do postgraduate work. After a few unsuccessful attempts to secure a graduate scholarship, he applied to the South African Atomic Energy Board. The board was formed in 1948 by an act of parliament to control the production and trade in uranium. This was amended in 1959 to expand their mandate to include research, the development and utilization of nuclear technology, and the building of a research reactor. The following year, they hired Smit and promptly sent him to Oxford University with the specific goal of researching how people could be protected from the effects of irradiation. He went up to Oxford in 1960 and remained there until 1964, when he returned to South Africa to work for the Atomic Energy Board. However, by the mid 1960s it was widely known that the effect of irradiation was irreversible and, in his words, “they did not know what to do with me.”<sup>57</sup>

That was when Myburgh learned about Smit’s work and saw the possibilities of Smit’s joining his team. In an interview Smit recalls,

“They found me and made me a very generous offer... But then I did not know anything about transplantation but I knew about radiation so they sent me immediately to St Mary’s hospital in London, England, for 6 months.”<sup>58</sup> When he returned, he was immediately immersed in the TLI experiments. Again, quoting Smit, “Professor Myburgh decided that he wanted to pursue the rat irradiation technique in the baboon. Because we weren’t working with rats and mice like everyone else but we had access to Baboons.”<sup>59</sup> Even then, this was a challenging undertaking. First, they had to find space to work: “Professor Myburgh and du Plessis used the second floor from the top [of the medical school] turned it into laboratories and a theatre, baboon theatre.”<sup>60</sup> Funding for the renovations and setting up of the space came from donations. Smit remembers,

Professor du Plessis was very good at generating funds from patients, from well to do patients, and there were two people in particular who over many years supplied a lot of money... The Michael and Janine Miller Fund was the one source and another was the Percy Fox Foundation. They were very generous. I do not know how many millions it was but there was always money for equipment and bringing the laboratories to the highest standards, I had the best equipment in the entire country, everyone was very jealous of us thinking that this was the government supported us. Although there was support from government, we also had support from the medical council. For many years we had a Medical Research Council support.<sup>61</sup>

Marie-Louise Myburgh, Bert Myburgh’s second wife, confirmed that the “Miller Foundation for one, funded many things that made Bert’s transplantation work viable. Huge sums of their charitable input made Bert’s research into ‘anti rejection’ in transplantation possible.”<sup>62</sup>

The implications of this funding was threefold. First, these private donors (whom both du Plessis and Myburgh seemed excellent at cultivating) meant that this research was much better funded than other units within the university and they were able to access better equipment and more resources.<sup>63</sup> Second, the private funding meant that their research could continue without external scrutiny. The Wits’ Department of Surgery and Wits University more generally was unlikely to call out the department for their treatment of the baboons used in their research or any other experimental, ethically questionable research as long as the team was being recognized and getting acceptable clinical results.<sup>64</sup> They were indeed being

recognized, publishing in prestigious journals, attending important conferences, and so on – even with the academic boycotts in place.<sup>65</sup> Other funding was garnered through government-related agencies. The South African Medical Research Council, which was established in 1969 with the mandate of bringing health to the (white) nation, provided a huge amount of funding.<sup>66</sup> There were other links as well. For example, the South African Atomic Energy Board were a sponsor of the 1968 Kidney Society Conference held in Stellenbosch in the Western Cape. The conference was co-hosted by Johns Hopkins Hospital.<sup>67</sup> This offers another example of the way in which this team was integrated into the international transplantation networks, despite international policies meant to bring an end to Apartheid.

At the same time, this demonstrates the complex relationships between the university, the government, the Atomic Energy Board, and the various research councils in South Africa. The research of the Wits transplant team was supported by government grants, state-sponsored publicity, and the ability to travel abroad in a way many others were not able to do during Apartheid. Saul Dubow, arguing for an earlier period, points out how scientific knowledge gained a secure base within the government during and after the First World War, spreading from there into the university system. Social and scientific knowledge was increasingly subject to professionalization and treated as an aspect of national development. Research units were first located under the aegis of government departments such as agriculture, education, and mines and industry. Subsequently they developed as semi-autonomous agencies, charged not only with the task of dispensing funds to university-based researchers but also with generating direct knowledge.<sup>68</sup> This was very much evident in the later Apartheid period and is specifically evident in the story of kidney transplantation. For the doctors and scientists involved in this work, transplantation was a symbol of national efficiency and of white technical expertise equal to that of the rest of the world. My interviewees spoke a great deal about this experimental work. They were excited about the prospects and about what they were able to achieve. They stressed the advanced technical nature of the process and yet were remarkably cavalier about the effects of their experiments on animals.

## **Race and Transplantation**

There is an important recent growth in the historiography surrounding race and medicine.<sup>69</sup> An example of this is the work of Anne

Pollock, which shows the connection between race and heart disease in America.<sup>70</sup> Her work focuses on the drug BiDil, which is the first race-based prescription medication developed in the United States, and argues that “the intertwined trajectories of medical research and advocacy ... within a wider set of medical and racial ideas and practices” work together to create a narrative about the centrality of race in medicine.<sup>71</sup> This is similar in South Africa, where the preoccupation with race and medicine is heightened by the context of Apartheid.

From 1966 into the late 1980s, the doctors working in kidney transplantation were almost exclusively male and white, while the nurses were predominantly white women. This white team transplanted organs from mostly white donors to mostly white patients. As Gecelter put it, “There weren’t many black faces around, unfortunately. Black surgeons and black urologists weren’t being trained in those days.”<sup>72</sup> The one exception was Haroon Tayob, and his story highlights how race and medicine played out in the lives of South African doctors.<sup>73</sup> Tayob was born in Johannesburg in 1946, and because he was classified as Indian under the Apartheid laws, he grew up in the Indian-defined areas of Fordsburg and later Lenasia. I have quoted him at length because I feel it is important for the reader to hear the voices of my interviewees telling their own stories:<sup>74</sup>

I had acquired a reasonable qualification, which would have allowed any white matriculant [grade 12] to be admitted to university, but unfortunately, at that time there were only three spots for non-whites to be admitted to medical school at Wits.... I applied for medicine and unfortunately was rejected, so I then went to Salisbury Island ... which was situated in Natal on an island.... My first experience there was this very bold, Afrikaans lecturer who warned us that no Indian had ever passed the first year.<sup>75</sup>

Tayob and his family came to the conclusion that it would be beneficial for him to study abroad, and he began studying in Dublin, Ireland in 1964, returning to South Africa in the 1970s to begin his residency at Baragwanath Hospital. Here he met with racism once again. He found that as an Indian he was not considered black enough to fill the “black slots” and not white enough to work at a white hospital:

So we [Haroon and his brother] finished our six months registrarship in surgery and then were told to leave. When asked why we should leave, we were told that the posts that

were available in the Department of Medicine were filled. I then took legal opinion and was informed that I had a right to argue this decision by reminding the authorities that Baragwanath is a non-white hospital and the preference should therefore be given to non-whites. So I contested that for myself and my brother and threatened to take legal action. Having done that I was then told to calm down and that they would see what they could do about it.<sup>76</sup>

A plan was made for Tayob and his brother to be hired by the Department of Medicine at Baragwanath Hospital. His experiences there over the next few months continued to reinforce the racialization of medicine:

In the early few months of my time there, I had a very young black male, patient who was in kidney failure. And I then requested that he needed dialysis and I spoke to Dr. Dubb and I said that I would like to dialyse this patient because I qualified in Dublin at the largest nephrology unit called Jervis Street.... I was quite clearly informed that dialysis was not being carried out on black patients.... I then insisted, or almost begged, that they allow this young man, because he was so young.... I was very emotional. And then Dr. Dubb who was actually kind enough to say to me: "You can dialyse him. I will allow you to do a peritoneal dialysis and you can dialyse him, but once he is well, he cannot be put onto any chronic programme." ... As a result of that I decided I was not going to stay in the country...<sup>77</sup>

This was not the end of the story. A few years later Tayob returned to South Africa, where he was offered a fellowship in the Department of Nephrology at Baragwanath Hospital. Tayob was prepared to work at Baragwanath, but only if he received his academic training at Johannesburg Hospital in the same way as white students did. By pulling some bureaucratic strings, Professors Meyers and Goldberg arranged that Tayob could work with them at the Johannesburg Hospital. However, he could not take up a post as a specialist physician, for which he was qualified, because those posts were reserved for white doctors. So he continued as a registrar at a registrar's salary. The absurdities of Apartheid legislation continued to play out:

Of course, I was informed by the superintendent of the white section that I was not allowed to examine white women and



was not allowed to do this and that.... Anyway, I then started to work with Professor Meyers who, I must tell you, allowed me to do everything. He allowed me to learn every part, never restricted me in any part of his departments.... I worked in the transplant unit with him, under his supervision, with a little bit of difficulty with some of the white nurses and the doctors, who were not too happy to see a non-European face.<sup>78</sup>

What has been unclear in my research is whether transplants ever actually took place at Baragwanath Hospital. As I stated at the beginning of this paper, most of the early statistics list three transplants at Baragwanath in the 1970s. According to Tayob, “Knowing that kidney transplants were stopped at Baragwanath Hospital.... The message we got was that transplants was a failure amongst the black population, because the majority died of tuberculosis or complications with tuberculosis, as a result of the immunosuppression. And therefore it appears that Dr. Gold then closed the transplant programme and he left for Israel. So transplantation was no longer being done there.”<sup>79</sup> Urologist Paul Porteous remembers that “the very first transplant that I was introduced to might have been the very first transplant done at Baragwanath hospital.”<sup>80</sup> Porteous and Tayob both remember the key character in these transplants as Clive Gold, whom Porteous remembers as looking like Henry Kissinger. After much searching, I was able to track Gold down in Israel. Gold, who did work at Baragwanath during this period, either does not remember or will not talk about transplants.<sup>81</sup>

My interviews also suggest that in the 1960s and 1970s, there were a few transplants done on black patients by the Wits team at the Johannesburg Hospital. Meyers remembers,

Some of them were on the transplant list, but very few before 1994. We did transplant [black patients] occasionally; we did very well. I can remember transplanting an African Gentleman in about 1978 – he was dialysed at Coronation [Hospital], and his blood brother came from Nairobi, an identical twin. I think we tried to be as fair as we could ... but in terms of the number of black or Asian patients there were very few on dialysis.<sup>82</sup>

As mentioned above, one of the early transplant patients at the Johannesburg Hospital was Indian patient Kantam Govender. He received an RLD kidney from his twin in 1968. It is likely that the

rare opportunity to see the immunological reaction of a transplant from a twin was interesting and exciting enough for Myburgh and his team to work around the rules of racial segregation. No other patients of colour appear in the meticulous records of transplant patients kept by Sr. Lou Aucamp until 1971, when another two Indian patients received kidneys from a CD. Another two Indian patients had transplants in 1972. Ninety-eight transplants were done between 1968 and 1972. Five of these were the Indian patients mentioned above and all the other surgeries were on white patients. There were even fewer transplant patients from other racial groups during this period. The records list patients' race using the Apartheid racial classifications of the time, and the first recorded mixed-race ("coloured") patient received a RLD kidney in 1975. The first black patient to undergo a transplant, according to the official list, was Ms. K. Makda, who received a CD kidney on 10 April 1978. Originally classified as black on the patient list, she was "reclassified" as Indian by a handwritten amendment to the list at some point. If this amendment is accepted, then the first black patient on the list was transplanted in October 1978 and the next in November of the same year.<sup>83</sup>

By this point the team had done 302 transplants, with varying degrees of success. It was, however, the third black patient whom most people seem to remember from the 1970s. Leapeetswe Khama was the brother of Seretse Khama, who was prime minister of Botswana at the time. It was not unusual for African leaders and their families to seek medical care in South Africa. They often received special care at Baragwanath Hospital or in some cases were treated secretly at white hospitals. Khama was transplanted in December of 1978. There are conflicting stories about the providence of the kidney transplanted into Khama. Some suggest that it came from a RLD, while others remember that it was from a white farmer from Bloemfontein who had died in a car accident.<sup>84</sup> Porteous remembers seeing Khama in a private ward at Baragwanath, but Aucamp remembers nursing him at the Johannesburg Hospital. She describes him as a "well-spoken black man as neat as a pin" and remembers a leather purse he gave her at the end of his stay, which she has always treasured.<sup>85</sup> While I have been unable to confirm, or untangle, this story, it does reveal the opportunities available to cross the colour bar if doctors were motivated to, and it shows that these cases were rare and often remembered. The racial makeup of the patient body began to shift slowly in the mid 1980s. However, even by the end of Apartheid in 1994, black patients were still a minority on the transplant list. This despite

the majority of the population being black and the black population having very high rates of kidney disease.<sup>86</sup>

The limitation on black patients' access to transplantation was multi-causal. First, in order to be eligible to be placed on the transplant list, patients needed to be in good health and have access to regular dialysis. However, "at Baragwanath, until the late '70s – was peritoneal dialysis, the government wouldn't allow haemodialysis [for black patients]. And these guys were always ill, with peritonitis ... sick – not transplantable."<sup>87</sup> Peritoneal dialysis is done by pumping a cleansing fluid through a catheter into a person's abdomen using the peritoneum as a membrane to exchange fluid. Although this needs some technical skill, it can be done at home and does not require a dialysis machine. Peritoneal dialysis is therefore cheaper for the health care system. However, the awful socio-economic conditions in which the black population were forced – by the Apartheid state – to live affected patients' ability to obtain the cleansing fluid, ensure the hygienic conditions necessary for this form of dialysis, or gain access to qualified medical staff.<sup>88</sup>

The one issue that is often overlooked when discussing organ donation in South Africa (or Africa more broadly) is the complicated relationship between the biomedical system and many colonized people that dates back to the abuses of the missionary and colonial era. At Wits the long-lasting relationship between physical anthropology and medicine, which began with Raymond Dart in the 1920s and continued under the leadership of Phillip Tobias, saw racialized biological profiling in research, teaching, and published literature well into the 1950s.<sup>89</sup> This research, which was based on colonial assumptions, argued that it was the physiological weaknesses in the African that doomed them to certain pathologies. This, in and of itself, has had far-reaching consequences in how disease discourse has continued to develop and shaped present interpretations of disease.<sup>90</sup>

At the same time, this research has also led to a growing focus on the belief that unique patterns of African epidemiology were due to cultural difference.<sup>91</sup> While white doctors and nurses often blamed African culture for the refusal of Africans to donate organs,<sup>92</sup> this was often a decontextualization of this response, which can be better understood if we pay attention to the recent historiography on the history of medicine in Africa. As Parle and Noble explain, this historiography has "moved beyond consideration of homogenous or one-sided coloniser versus colonised healing encounters ... to investigating the critical limits and tensions produced by biomedicine in

colonial and post-colonial situations.”<sup>93</sup> There is a growing understanding that Africans interacted with biomedicine on their own terms – often in pragmatic, creative, and entrepreneurial ways. This would often incorporate biomedicine into constantly adapting cultures, in contrast to the colonial view of “traditional” cultures being static.<sup>94</sup> Given this understanding, it was not necessarily a total distrust of biomedicine that prevented many black South Africans from donating organs, but rather the top-down, decontextualized, culturally insensitive way in which the issue of organ donation was dealt with until the early 2000s.<sup>95</sup> In turn, this led to both a lack of knowledge about organ donation among Africans and the assumption by white biomedical practitioners that “Africans will not donate organs,”<sup>96</sup> meaning they were seldom asked, which perpetuated stereotypes and reinforced colonial structures.

### **Cleaners Become Theatre Staff**

One of the most interesting issues linking race and transplantation was who staffed Myburgh’s experimental baboon theatre. Smit told me, “Now I must tell you about the theatre staff. Professor Myburgh had nobody to help him in theatre so he used cleaner staff, black staff and there were four of them.”<sup>97</sup> The four were Alfred Nemudzivhadi, Jacks Morake, Johans Matipa, and Levison Ncube. Morake and Nemudzivhadi would assist Myburgh in his experimental operations on the baboons, and the latter doubled as the anaesthetist. Johans Matipa acted as the nurse for the baboons. A number of my interviewees remember that if Professor Myburgh was called away, one of these men would finish the operation.<sup>98</sup> Smit remembers “Morake having assisted him over the years with a thousand transplants was able to do the kidney transplant by himself.”<sup>99</sup> Smit said this with pride, but Pickover, speaking from an animal rights background, has a different take. She writes, “Myburgh would either operate or Alfie would do it – because he trained Alfie and Jakes to do ... transplants – which was shocking because they had no education maybe a standard 5 [grade 7 in North America].”<sup>100</sup>

Even though they lacked higher education and training, Myburgh recognized the skill in these men, and under his tutorship they were able to develop skills of their own.<sup>101</sup> Even more uniquely for this period, one of Myburgh’s 1971 publications credited three of these four men as co-authors.

Anecdotally I was told that Morake and Nemudzivhadi got excellent results. However, being black South Africans, they did not

receive higher salaries for this work, nor did they get the recognition they deserved. For Alfred Nemudzivhadi this was rectified, to a small extent, when he was eventually given a promotion – but nowhere near what was commensurate with the work he did – and he was given an award at the Wits’ seventy-fifth jubilee celebration. His citation read:

Joined the University in January 1959 as a cleaner in the Central Animal Unit and from there he worked his way up to being Professor Myburgh’s chief Technician in the Experimental Theatre, a promotion which scaled 8 grades by 1985. He was responsible for the total anaesthetic management of all operations on baboons as well as on dogs and smaller animals such as rabbits and rats. It has been said that if Professor Myburgh had ever been called away, Alfie could have completed any of the transplants being performed. Apart from his considerable technical skills, he seems to know everyone who ever worked in this University. He was appointed as a shop steward for BUWA [the Black University Workers’ Association] in 1985 and served the association for 11 years.<sup>102</sup>

As far as I can tell, Nemudzivhadi was the only one to be celebrated by Wits publicly. I have been unable to track down any of these men or their families despite a concerted effort.

## Conclusion

In some ways the Myburgh years were the high point of transplantation in South Africa and specifically for the kidney team at Wits. Myburgh gathered a group of excellent, dedicated clinicians and researchers. Botha explained the pull of the Myburgh team:

I obviously wrote my fellowship and then went to Burt Myburgh and said “I would like to work in your ward” and he said “you must do transplantation” and I said “I would do it with pleasure but I need to be a consultant in your ward as well.” So, I did both.

INTERVIEWER: So tell me why you went to Burt?

Because he was superman of surgery as far as I was concerned, he was the brightest star on the horizon. Had a photographic mind, he could quote articles from the year dot and he was just a super guy. I decided that this is my superman and I am following you.<sup>103</sup>

In this way Myburgh gathered around himself an elite team with their own dynamics. They saw themselves as doing radical, revolutionary work at the cutting edge of medical science. This educated, sophisticated elite were performing surgeries equal to the best in the world. They were doing innovative research, having their work published in peer-reviewed international journals, and presenting at prestigious international conferences even though there were increasing calls for the academic isolation of South African institutions and researchers. Many of the people I interviewed spoke proudly about the international conferences they attended, papers they published, and academic visitors they hosted. Their conviction in the value of their research, and its positive reception worldwide, masked the underlying ethical questions. Their work on TLI raised questions about their treatment of the baboons they were experimenting on, the links between the university and the Atomic Energy Board (a state-sponsored entity), and the value of TLI in human patients. At the same time, the focus in the scientific and medical literature, on research and clinical results, conceals the highly racially stratified nature of transplantation in South Africa. A detailed look at the Wits kidney transplant team between the mid-1960s and the 1980s shows how race shaped who had access to transplants and how the research and medical teams functioned. Indian doctors had to leave the country for training and had to make special arrangements to practice. Cleaning staff who acted as research assistants got little recognition and were paid far lower wages than their work warranted. The image the team sought to portray focused not on these issues but on the scientific advancements they were making and the elite nature of transplant medicine performed by and available to a mainly white South Africa.

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Charlotte Maxeke Johannesburg Academic Hospital; Aloma Matsie Pooe, interview with author, 12 May 2016, Chris Hani Baragwanath Hospital. Racial and cultural impacts on the choices surrounding organ donation are explored in work such as Bhengu and Uys, "Organ Donation and Transplantation"; Kometsi and Louw, "Deciding on Cadaveric Organ Donation"; S. Mokotedi, M.C.M. Modiba, and S.R. Ndlovu, "Attitudes of Black South Africans to Living Related Kidney Transplantation," *Transplantation Proceedings* 36 (2004): 1896–97; Ndlovu, Kobryn, and Modiba, "Attitudes of Black South Africans."

97. Koos Smit, interview.
98. Smit remembers it being Marake who could finish operations, while other sources, including a citation in the Wits jubilee awards program, credit Nemudzivhadi with this skill.
99. Koos Smit, interview.
100. Cited in Pickover, "Closed Doors, Cloaks and Daggers," 27–28.
101. J.A. Myburgh *et al.*, "The Technique of Orthotopic Hepatic Allograft Transplantation in the Baboon," *South African Journal of Surgery* 9 (1971): 81–86.
102. Booklet published for the seventy-fifth jubilee awards celebration, Faculty of Health Sciences, University of the Witwatersrand, 30 August 1997.
103. Rene (Dokkie) Botha, interview.