



Imagining the ‘Biochemical Race’: Sero-Anthropology and Concepts of Racial Purity in Portugal (1900s–1950s)

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journals.sagepub.com/home/ehq**Richard Cleminson** 

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Abstract

This article traces the reception of blood group research in Portuguese physical anthropology in the first half of the twentieth century and analyses its presence as ‘sero-anthropology’ within the context of the disciplinary and political dynamics of colonial and metropolitan Portugal and against the background of international developments on blood group research. It argues that Portugal, hitherto largely understudied in relation to the broader international picture, was in tune with these developments. The article argues further that Portuguese physical anthropology, particularly research based at the University of Porto, was deeply ingrained with the fear of ‘contamination’ of the ‘race’ by the colonized ‘other’ and sought to differentiate the Portuguese from the peoples of Africa and the East where Portugal possessed colonies, while it also sought to place the Portuguese within the scale of racial hierarchies of ‘whites’ in Europe. The article elaborates on a number of central and marginal figures within Portuguese anthropology to illustrate these claims and argues that the discipline was in tune with wider European developments in the field but with specific colonialist and racist inflections, some of which are still felt in Portuguese culture today.

Keywords

Ayres de Azevedo, blood groups, Mendes Correia, physical anthropology, Portugal, serology

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Introduction

In this article we examine conceptions of racial purity in the works of early twentieth-century Portuguese physical anthropologists who practised the science of serology or so-called sero-anthropology, that is, the set of methods and techniques aimed at collecting and classifying human blood groups as markers of ‘race’ in distinct human populations.¹ In the first half of the twentieth century, serology became increasingly popular among physical anthropologists in Europe and the United States and even beyond. Strong racial nationalism stimulated this growing international interest in serology, and Portugal was no exception.² Portuguese anthropologists similarly sought to isolate the supposed purity of the national ‘race’ as a ‘biochemical’ entity embodied in the physicality of human blood and expressed in statistical indexes; at the same time, and through the same methods, they sought to isolate the purity of *other*, supposedly inferior, non-white ‘colonial races’. Hence, Portuguese researchers hoped that the statistical analysis of human blood groups would help discern the true biochemical nature of pure racial types, both among ‘white Portuguese’ at home and ‘black’ and ‘primitive natives’ in the country’s African and Asian colonies. Always a diffuse concept, ‘purity’ was an artefact construed along an intentional and mutually exclusive black/white axis whereby a supposedly clear-cut and absolute distinction could be made between the two categories. In turn, the imagined purity of ‘whites’ became defined against the imagined purity (but also the inferiority) of ‘blacks’. Such purity, nevertheless, was always an aspiration, an ideal, rather than a concrete attainment, but it was precisely its potency as a social and biological construct that made it so important for anthropologists in the early and mid-twentieth century. The physical anthropologists’ technical search of ‘biochemical’ racial purity was embedded in such dualistic imaginary. In tune with this premise, we argue that the nationalistic serology of the purity of ‘white’ Portuguese co-existed with and was mutually dependent on the colonial serology of those who were classified as ‘pure’ *indígenas*, the colonized ‘natives’ under Portuguese imperial rule.

Through an examination of purity as a powerful and organizational trope we contribute to decentering the commonly held narratives of Latin, and specifically Lusophone, racial exceptionalism in the twentieth century, by which an exclusively positive and celebratory view of race-mixing was (and still is) conveyed publicly. In the early modern period, a ‘black legend’ of the Portuguese empire developed around negative imaginaries

¹ See William Schneider, ‘Blood Group Research in Great Britain, France, and the United States between the World Wars’, *American Journal of Physical Anthropology*, Vol. 38, supplement 21 (1995), 87–114.

² On racial nationalism and blood group research, see Pauline Mazumdar, ‘Blood and Soil: The Serology of the Aryan Racial State’, *Bulletin of the History of Medicine*, Vol. 64, No. 2 (1990), 187–219; Jennifer Robertson, ‘Hemato-nationalism: The Past, Present, and Future of “Japanese Blood”’, *Medical Anthropology*, Vol. 31, No. 2 (2012), 93–112; Projit Mukharji, ‘From Serosocial to Sanguinary Identities: Caste, Transnational Race Science and the Shifting Metonymies of Blood Group B, India, c. 1918–1960’, *Indian Economic and Social History Review*, Vol. 51, No. 2 (2014), 143–76. On the growing international and even global significance of blood group research after World War II, see also: Jenny Bangham, ‘Blood Groups and Human Groups: Collecting and Calibrating Genetic Data after World War Two’, *Studies in History and Philosophy of Biological and Biomedical Sciences. Part A*, Vol. 47 (2014), 74–86; Elise Burton, ‘Essential Collaborators: Locating Middle Eastern Geneticists in the Global Scientific Infrastructure, 1950s–1970s’, *Comparative Studies in Society and History*, Vol. 60, No. 1 (2018), 119–49.

of a supposedly special inclination of the Portuguese colonizers to mix culturally and biologically with Asian and African societies.³ From the 1930s, however, this imaginary of Portuguese mixing took a distinct turn. Then, Brazilian anthropologist Gilberto Freyre's theories of 'Luso-tropicalism' began to argue in favour of cultural and race mixing as a benign trait of the specificity, even the 'exceptionalism', of race relations in Portuguese-speaking countries.⁴ Despite initial opposition or coolness on the part of the regime, pragmatically, over the 1950s and 1960s Freyre's theories were appropriated by the Portuguese dictatorship of António Salazar as part of official ideology to justify the supposedly non-racist nature of Portuguese colonization and to refute the arguments being made against the continuance of Portuguese colonialism in the post-war period.⁵ Misleading Luso-tropicalist assumptions on race relations, however, have been thoroughly criticized and subsequently debunked by historians, anthropologists, and sociologists especially in recent years.⁶ In respect of the history of race in scientific fields specifically, recent historical scholarship has further revealed the complexity of Luso-Brazilian racial conceptions, far beyond the myths of racial democracy and the Luso-tropical fallacies of Portuguese colonialism and the celebration of *mestiçagem* [miscegenation].⁷ This scholarship suggests that in twentieth-century Portugal, racial conceptions were heterogeneous and diverse; positive celebrations of 'miscegenation' or racial mixing were more an exception than a rule despite their importance in some circles after the 1950s, namely in the work of the researcher in haematology and serology in Portugal, Almerindo Lessa, discussed below. From the late nineteenth century onwards, any positive imaginaries of 'purity' were accompanied by concomitant visions of the degrading effects of 'mixing' and inspired early Portuguese racial ethnologists to pursue research about 'race' in the country as well as in the overseas colonies.⁸ In the

³ See, for example: Ângela Barreto Xavier, "'Parecem indianos na cor e na feição": A 'lenda negra' e a indianização dos portugueses', *Etnográfica*, Vol. 18, No. 1 (2014), 111–33.

⁴ The literature on Gilberto Freyre's influential work in Brazil, Portugal, and beyond, is extensive. In English, see: Peter Burke and Maria Lúcia G. Pallares-Burke, *Gilberto Freyre: Social Theory in the Tropics* (Oxford 2008).

⁵ Relevant examples of historical scholarship on the resistance to and the uptake of these theories include Cláudia Castelo, *O modo português de estar no mundo. O luso-tropicalismo e a ideologia colonial portuguesa (1933–1961)* (Porto 1998), and Francisco Bethencourt and Adrian J. Pearce, eds, *Racism and Ethnic Relations in the Portuguese-Speaking World* (Oxford 2012). The diplomatic argument that Portugal had no colonies but 'overseas provinces' was maintained to the last and can be seen, for example, in [Alberto] Franco Nogueira, *The United Nations and Portugal: A Study of Anticolonialism* (London 1963).

⁶ Historian C. R. Boxer wrote an early and influential critique of the Luso-tropicalist racial ideology: Charles R. Boxer, *Race Relations in the Portuguese Colonial Empire, 1415–1825* (Oxford 1963). For an overview, see also: Patrícia Ferraz de Matos, 'Racial and Social Prejudice in the Colonial Empire: Issues Raised by Miscegenation in Portugal (Late Nineteenth to Mid-Twentieth Centuries)', *Anthropological Journal of European Cultures*, Vol. 28, No. 2 (2019), 23–44.

⁷ See especially the chapters in Warwick Anderson, Ricardo Roque and Ricardo Ventura Santos, eds, *Luso-tropicalism and Its Discontents: The Making and Unmaking of Racial Exceptionalism* (Oxford 2019).

⁸ See, for instance, Ricardo Roque, *Antropologia e Império: Fonseca Cardoso e a expedição à Índia em 1895* (Lisbon 2001); José Manuel Sobral, 'O Norte, o Sul, a raça, a nação – representações da identidade nacional portuguesa (séculos XIX–XX)', *Análise Social*, Vol. 39 (2004), 255–84.

first half of the twentieth century, more often than not, race-mixing was considered a vice rather than as a virtue of both 'nation' and 'empire'.

In this vein, this article provides an analysis of a set of contrary theories that both preceded and accompanied and possibly acted as a counter-weight to the dissemination of the race mixing thesis of *luso-tropicalismo* from the 1950s onwards, thus contributing to the enrichment of our understanding of the raciological discontentment that was present in Portuguese physical anthropology up to the 1970s. The celebration of racial purity and the rejection of miscegenation by these contrary theories, we suggest, inspired a set of Portuguese physical anthropologists based particularly at the University of Porto to embrace the promises of the science of serology, using blood-group tests, categories, and indexes, to discover the hypothetical reality of pure 'biochemical races' in Portugal and its African colonies (Angola, Mozambique, Portuguese Guinea, and São Tomé and Príncipe). We argue that this research was primarily associated with the enhancement of a double kind of biochemical purity: the supposed superior racial purity of the 'white nation' in Europe which ran parallel to, and in contrast with, the purity of lesser 'black' peoples of the Portuguese colonies, thus creating a dual interpretation that upheld racial hierarchies and undergirded notions of racial purity simultaneously within a nationalist-imperialist framework.⁹ We would be naïve to assume, however, that such biological notions of purity were not also grounded on cultural understandings and on developmental schema that placed whites in the forefront and colonized blacks as only 'catching up'; hence the 'civilizing mission' of the Portuguese colonial state.¹⁰ Portuguese nationalism, theories of the origin of the nation and colonialism drew deeply on these viewpoints and were deeply interrelated. In at least one case, as we will show, the allure of purity and the depreciation of mixing would bear the mark of the most hideous scientific racisms of the inter-war period: Nazi Germany's *rassenkunde* or 'racial science', which explicitly opposed racial mixing.¹¹

The article thus approaches the Portuguese focus on human blood as marker of race in connection with the international context of medical serology in the first half of the twentieth century. In doing so, we expand discussions on the trope of so-called Iberian 'blood purity' beyond the early modern era and beyond this phenomenon as mere Iberian exceptionality. Early modern historiography has long observed the centrality of the notion of *pureza de sangue* [purity of blood] in Catholic Spanish and Portuguese conceptions of the heredity of (im)pure status and religious conditions, crucial to regulate lineages and hierarchies both at home and in the colonies.¹² In the context of Iberian histories, then, obsessions with 'blood' and 'purity' (and with anti-Semitism, for example) have

⁹ One of the central claims, of course, in Ann Laura Stoler, *Race and the Education of Desire: Foucault's History of Sexuality and the Colonial Order of Things* (Durham 1995).

¹⁰ Miguel Bandeira Jerónimo, *The 'Civilizing Mission' of Portuguese Colonialism (c. 1870–1930)* (Basingstoke 2015).

¹¹ See Hans F. K. Günther, *Rassenkunde des deutschen Volkes* (Munich 1922).

¹² The literature is extensive. In English, see: Joshua Goode, *Impurity of Blood: Defining Race in Spain, 1870–1930* (Baton Rouge, LA 2009); María Elena Martínez, David Nierenberg and Max-Sebastián Hering Torres, eds, *Race and Blood in the Iberian World* (Berlin 2012).

deep historical roots that stretch back to the sixteenth century; we would like to emphasize here the ‘modern’ configuration of this obsession in Portuguese theories and imaginaries of race, nation, and empire in scientific racial anthropology. Thus, although we acknowledge a possible early modern genealogy to the serologists’ obsessions, we also consider earlier notions do not determine, and cannot be confounded with, the distinct materialist and biological conceptions of ‘blood’ and ‘racial purity’ that characterized the work of the Portuguese racial scientists discussed here. Therefore, in this exploration of the Portuguese serologists’ work, we cast light on the enduring influence of imaginaries of human blood and purity in the construction of both the racial ‘self’ and the racial ‘otherness’ of Portugal and illustrate how such racialized imaginaries and hierarchies were embedded in nationalist and imperialist endeavours in the twentieth century.

‘Race’ Between Purity and Miscegenation

During the first half of the twentieth-century, purity was an obsessive motif of scientific research in the racial sciences in Europe. In the early 1900s physical anthropologists followed the then classical presupposition of French anthropology. According to mid-nineteenth-century theorists such as Gobineau and Agassiz, the mixture of races provided a mongrel product that was a ‘corruption of the originals, degenerate and degraded’, an amalgamation that threatened ‘to subvert the vigour and virtue of the pure races with which they came into contact’.¹³ In late-nineteenth-century physical anthropology, nostalgia for a now lost idea of ‘pure racial types’ – an idea articulated, among others, by French anthropologist Paul Topinard who stated in 1876 that ‘il n’y a plus des races pures sur la terre’ [there are no longer any pure races on the earth] – did not mean that the quest for such purity died with the assumption of the universality of racial mixing. In effect, even upon such premises the search for purity persisted in physical anthropology for anthropologists still believed a kind of pure raciological abstraction could be distilled into racial ‘types’ by means of anthropological methods and instruments.¹⁴ Such a sentiment suggested that although any desirable past racial purity had been lost, it could still be recovered, and anthropologists sought eagerly to discriminate the essence of racial ‘types’ from the confusing ‘mixtures’. Such a negative understanding of the consequences of miscegenation prevailed particularly in those scientific communities of countries that still maintained colonial empires. Europeans, in such scenarios, were defined in contradistinction to the colonized ‘other’, particularly where the other race was deemed to be culturally and biologically far removed from the ‘white’ European ‘standard type’. In fascist Italy and Nazi Germany, most notably, racial mixing was prohibited or discouraged, and, in

¹³ Robert J. C. Young, *Colonial Desire: Hybridity in Theory, Culture and Race* (London 1995), 18. On early French anthropology and the naturalist notion of ‘hybrids’, see especially Bronwen Douglas, ‘Confronting “hybrids” in Oceania’, *Revue d’histoire des sciences humaines*, Vol. 27 (2015), 27–63.

¹⁴ Paul Topinard, ‘Anthropologie, ethnologie et ethnographie’, *Bulletins et Mémoires de la Société d’Anthropologie de Paris*, Vol. 11 (1876), 199–229 (at 208). See also: George W. Stocking, Jr., *Race, Culture and Evolution: Essays in the History of Anthropology* (Chicago, IL 1982), 42–69.

the former case, hybridism and *incrocio* were seen to ‘irrevocably alter the racial constitution of the nation’.¹⁵

Against the excesses that this obsession entailed, many anthropologists increasingly targeted and criticized purity as an unattainable illusion, emphasizing mixing and unity as a *de facto* reality or as a desirable occurrence, in an attempt to salvage racial analysis from the dangers and horrors of scientific racism that prevailed in Nazi Germany. In the inter-war years, for example, the study of mixed-races and ‘hybridity’ in the South Seas was especially pursued by certain prominent North American physical anthropologists with a view to countering the obsession with racial purity and oppose the rising racism of many hardline racial anthropologists.¹⁶

Restrictive and prejudiced concepts of race, which sought to maintain the supposed qualities of racial purity, led many anthropologists throughout the 1930s and 1940s to popularize the terms ‘ethnicity’ and ‘ethnic group’. These descriptors were presented as less biologically rooted, more culturally inflected and largely devoid of political overtones. A landmark text in the anglophone world that attempted to consolidate this shift was the book by Julian Huxley and Alfred C. Haddon: *We Europeans, A Survey of ‘Racial’ Problems*.¹⁷ Such a work did not necessarily represent a clear break with the previous conceptualizations. Huxley and Haddon’s book has been signalled by Marek Kohn, nevertheless, as a ‘transitional work’ as it moved between older and newer conceptualizations of the question: ‘in relegating race to history, it showed that it was still rooted in the race concept’.¹⁸ While the Nazi policies of marriage restriction, the glorification of the supposed qualities of the ‘Aryan race’, and the incarceration and extermination of particular racial and other groups were opposed well before the end of the world war in Germany and elsewhere,¹⁹ such deeds confirmed the need to revise the relationship between biology and environment, as well as between science and politics more generally.

In the midst of these debates in anthropology, the consensus that human beings constituted a single species but with plural origins, rather than constituting several races descending from a common origin gained more adherents.²⁰ This single race, nevertheless, was deemed to be endowed with a large degree of variability in respect of its cultural and

¹⁵ Jacqueline Andall and Derek Duncan, ‘Introduction: Hybridity in Italian Colonial and Postcolonial Culture’, in Jacqueline Andall and Derek Duncan, eds, *National Belongings: Hybridity in Italian Colonial and Postcolonial Cultures* (Oxford 2010), 1–19 (at 9). One of the main sources where such ideas were reproduced was in the journal *La Difesa della razza*, which began publication in 1938. See: Francesco Cassata, ‘*La Difesa della razza*’: *Politica, ideologia e imagine del razzismo fascista* (Turin 2008).

¹⁶ See Warwick Anderson, ‘Hybridity, Race, and Science: The Voyage of the *Zaca*, 1934–1935’, *Isis*, Vol. 103, No. 2 (2012), 229–53.

¹⁷ Julian Huxley and Alfred C. Haddon, *We Europeans: A Survey of ‘Racial’ Problems* (London 1935).

¹⁸ Marek Kohn, *The Race Gallery: The Return of Racial Science* (London 1995), 24.

¹⁹ On resistance to the Nazification of the racial sciences in Germany and other countries, see Elazar Barkan, ‘Mobilizing Scientists against Nazi Racism, 1933–1939’, in *Bones, Bodies, Behavior: Essays on Biological Anthropology*, George W. Stocking, Jr., ed. (Madison, WI 1988), 180–205. The Geneticists’ Manifesto, which opposed all uses of racism in genetics, was signed in early 1939. See ‘The “Geneticists’ Manifesto”’, *Journal of Heredity*, Vol. 30, (1939), 371–3.

²⁰ On the respective ‘monogenist’ and ‘polygenist’ theories, see Nancy Leys Stepan, *The Idea of Race in Science: Great Britain, 1800–1960* (Basingstoke 1982), 84–5, and Kohn, *The Race Gallery*, 29–30.

biological influences and there was constant linguistic slippage between the acceptance that there was one race and variability being put down to the existence of 'different races'. Models explaining the inheritance of traits, whether positive or negative differed also according to locality and scientific tradition. As stated above, it was anxieties over the mixing of these different human varieties that never left some anthropological circles and which served to renew biological claims of difference. Although it was admitted that unions between allied races were fertile, they were held to be not necessarily desirable. Unions between 'distant' races were held to be either infertile or to 'tend to degeneration'.²¹ This latter understanding became the dominant view that, having emerged in the 1850s, prevailed in European physical anthropology until the 1930s. In the ensuing years, scientific theories that decried 'racial mixing' or that saw mixes as degenerative or socially undesirable became less fashionable, entailing 'the collapse of the consensus that miscegenation was unhealthy', a stance in part brought about by the UNESCO statements on race in 1950 and 1951.²²

The divisions in the anthropological camp were not, however, so marked as to be able to identify two clear groups – those against racial mixing and those in favour of it – but rather formed a graded set of positions that became attached to miscegenation and the future healthiness of each national race. Indeed, this general shift away from biological concepts of multiple races and in favour of a more open acceptance of 'mixed-race' relations was far from hegemonic and had certainly not prevailed across the whole of Europe by the late 1930s.

It was, we argue, the more restrictive and anti-miscegenation stance that prevailed certainly in the post-war period and at least until the early 1950s, despite some exceptions, in Portugal.²³ The rise of ethnic nationalism and the desire to preserve a large overseas empire infused most anthropological work in the country from the 1880s onwards. In the late nineteenth century a dominant racialist discourse on Portugal and its empire combined a rejection of miscegenation, abhorrence of 'black African blood', and a celebration of the European 'whiteness' of the Portuguese metropolitan population against the possibility of hybridity.²⁴ This racialist viewpoint gained momentum with the creation of the *Estado Novo*, the fascistic nationalist-imperialist dictatorship headed by Salazar, which was consolidated in 1933. It was, in this sense, the representation of the colonial 'other' that shaped the 'self image of the imperial power' in a process of transculturation

²¹ Young, *Colonial Desire*, 18; cf. Stepan, *The Idea of Race in Science*, 105–6.

²² Kohn, *The Race Gallery*, 44–7 (at 47), drawing on Robert Proctor, 'From *Anthropologie* to *Rassenkunde* in the German Anthropological Tradition', in *Bones, Bodies, Behavior*, 138–79.

²³ Exceptions include the work of the already mentioned haematologist and serologist Almerindo Lessa.

²⁴ Roque, *Antropologia e Império*; Ricardo Roque, *The Colonial Anthropometrist* (manuscript in preparation). See also: Manuela Ribeiro Sanches (ed.), *Portugal não é um país pequeno. Contar o 'império' na pós-colonialidade* (Lisbon 2006), especially the chapters therein by João Leal, 'O império escondido: camponeses, construção da nação e império na antropologia portuguesa' (63–79) and Ricardo Roque, 'Colonialidade equívoca: Fonseca Cardoso e as origens da antropologia colonial portuguesa' (83–111); Patrícia Ferraz de Matos, *The Colours of the Empire: Racialized Representations during Portuguese Colonialism*, trans. Mark Ayton (Oxford 2012), and Francisco Bethencourt, 'Introduction', in *Racism and Ethnic Relations in the Portuguese-Speaking World*, 1–14.

that operated not only from metropole to colony but also in reverse.²⁵ This ‘pure’ Portuguese race, in addition to allowing for the differentiation and subsequent hierarchization of regional types in Portugal,²⁶ and for the construction of an ‘original’ racial type that held pride of place in the historic foundation of the nation,²⁷ was also to be distinguished from both Portugal’s colonized Africans and Asians and other ‘races’ in Iberia and Europe. Purity of race, followed by negative views on the impact of cross-racial miscegenation, in other words, was the dominant motif of Portuguese racial imagination until the mid-twentieth century. It was the tension between purity and miscegenation, and between Europeanness expressed as whiteness and the colonized as black, which was to guide the early Portuguese reception of the new science of blood.

Blood Science in Portugal: a Research Hypothesis

Basing their work on the identification of red cell types in research into compatibility for blood transfusions undertaken in the early 1900s, a number of scientists across Europe posited that it was possible to identify races or sub-races by reference to blood. In 1900 Kurt Landsteiner defined three different blood groups and these were complemented in 1901 when Decastello and Sturli discovered a fourth.²⁸ There was no unanimity, however, on the designation of the blood types identified, with some scientists favouring a I, II, III, IV system of classification. In the late 1920s, the attempt to rationalize the classification of human blood types into A, B, AB and O (what became known and internationally adopted in 1927 as the ABO system)²⁹ expanded the clinical uses of blood transfusions dramatically, and came to configure one of the first known demonstrations of the application of the principles of Mendelian genetic inheritance in humans. Soon anthropologists in Europe and the United States looked at the new so-called serological methodologies as a promising pathway in racial analysis. In 1919, Ludwik and Hanka Hirschfeld (also written Hirszfelf) famously argued for geographical patterns in ABO blood-group variation corresponding to distinct national and racial populations; they claimed a ‘biochemical racial index’ could be established on the basis of such distributions.³⁰ Literature on the subject grew exponentially in the inter-war years.

²⁵ We draw on the interpretation of Mary Louise Pratt’s *Imperial Eyes: Travel Writing and Transculturation* (London 1992), in Charles Burdett, ‘Mussolini’s Journey to Libya (1937): Ritual, Power and Transculturation’, in *National Belongings*, 151–70 (at 162).

²⁶ The search for the ideal Portuguese type can be seen in the biotypological research carried out in Portugal in the 1930s and 1940s. See, for example, Luís A. Duarte Santos, ‘O normotipo do homem na zona de Coimbra e o normotipo dos portugueses’, *Arquivo de Anatomia e Antropologia*, Vol. 21 (1940–1941), 507–40.

²⁷ See A. A. Mendes Corrêa, ‘Origins of the Portuguese’, *American Journal of Physical Anthropology*, Vol. 2, No. 2 (1919), 117–45.

²⁸ See, for example, A. D. Farr, ‘Blood Group Serology – the First Four Decades (1900–1939)’, *Medical History*, Vol. 23, No. 2 (1979), 215–26; William H. Schneider, ‘Chance and Social Setting in the Application of the Discovery of Blood Groups’, *Bulletin of the History of Medicine*, Vol. 57, No. 4 (1983), 545–62.

²⁹ Farr, ‘Blood Group Serology’, 217.

³⁰ The initial research by Ludwik Hirschfeld and Hanka Hirschfeld in the Balkans was presented as ‘Serological Differences between the Blood of Different Races. The Result of Researches on the Macedonian Front’, *The Lancet*, 2, No. 5016 (1919), 675–9. On the invention of the ‘bio-chemical index’,

The researchers Von Dungern and the Hirschfelds found that of the four classes, A, B, AB and O, it was the A group that was the predominant type in Northern Europeans. For these scientists, the inheritance of the dominant characters, A and B, depended on two pairs of independent allomorphic genes while the O group had no specific qualities and was, in a sense, a group without genes. Felix Bernstein argued against this notion, however, and suggested a gene for the O group, which would be re-named R. Despite these developments, the lack of international nomenclature and different classifications of blood types hindered research and the actual application of knowledge on blood types, particularly in the field of transfusions. Such doubts, however, did not impede many anthropologists seeking to isolate 'racial types' in accordance with the distribution of different blood types. Scholars of race eagerly sought to develop the hypotheses, methods and taxonomies of blood groups and apply them to racial analysis, in the expectation that the 'biochemical' order of blood types would be made to correspond to distinctively 'regional' or even 'national' types of human races.

These developments were followed attentively in Portugal. On the basis of the French model of anthropology as a naturalist 'science of race', the first university course in anthropology was created in 1885 at the University of Coimbra, the oldest (and, at that time, the only) Portuguese university, to be followed by the University of Porto, established in 1911 under the new Republican regime. For the next four or five decades, Porto academics and their political networks would dominate the anthropological establishment and would place their fixation with the essential purity of race – its genesis, its perpetuation, and its contamination or degeneration – at the centre of this scientific field.

It must be noted, however, that concerns in Portugal over racial purity and the supposed dangers of racial mixing were not static phenomena. There were challenges to such ideas, not least from the Luso-tropicalist positions of Gilberto Freyre, as discussed above. Miguel Vale de Almeida has argued that discourse on miscegenation in Portugal passed through three broad periods from the early 1930s, from more or less complete opposition through to greater acceptance by the 1960s and 1970s.³¹ Pro-miscegenation ideas slowly, but also ambivalently and never completely, penetrated Portuguese universities, colonial institutes and the higher offices of the state from the late 1940s onwards. Such a periodization may be useful but it presents an overly homogenizing and progressive narrative that irons out important aspects of the variability of twentieth-century Portuguese racial conceptions. Yet in many scientific circles, most importantly in the influential school of colonial anthropology championed by Mendes Correia and his pupils at the University of Porto, scepticism, if not open opposition, towards miscegenation was dominant well into the 1970s.³² In order to examine this fundamental dominant adherence to understandings of racial purity and opposition to racial mixing, as espoused

(*note continued*)

see Paul Weindling, *Health, Race and German Politics Between National Unification and Nazism, 1870–1945* (Cambridge 1989), 464.

³¹ Miguel Vale de Almeida, 'Longing for Oneself': Hybridism and Miscegenation in Colonial and Postcolonial Portugal', *Etnográfica*, Vol. 6, No. 11 (2002), 181–200.

³² This point is examined at greater length in Ricardo Roque, 'The Racial Science of Patriotic Primitives: Mendes Correia in Portuguese Timor', in *Luso-tropicalism and Its Discontents*, 159–83.

primarily by the Porto school of anthropology, we now examine three interconnected tendencies within serology and blood research emanating from this locality. First, the article discusses the birth of ‘sero-anthropology’ and attempts to isolate pure races at the University of Porto. Second, it traces the search for ‘bio-chemical’ purity in the late 1930s and early 1940s particularly in the work of the figure of Dr Ayres de Azevedo, also of the University of Porto, who worked under the direct supervision of race scientist Otmar von Verschuer in Germany. Third, the article discusses the programme of colonial serology as elaborated by Dr Amílcar Magalhães Mateus in the form of his ‘haemato-anthropological index’. In analysing these scenarios, we argue that the mark left by this hardline raciological programme in the study of human blood as a pathway to defining pure ‘biochemical races’ was a significant one and one which only perhaps became marginal to Portuguese anthropological imagination once the very structures of the empire and the regime that supported it, the *Estado Novo*, lay in ruins.³³

Imagining ‘Serological Races’: The ‘Birth’ of Sero-Anthropology at Porto

Almerindo Lessa evocou os tempos em que iniciei em Portugal os estudos de serologia antropológica. Eram os tempos heróicos. Era o começo – há 25 anos! Agora, há muitos materiais acumulados, mas ainda não possuímos dados suficientes para ter uma ideia de conjunto. Eu não sou um feiticista da estatística, mas acredito nas suas possibilidades para nos dar uma certa margem de segurança.³⁴

[Almerindo Lessa evoked the period when I began serological studies in anthropology in Portugal. They were heroic times. This was the beginning – some 25 years ago! Now, there are large amounts of materials that have been amassed, but we still do not have sufficient data in order to gain a comprehensive overview. I am not a statistical magician but I do believe in the ability of statistics to provide a certain degree of certainty.]

Thus in 1951 physical anthropologist António Augusto Mendes Correia recalled his role and that of his research group at Porto University as the self-proclaimed pioneer in the origin-story of ‘anthropological serology’ in Portugal.³⁵ He spoke briefly as a

³³ Such a raciological and often racist imaginary continues to operate, nevertheless, in democratic Portugal, a country that still struggles to come to terms with its imperial, racial, and ideological past. See Jorge Vala, *Novos racismos: perspectivas comparativas* (Oeiras 1999); Jorge Vala, Diniz Lopes and Marcus Eugénio Oliveira Lima, ‘Black Immigrants in Portugal: Luso-tropicalism and Prejudice’, *Journal of Social Issues*, Vol. 64 (2008), 287–302; Maria Manuela Mendes and Pedro Candeias, ‘Immigrant Perceptions of Ethnic and Racial Discrimination: Patterns and Singularities in a Municipality of the Lisbon Metropolitan Area’, *International Review of Sociology*, Vol. 23, No. 2 (2013), 401–20.

³⁴ Mendes Correia, ‘[Intervention in] Discussão dos relatórios e comunicações sobre o primeiro tema’, in various authors, *Primeiro Colóquio de Hematologia Africana; geografia dos grupos sanguíneos no continente africano. Imagens hematológicas do indígena normal. Imagens hematológicas do indígena não norma* (Lisbon 1953), 69.

³⁵ Mendes Correia’s mentorship of serology is acknowledged by Amílcar Magalhães Mateus, *Os grupos sanguíneos e as suas aplicações, especialmente na Antropologia do Ultramar Português*, offprint from *Estudos Ultramarinos* (Lisbon 1955), 1–31 (at 21).

special guest at the ambitious First Colloquium on African Haematology, the international scientific meeting organized in Lisbon by Almerindo Lessa (the rising national authority on medical serology and haematology) to foster research on the blood of ‘normal black Africans’.³⁶ Correia’s invitation to make a statement at the congress, at a moment when serology was in its heyday, confirmed his position of authority in the field of human sciences in Portugal. By then, aged 65, he was at the height of his academic and political power: besides holding the Professorship of Anthropology at University of Porto (continuously since the 1910s), he was simultaneously President of the Government Overseas Research Board, the High Colonial School, and the Geographical Society, positions he kept almost until his death in 1960. Certainly, Lessa’s evocation and Mendes Correia’s self-praise, when sero-anthropology claimed victory and institutional success within Correia’s programme of ‘colonial anthropology’ of the indigenous ‘natives’, were self-serving statements that simplified a more complex historical process. Yet, Correia’s brief retrospection in fact refers to a set of pioneering initiatives in serology developed at the University of Porto in the 1920s–30s under his very own guidance. Correia’s statement is also significant for another reason. It combines a denial of the ‘fetishism of statistics’ with an appraisal of their significance in guaranteeing ‘safer’ results in race studies. The statement of 1951, made in the midst of European and wider attempts – for example, those of UNESCO referred to above – to deconstruct race and question it as a viable scientific and cultural category, thus reveals the original ambivalence, the combination of pragmatic hope and critical scepticism, which characterized Mendes Correia’s early engagement with racial serology 25 years earlier and which was never extinguished throughout his life.

The so-called ‘heroic times’ of Mendes Correia’s ‘anthropological serology’ began at the northern city of Porto in the 1920s soon after he had been appointed Professor of Anthropology and director of the Institute of Anthropology at the University of Porto. He was eager to make his name in anthropology, both nationally and internationally, inspired by a racist and conservative form of right-wing imperial-nationalism which would lead to a lifelong and profound political association with the *Estado Novo* regime. He was a prolific writer on criminology, eugenics, archaeology, anthropometry, and pre-history, initially concerned with the origins and racial constitution of the Portuguese metropolitan population and, increasingly, with the origins and racial constitution of the ‘native races’ under Portuguese colonial domination – a sub-field he would baptize as ‘colonial anthropology’ in 1934. In the wave of the white racist theories of a preceding generation of (physical) anthropologists,³⁷ Mendes Correia argued for the

³⁶ Almerindo Lessa, ‘Apresentação’, in *Colóquio de Hematologia Africana, Primeiro Colóquio de Hematologia Africana; geografia dos grupos sanguíneos no continente africano. Imagens hematológicas do indígena normal. Imagens hematológicas do indígena não normal* (Lisbon 1953), 51. The meeting took place in connection with the IV International Congress on Blood and the First World Exhibition of Blood, also organized in Lisbon by Lessa and the Portuguese government in 1951. The events would gather national and international scholars. It was attended by, among others, the British haematologist Arthur Mourant, then undertaking a major worldwide survey on the distribution of blood-group differences in different peoples and regions. See Bangham, ‘Blood Groups and Human Groups’.

³⁷ See Ricardo Roque, ‘The Latin Stranger-Science, or *l’Anthropologie* among the Lusitanians’, *History of Science* (2018): <https://doi.org/10.1177/0073275318755291>.

affiliation of Portuguese people with a pure type of the white European race (the 'Mediterranean'), and vehemently rejected the possibility of 'black' African mixtures. The Portuguese population, he argued, was primordially and primarily a pure-breed type of the 'Mediterranean' or 'Ibero-insular' white European race.³⁸ Indeed, throughout his life, he was a strong defender of the intrinsic value of aboriginal racial purity as part of a broader imagination of the potentially nefarious and 'degenerative' consequences of racial *métissage* upon Portugal as a nation of imperial vocation; races should be kept apart and each in their 'own place'. The imagined interdependence between the purity of Portugal's white European-Mediterranean race, the investigation of the colonized peoples as distinctive pure 'native races', and finally the vitality of Portugal as an imperial-colonial nation guided his visions and inspired his anthropology students. It was with a view to pursuing this programme that Mendes Correia embraced – sceptically and pragmatically – the promises of blood-group classification in unveiling the existence of 'serological races'.

In the inter-war years, as stated above, the enthusiastic incorporation of blood grouping into the study of human racial difference gave rise to a new sub-disciplinary variant in physical anthropology termed sero-anthropology. In Portugal, Mendes Correia, trained in the classic French and German physical anthropologies and an advocate of a physical-somatological definition of race,³⁹ followed the international developments in racial serology attentively but was cautious about embarking on the serology trend.⁴⁰ Thus in 1926, in a set of articles published almost simultaneously in Portuguese and in French (in the reputed racial anthropology journal, *L'Anthropologie*), he extensively discussed the new scholarship on serology and the possibility of grounding the concept of 'race' and racial taxonomy in blood-based 'biochemical' characters.⁴¹ Could race concepts and taxonomies be grounded upon pure 'biochemical' evidence and statistical tests on human blood? Could 'races' be established on purely serological terms? Mendes Correia attempted a response to these then pressing questions. He acknowledged the 'difficulties' of physical anthropologists in defining race as simply morphological, based on the study of 'external' bodily characters, and he was open to discussing the possibility of grounding race upon the 'chemical analysis' of internal bodily constituents. Yet, against excessive enthusiasm for blood-group interpretations, Mendes Correia doubted that serological methods of 'iso-agglutination' and blood-group categorization, as developed by the Hirschfelds, could in effect lead to the isolation of a 'chemical substratum' of race,

³⁸ See for example Mendes Corrêa, 'Origins of the Portuguese'; *Raça e Nacionalidade* (Porto 1921); *Raças de Portugal* (Lisbon 1938).

³⁹ See Mendes Correia, 'Os problemas da análise etnológica, 1922. Lição no Curso de Etnologia da Universidade do Porto, em 27 de Janeiro de 1922'. Online at: <http://ler.letras.up.pt/uploads/ficheiros/artigo5161.PDF>

⁴⁰ He understood 'races' as abstract collective constructs that were primarily 'tipos físicos hereditários' (hereditary physical types) that could be established above all, though not exclusively, upon observed 'physical characters'. Mendes Correia, 'As tentativas de definição bioquímica da raça e do indivíduo', *A Águia*, Vol. 8, Nos 43-8 (1926), 1-17 (at 6).

⁴¹ The French version of the Portuguese original appeared soon after as A. A. Mendes Correia, 'Sur les prétendues "Races" Sérologiques', offprint of *L'Anthropologie*, Vol. 36 (1926), 437-43.

and to differentiating real ‘biochemical races’ (*races biochimiques*).⁴² In the mid-1920s, he wrote critically about the incongruence between groupings of morphological characters and haematological characters, declaring ‘strong reservations regarding the attribution of an important *taxonomic* value to those [iso-agglutination] reactions’.⁴³ He pointed out ‘imprecisions’ concerning the ‘supposed’ existence of ‘serological races’; ‘chemical methods’ in blood-grouping, he claimed, exciting as they might seem, ought not to be prioritized over ‘morphological observations’ in ‘determining the human races’, an appreciation that would hold strong for him into the 1950s.⁴⁴ ‘L’importance de l’étude des phénomènes d’iso-agglutination est évidente dans la clinique’ [The importance of the study of the phenomena of iso-agglutination is evident in the clinic], Mendes Correia remarked, ‘mais l’interprétation théorique du fait et son emploi comme un élément de classification ethnologique sont, jusqu’à aujourd’hui, très loin de pouvoir braver avec succès une critique sereine, voire une critique trop modérée’ [but the theoretical interpretation of this fact and its employment as a marker of ethnological classification are, to date, far from heralding a successful and reliable critique or even a fairly moderately reliable one].⁴⁵ In addition, he reacted sceptically to excessive ‘enthusiasm’ surrounding the statistical making of ‘biochemical indexes’, criticizing the Hirschfelds’ dualistic biochemical index and engaging in a brief polemic with American anthropologist Laurence Snyder, whose ‘seven types’ of serological races were described as mere ‘mathematical speculation’ by Correia.⁴⁶

In spite of his marked scepticism and the ‘insufficiências’ he saw in serology, Mendes Correia accepted that in the future an improved raciology could contribute importantly to racial taxonomy in the work of the physical anthropologist. He also wrote that serology is not a ‘campo fechado a investigações fecundas, nem é lícito ... pôr em dúvida as largas perspectivas das indagações bioquímicas com o objectivo da determinação mais ou menos satisfatória da raça e da individualidade’ [field closed to profound research; neither is it acceptable ... to question the extensive perspectives provided by biochemical testing which has the objective of determining more or less satisfactorily race and individuality].⁴⁷ And, in concluding his *L’Anthropologie* article he declared: ‘Les méthodes sérologiques de classement des races attendent encore un perfectionnement qui seul leur permettra peut-être de remplacer ou d’aider efficacement les classifications morphologiques’ [Serological methods of racial classification currently await a degree of perfection that will allow them to replace, perhaps, or significantly aid morphological

⁴² Correia, ‘As tentativas de definição bioquímica da raça e do indivíduo’, 6.

⁴³ Correia, ‘Sur les prétendues “Races” Sérologiques’, 439.

⁴⁴ *Ibid.*, 443.

⁴⁵ *Ibid.*, 439.

⁴⁶ *Ibid.*, 443. See Laurence Snyder, ‘Human Blood Groups: Their Inheritance and Racial Significance’, *American Journal of Physical Anthropology*, Vol. 9, No. 2 (1926), 233–63. See also Mendes Correia, ‘Conceitos genéticos de raça e de constituição’, *Boletim da Sociedade Portuguesa de Ciências Naturais*, Vol. 13, supplement no. 2 (1942)/Actas do I Congresso Nacional de Ciências Naturais, separata do Livro II, Lisbon, 1941, 27–30.

⁴⁷ Correia, ‘As tentativas de definição bioquímica da raça e do indivíduo’, 17.

classifications].⁴⁸ Thus Mendes Correia himself would never become a practitioner of serological methodologies; but, at the same time that he criticized the excesses of racial serologists in the 1920s, he encouraged his disciples to pursue the new science of blood in the analysis of race.

'The Most European of Europeans'

In 1926, the same year he voiced his sceptical views on 'serological races', Mendes Correia launched the raciological study of blood-groups at his Institute of Anthropology. At the time that he was writing about 'supposed serological races' it was under Mendes Correia's supervision at Porto University that serological methods were in fact first applied to anthropological research on Portuguese metropolitan populations, a development that apparently fuelled the early wave of sero-anthropological research in Portugal between 1926 and 1950. Precisely in 1926, Correia instructed his young anthropology student, Adélia Seirós da Cunha, to pursue a sero-anthropological study on a population of 459 Portuguese army soldiers from northern Portugal, a regional population then imagined as the 'modern' representative of the most authentic 'aboriginal' European inhabitants of the country. The result of Cunha's work was a doctoral thesis entitled *Grupos hemáticos nos Portugueses* (Haematic Groups in the Portuguese) that bears the mark of Correia's raciological visions.⁴⁹ Cunha's thesis was motivated by the need to fill the 'lacuna deploravel' [lamentable gap] in serological studies on Portugal,⁵⁰ and it seems to have constituted a testing-ground for Correia's theories in at least two senses.⁵¹ On the one hand, it came to offer proof to her mentor's visions about the pure racial European nature of the Portuguese people; on the other hand, it was a means to address Correia's trouble with the relative value of blood-based 'races'. For, observing that the biochemical race types had nothing in common with the anthropological classifications based on somatological characters, Cunha's work proposed to figure out the differences, comparing the Portuguese soldiers' serological results with classical physical characters – the cephalic index, pigmentation, and stature.

In the context of our analysis, Cunha's conclusions as regards the racial purity of the Portuguese as white 'Europeans' is especially worth considering. The work began with a standard synthesis of the medical 'history' of blood transfusion, and with an account of

⁴⁸ Correia, 'Sur les prétendues "Races" Sérologiques', 443.

⁴⁹ The use of army recruits for physical anthropology was widely disseminated from the nineteenth century, and it was also on soldiers that Hirschfeld conducted his pioneering studies on the 'racial biochemical index' in 1919 – a precedent that was explicitly taken into consideration by Cunha. Adélia Seirós da Cunha, 'Grupos hemáticos nos Portugueses' (Doctoral Thesis, Faculdade de Medicina 1926), 5–76. On this 'northern' racial imaginary of Portugal, most importantly expressed in the mythology of the Lusitanians, see Sobral, 'O Norte, o Sul, a raça, a nação'.

⁵⁰ Cunha, 'Grupos hemáticos', n.p.

⁵¹ Cunha's work was immediately followed by a number of publications on the blood groups of the metropolitan Portuguese, authored by other scholars from Coimbra, Porto and Lisbon in the 1920s–1940s, a phenomenon possibly related to the rising interest in eugenics, biotypology, and racial nationalism. On eugenics in early twentieth-century Portugal, see Richard Cleminson, *Catholicism, Race and Empire: Eugenics in Portugal, 1900–1950* (Budapest 2014).

how the findings on blood transfusion and iso-agglutination began to be applied to the racial study and classification of distinct human populations in the early twentieth-century. Echoing the questions raised by her supervisor, Seirós da Cunha intended to investigate the Hirschfelds' and Landsteiner's claim that a 'novo processo taxonómico para raças bioquímicas' [new taxonomic process of biochemical races] in humans could be established on the basis of the differentiation of blood-types.⁵² Guided by this question, and following 'Hirschfeld's [*sic*] technique' of in situ blood-group determination, Cunha applied serological methods of classification and statistical analysis to a vast number of blood samples taken from Portuguese army recruits. In particular, Cunha tested the Hirschfelds' hypotheses of 1919 that the two main human blood-group types, A and B, were to be found in different degrees among human populations, according to 'race' and geography. According to the Hirschfelds (and followers), the predominance of blood-group A was 'uma característica das nações europeias' [a characteristic of the European nations]; this would gradually reverse in African and Asian peoples where group B, in contrast, was more prevalent than group A.⁵³ The Hirschfelds had also proposed translating these differences statistically, creating a mathematical formula, christened an 'índice bioquímico de raças' [racial biochemical index],⁵⁴ which, in their view, could position every human population according to blood-group variation in a threefold typological racial scale: the 'European', the 'intermediary', and the 'African-Asian' types.

Seirós da Cunha then experimentally applied the Hirschfelds' biochemical index to the blood-group results of the Portuguese soldiers. And she came to a self-satisfying conclusion: the Portuguese sample was predominantly classified as blood-group A; it revealed a very high 'racial index' of Europeaness, which placed the Portuguese at the top of the white European biochemical type devised by Hirschfeld. 'Em virtude deste valor' [Given these values], Cunha concluded, 'Portugal ocuparia o primeiro lugar da coluna dos povos do tipo europeu. Confirma-se a opinião de Hirschfeld, segundo a qual o grupo A iria aumentando, à medida que nos aproximássemos do Sudoeste da Europa' [Portugal would occupy the top place in the list of peoples of European type. Hirschfeld's opinion, according to which the propensity for Group A will increase as we come closer to the south west of Europe, is thus confirmed].⁵⁵ In addition, Cunha decided to test the Portuguese results against Laurence Snyder's formulas and she came to a similar conclusion: 'Parece-me então acertado colocar Portugal, não junto da Itália, mas no princípio da lista de Snyder, para o tipo europeu' [It seems to me correct to place Portugal, not alongside Italy, but at the top of Snyder's list of European types].⁵⁶ In sum, according to Seirós da Cunha's results, the Portuguese did not simply belong to the European type. Because their index was situated at the extreme of the Western

⁵² Cunha, 'Grupos hemáticos', 35. Cunha referred to 'Hirschfeld's work', in the singular, possibly not appreciating that the publications emanated from both Ludwig and Hanka Hirschfeld.

⁵³ *Ibid.*, 55.

⁵⁴ *Ibid.*, 56.

⁵⁵ *Ibid.*, 77.

⁵⁶ *Ibid.*, 78.

European series they could configure the ultimate example, the prototype, of purity of the European biochemical race revealed by serology. Portugal could be considered ‘uma região biologicamente pura’ [a biologically pure region], wrote Cunha, ‘onde a mutação se daria com maior intensidade’ [where the mutation [from the ‘primitive’ Group O to Groups A and B] would take place with greater intensity].⁵⁷ It was certain, Mendes Correia also admitted, and Seirós da Cunha reiterated, that to presume the ‘pureza original’ [original purity] of race (rather than the mixing, as most classical physical anthropologists assumed) was an ‘hipótese errônea’ [erroneous hypothesis], a bias, that pervaded the biochemical constructs of the Hirschfelds and Snyder; for this reason, Mendes Correia and Cunha expressed scepticism with respect to the over-ambitious indexes, as ‘ousadias do espírito, que não dispensam uma confirmação [exalted expressions of the spirit that do not allow for confirmation].’⁵⁸ Nevertheless, these were rhetorical artifices that did not preclude Correia from praising Cunha’s ‘scientific results’ as a confirmatory demonstration of the racialist thesis of a Portuguese white European superiority. As late as 1955, for instance, Mendes Correia’s disciple Amílcar Magalhães Mateus (whose work we analyse below) would refer to Cunha’s thesis as the first authoritative demonstration of Portugal’s European racial purity. Mateus wrote:

Apesar de ser uma tese de licenciatura [*sic*], o trabalho da Dra D. Adélia Seirós da Cunha teve e tem grande valor, dado que, nas publicações de serologia, Portugal não era citado por falta de estudos dessa natureza. Deu-se o caso que as determinações feitas para aquele trabalho colocavam o nosso País em situação privilegiada, pois que, além de apresentarem a percentagem do grupo A superior à do B, como é próprio de povos europeus, a superioridade daquela em relação a esta era maior do que nos restantes grupos europeus até então estudados. Quere dizer, estas determinações colocavam os Portugueses metropolitanos como os mais europeus dos povos europeus, contra a tese da existência de grande infusão de sangue negro, tese seguida por alguns autores estrangeiros, mas sem base sólida. Trabalhos posteriores a este não fizeram mais que confirmar as conclusões a que chegou aquela senhora.⁵⁹

[Despite being an undergraduate thesis [*sic*], the work of Dr Adélia Seirós da Cunha was of great value given the fact that, in terms of publications on serology, Portugal was not cited as a result of a lack of publications on this subject. It is the case that the results found in this study place this country in a privileged position. This is because, in addition to finding that the percentage of Group A was superior to that of Group B, as is normal in European populations, the difference between the former and latter was far greater than that detected to date in other remaining European groupings. This means that these findings placed the metropolitan Portuguese as the most European of the European, contrasting with the thesis defended without solid foundation by many foreigners that posits a significant infusion of black blood. Later studies only confirmed the conclusions arrived at by this researcher].

⁵⁷ *Ibid.*, 78.

⁵⁸ *Ibid.*, 90.

⁵⁹ Mateus, *Os grupos sanguíneos e as suas aplicações*, 21.

Biochemical Purity: Ayres de Azevedo and Germanic Science in Portugal

For our next example we remain in Porto but consider the international and more overtly political dimensions of racial science and blood research within the context of flows of knowledge between Portugal, Germany, and Nazi Germany in the 1940s. The links between Portuguese and German science, in general, were strong in the period discussed and, in respect of physical anthropology, the 1930s were the key period for the forging and consolidation of such relations. The steady internationalization of Portuguese science, letters, and culture was facilitated by the concession of grants for study and research abroad via the prestigious Institute for High Culture (Instituto para a Alta Cultura, IAC). Between 1929 and 1950, France was the most popular destination for such academic and research visits, with some 360 grants awarded; Britain came second with 90 and Germany third of all countries with 77.⁶⁰ In turn, a potent cultural policy was executed by Nazi Germany in Portugal,⁶¹ which was echoed in the creation of organizations that mirrored Nazi creations such as the ‘Joy at Work’ initiative. The Coimbra anthropologist, Eusébio Tamagnini, was in receipt of many grants from the IAC and was also active in dialoguing with certain branches of German science, particularly physical anthropology and race science. Evidence of such collaboration can be seen, for example, in the inaugural meeting of the Portuguese Society for Eugenic Research (Sociedade Portuguesa de Estudos Eugénicos) in Coimbra in 1937.⁶² Here, the German race scientist Eugen Fischer, among other foreign guests, was invited to address the assembled eugenicists. On the same occasion, he was awarded an honorary doctorate from the University in recognition of his research.⁶³ Fischer, after the Coimbra event, travelled to Porto, where he inaugurated the facilities at the Institute of Anthropology. His presence in Portugal confirmed an evolving history of the reception of German and Nazi eugenics in the country that would last beyond the Second World War.⁶⁴ Tamagnini’s inaugural speech at the

⁶⁰ Maria Fernanda Rollo, Maria Inês Queiroz, Tiago Brandão and Ângela Salgueiro, *Ciência, cultura e língua em Portugal no século XX. Da Junta de Educação Nacional ao Instituto Camões* (Lisbon 2012), 117–90 (table at 168). For the political, cultural, and scientific exchange established between Germany and Iberia, see Fernando Clara and Cláudia Ninhos, eds, *A Angústia da Influência. Política, Cultura e Ciência nas relações da Alemanha com a Europa do Sul, 1933–1945* (Frankfurt am Main 2014). Specifically on relations between the Third Reich and Portugal, see Mário Matos and Orlando Grossegesse, eds, *Zonas de Contacto Estado Novo/III Reich (1933–1945)* (Perafita 2011).

⁶¹ See Cláudia Ninhos, ‘“Com luvas de veludo”. A estratégia cultural alemã em Portugal (1933–1945)’, *Relações Internacionais*, Vol. 35 (2012), 103–18.

⁶² Irene Flunser Pimentel, ‘A assistência social e familiar do Estado Novo nos anos 30 e 40’, *Análise Social*, Vol. 34, Nos 151–2 (1999), 477–508 (at 491); Anon., ‘O IV Centenário do estabelecimento definitivo da Universidade em Coimbra’, *Diário de Coimbra*, 10 December 1937, 1. Concerning Portuguese-German exchanges in the field of animal genetics at Coimbra, see Maria do Mar Gago, ‘Things of Darkness: Genetics, Melanins and Salazar (1936–1952)’, *Centaurus*, Vol. 57, No. 1 (2015), 1–27.

⁶³ ‘Relação de Doutorados ‘honoris causa’ pela Universidade de Coimbra’, Box IV-2^a-E 9-2-6, University of Coimbra Archive. Three German nationals were accorded this honour (Karl Vossler, Hermann Lautensach, and Eugen Fischer).

⁶⁴ António Fernando Cascais, ‘A recepção da eugenia alemã em Portugal, 1933–1945’, in *A Angústia da Influência*, 157–96.

Eugenics Society was reported on amply in the German race hygiene journal, the *Archiv für Rassen- und Gesellschaftsbiologie*.⁶⁵

Although not central to the work of anthropologists in the city of Porto, the Porto-based medical doctor José Ayres de Azevedo Novais Basto can be placed within this growing Germanic scientific and political web of relations.⁶⁶ While any actual links between Ayres de Azevedo, Mendes Correia and the Porto Institute of Anthropology remain unclear, two issues need to be highlighted. The first is that Ayres worked on his thesis under the aegis of the Faculty of Medicine, not the Institute of Anthropology. The second qualification to be made is that, as is to be expected, Ayres de Azevedo was clearly familiar with the on-going anthropological work that was being undertaken in Porto and other centres of anthropological research in the country. What we argue here is that there were epistemological and, to some degree, methodological connections between the work of Ayres and Mendes Correia in respect of the search for racial purity in white Europeans, but we have not detected any explicit working together or collaboration between the two scientists.

Dr Ayres de Azevedo began his career in 1939 as an adjunct at the Júlio Dinis Maternity Hospital in Porto.⁶⁷ Shortly afterwards, he was granted a scholarship by the IAC in order to work with the ‘race hygienist’ Otmar von Verschuer, director of the Kaiser Wilhelm Institute, first in Frankfurt and then in Berlin between May 1941 and August 1943.⁶⁸ Even though, as we will see, his work, much of which went towards the elaboration of his doctoral thesis on blood types, was later subject to disapproval from his Porto colleagues, Ayres de Azevedo was highly praised initially by the director of the KWI’s anthropology, human heredity, and eugenics section. According to Verschuer, Ayres de Azevedo had obtained ‘new and valuable scientific data’ from his work on hereditary factors among twins, a subject that had long interested German and, increasingly, Nazi scientists.⁶⁹ Verschuer’s report also noted that Ayres’s work on twins would allow for important conclusions on the question of heredity and serology.

The ‘Bio-chemical Purity’ of the Portuguese Race

Before his cool reception in Porto on his return from Nazi Germany, Ayres de Azevedo had made his name in a number of high-profile scientific events, which had been

⁶⁵ Eusébio Tamagnini, ‘Gründung der Portugiesischen Gesellschaft für eugenische Studien’, *Archiv für Rassen- und Gesellschaftsbiologie einschließlich Rassen- und Gesellschaftshygiene*, Vol. 32 (1938), 554–9.

⁶⁶ See José Pedro Castanheira, *Um cientista português no coração da Alemanha nazi* (Coimbra 2010); Cleminson, *Catholicism, Race and Empire*, 155–62; Richard Cleminson, ‘Between Germanic and Latin Eugenics: Portugal, 1930–1960’, *História, Ciências, Saúde-Manguinhos*, Vol. 23, No. 1 (supplement) (2016), 73–91.

⁶⁷ The proposal to appoint Ayres de Azevedo at the hospital in March 1939 can be viewed at <http://digitarq.arquivos.pt/details?id=4563964> (accessed 01/02/2016).

⁶⁸ From May 1941 up to the end of September 1942, Ayres worked with Verschuer in Frankfurt at the latter’s Institute for Hereditary Biology and Racial Hygiene. From 1 October 1942 up to August 1943 he worked under Verschuer at the Kaiser Wilhelm Institute (KWI) in Berlin. See the original IAC documentation held at the Instituto Camões, Lisbon, particularly the files José Aires de Azevedo Novais Basto, File 3117/1 and File 3117/2, where reports on his research and other materials are to be found.

⁶⁹ José Aires de Azevedo Novais Basto, File 3117/2, Document 81, comprising a report by Verschuer on Ayres de Azevedo’s activities translated into Portuguese and dated 28 July 1944.

organized with the approval of the *Estado Novo*. Notable among these was the 1940 Congress on Population Sciences where he spoke of the 'bio-chemical purity' of the Portuguese race.⁷⁰ This congress was held as part of the wide-ranging programme of events under the umbrella of the Congresses of the Portuguese World, inaugurated in 1940 by the Salazar regime in order to showcase the historic and contemporary achievements of the New State.⁷¹ The date chosen by the dictatorship for these events was significant: 1940 represented the eighth centenary of the establishment of the Portuguese nation (1140) and the third centenary of the recovery of Portuguese national sovereignty from the Spanish (1640). The year 1940 represented the consolidation of the Salazar regime.

The paper on blood chemistry by Ayres de Azevedo was certainly up-to-date in its survey of thinking on the distribution and nature of blood groups. In a brief overview of research, following the work of the already mentioned figures of Hirschfeld and Hirschfeld,⁷² Von Dungern, and Landsteiner, the Portuguese researcher noted that despite recent warnings against racial differentiation on the basis of blood analysis, the field was still promising for biology, therapeutic work, legal medicine, and anthropology. It had been possible, according to the above authors, to divide humanity into three principal groups, followed by a fourth (drawing on the work by Decastello and Sturli), on the basis of blood types.⁷³ According to Ayres de Azevedo, these authors had proved that blood types were stable and could only be altered if crossings between individuals of different groups took place. Any crossings followed the patterns set out by Mendel, obeying with 'maravilhosa precisão' [marvellous precision] his laws of inheritance.⁷⁴

Ayres de Azevedo noted that all racial groups were diverse in their characteristics and, for example, some 90 per cent of Amerindians were deemed to belong to the O group and some 80 per cent of Inuit ('Eskimos' in the text) belonged to the same group.⁷⁵ Certain qualities, nevertheless, were, according to Ayres de Azevedo, attached to the O group. He noted that his fellow Portuguese researcher, J.R. Santos Júnior, had traced the incidence of the O group blood in people in the Tete region in Mozambique (with a presence of 92.7 per cent), allowing him to extrapolate certain lessons in respect of the purity and status of

⁷⁰ José Ayres de Azevedo, 'A pureza bioquímica do Povo Português', in *Congresso do Mundo Português. Publicações*, vol. XVII, *Actas, memórias e comunicações apresentadas ao Congresso Nacional de Ciências da População, Tomo I, I e II Secções* (Lisbon 1940), 551–64. He also gave a paper at the same congress on population questions as related to the Portuguese empire. See José Ayres de Azevedo, 'População e Império', in *Congresso do Mundo Português. Publicações*, vol. XVII, *Actas, memórias e comunicações apresentadas ao Congresso Nacional de Ciências da População, Tomo I, I e II Secções* (Lisbon 1940), 61–75.

⁷¹ Jorge Ramos do Ó, 'Modernidade e tradição: algumas reflexões em torno da Exposição do Mundo Português', in João Freire et al., *O Estado Novo das Origens ao Fim da Autarcia (1926–1959)*, vol. II (Lisbon 1987), 177–85; Margarida Acciaiuoli, *Exposições do Estado Novo, 1934, 1940* (Lisbon 1998); Patrícia Ferraz de Matos, *The Colours of the Empire*, 193–5.

⁷² Ayres de Azevedo cites L. Hirschfeld, *Les groupes sanguins* (1938), following the original spelling of the surname.

⁷³ Ayres de Azevedo, 'A pureza bioquímica', 551.

⁷⁴ *Ibid.*, 552.

⁷⁵ *Ibid.*, 553.

African populations in the racial hierarchy.⁷⁶ Such a predominance of the O group allowed Ayres de Azevedo, in turn, to argue that this showed that ‘primitive humanity’, in this case the colonized Mozambicans, belonged to this very type.⁷⁷ By contrast, in Europe, it was to be expected that the highest incidence of the AB group occurred as this represented the most recent peoples to have undergone racial mixing. Similar conclusions on the racial purity of the northern Portuguese had been arrived at, as we have seen, by Seirós da Cunha and Mendes Correia. In other words, Azevedo extrapolated conclusions on the contrasting racial purity of ‘white Portuguese’ and ‘black Africans’ from metropolitan and colonial sero-anthropology then developed by his Porto contemporaries, under Mendes Correia. Finally, endorsing René Martial’s understanding of the ‘anthropological frontier’ of Europe, traced by blood types rather than political divisions or territorial lines,⁷⁸ such research showed that it was the ‘bio-chemical index’, following the method suggested by L. Hirschfeld and Landsteiner, which was most important for the differentiation and classification of races.

The mapping of blood types would allow for the entire population of any given country to be surveyed, as Seirós da Cunha and others had begun to do in Portugal, and for details of blood type, family health, educational details, ancestry, fertility, and police records to be correlated in order to determine the health and characteristics of a national or regional group, as was being undertaken in Nazi Germany.⁷⁹ Ayres de Azevedo, like Seirós da Cunha and others such as Duarte Santos working at the same time,⁸⁰ was keen to explore the racial heritage and blood type distribution of different populations within Portugal itself. He noted that the proportion of type B grew the further south one went, reflecting the predominance of the ‘Arab race’ over the presence of the ‘Nordic race’, which was most influential in the North.⁸¹ Ayres de Azevedo drew on a range of findings provided by the researchers Alberto Saavedra (1932), Waldemar Teixeira (1932), António de Matos Júnior (1939), M. Prates, and Fraga de Azevedo (1940), and a number of further studies in what was demonstrably a vibrant field of research in different parts of the country.⁸² In Coimbra, the historic seat of anthropology in the country, as well as the work undertaken by Duarte Santos, the Germanophile Eusébio Tamagnini had conducted research into some 2968 individuals in a study that was also presented at the Congress of the Portuguese World in 1940.⁸³ The amalgam

⁷⁶ *Ibid.*, 553; the text referred to by Ayres was Joaquim Rodrigues dos Santos Júnior, ‘Grupos sanguíneos nos indígenas de Tete (Zambézia)’, *Trabalhos da SPAE* Vol. 8, No. 2 (1937), 213–17.

⁷⁷ Ayres de Azevedo, ‘A pureza bioquímica’, 554.

⁷⁸ *Ibid.*, 555.

⁷⁹ Weindling, *Health, Race and German Politics*, 469.

⁸⁰ See, for example, Santos, ‘O normotipo do homem na zona de Coimbra e o normotipo dos portugueses’.

⁸¹ Ayres de Azevedo, ‘A pureza bioquímica’, 557.

⁸² These other studies were referred to in Ayres de Azevedo, *ibid.*, 559, n. 1, but the author does not give full details. He does say, however, that one of these pieces of research, by Morais e Fânzeres employed 3009 case studies.

⁸³ Eusébio Tamagnini, ‘Os grupos sanguíneos dos portugueses’, in *Congresso do Mundo Português. Publicações, vol. XVII, Actas, memórias e comunicações apresentadas ao Congresso Nacional de Ciências da População, Tomo I, I e II Secções* (Lisbon 1940), 3–27.

of these pieces of research on a large number of individuals across different localities allowed Ayres de Azevedo to calculate the precise 'bio-chemical index' of the Portuguese race. This was a figure arrived at by adding the percentage of the A type to the AB type and then dividing this by the sum of the B and AB types. The index came out at 4.3 on the basis of some 3757 Portuguese individuals studied by these various researchers. The relative value of this figure in terms of the most European and, even though Ayres de Azevedo does not explicitly say so, the 'best' racial types, became clear. With the Portuguese race indexed at 4.3, it was only surpassed by the English at 4.5. Spaniards scored 3.9, Italians 2.8 and Jews languished at 1.3.⁸⁴

In a table included in the paper, he detailed the percentages and frequencies of the various blood types. Out of the Portuguese, Spanish, Arabs from Morocco, Berbers from Morocco, Blacks from Congo and Indians, it was the Portuguese who apparently possessed the highest percentage of blood type A (48.76%). Blacks and Indians possessed the lowest.⁸⁵ This supposed 'purity' of the Portuguese (a mere 48 per cent, we should note), Ayres de Azevedo argued, had been maintained because the Portuguese had not mixed to such a large degree with the 'colonial races', unlike the Spaniards. Not only did his assertion affirm the purity of the Portuguese; it also countered the myth of the Portuguese propensity to assimilate and mix with other races and firmly judged such mixing as undesirable. Like Mendes Correia, Ayres de Azevedo coincided in repudiating mixed-race relations and he articulated an explicitly racist warning against such mixtures: other racial types were deemed to be 'contaminadoras possíveis da nossa [raça]' [possibly contaminating influences on our [race]].⁸⁶ The result was a Portuguese race 'de grande pureza, maior que a da quasi totalidade dos povos da Europa' [of the highest purity, greater than that of nearly all European peoples].⁸⁷ Despite this display of confidence in the purity of the Portuguese, there remained, for Ayres de Azevedo, the spectre of contamination from outside sources. Could such levels of purity be maintained? If contamination did occur, would the extraneous elements be dominated by those of the local race, allowing the balance to be re-set? If so, by what mechanism would this occur?

Given the directions that the research by Ayres de Azevedo would take in Germany in the field of genetics and eugenics, this work was but a stepping stone on the way to the construction of an explicitly hierarchical and racist typology. This racial order, facilitated by Ayres de Azevedo's particular usage of research on the bio-chemical index, reasserted the existence of independent, identifiable races and gave credence to the idea that it was possible to 'contaminate' one race with the blood of another. In the words of Pauline Mazumdar, the German project that Ayres de Azevedo would eventually subscribe to

⁸⁴ Ayres de Azevedo, 'A pureza bioquímica', 558.

⁸⁵ *Ibid.*, 560.

⁸⁶ *Ibid.*, 560. Lest we assume that Mendes Correia was immune from similar prejudices, a reading of A.A. Mendes Correia, 'Escravos africanos em Portugal e no Brasil', *Boletim Geral das Colônias*, Vol. 14, No. 157 (1938), 3–30, where 'estranhos encrepamentos de cabelos' [strange curls in the hair] were identified as traits to be avoided (12), will illustrate how such racist interpretations were publicly aired by the Porto anthropologist.

⁸⁷ Ayres de Azevedo, 'A pureza bioquímica', 560.

was 'a model system for human genetics, and for its practical arms, eugenics and race hygiene. The blood groups themselves provided a race-marker that attracted the attention of the German *völkisch* anthropologists. It promised to be a new and scientific way to define populations, to distinguish races from each other, and to trace their origins, migration routes, and boundaries'.⁸⁸ While the questions he posed on the mechanisms of 'race recovery' when 'contaminated' by other blood groups could not, by his own admission, be answered at this stage, the serological journey embarked upon in Germany in the 1940s would provide, he hoped, definitive evidence.

In December 1940, Ayres de Azevedo applied for funds from the IAC in order to undertake research at the Kaiser Wilhelm Institute. The study plan outlining the areas he would be working on included racial hygiene, eugenics, demography, blood group research, matters pertaining to sterilization, birth control, the struggle against miscegenation and the competencies of the state with respect to these issues.⁸⁹ It was particularly blood group research, inheritance in twins, and the medico-legal purview of doctors acting under the Nuremberg Laws that were to capture Ayres de Azevedo's interest most. Ayres de Azevedo's thesis written during his German experience places these concerns at its centre.

Blood Types, Twin Research and the KWI

Blood group research, racial mixing, twin research and work on inheritance were all integral parts of work undertaken in the German race hygiene and eugenics movement. Verschuer had requested Reich Research Council funding for twin studies several times during the 1930s and on one occasion he requested funds for work on the inheritance and distribution of eye colour in the 1940s. The infamous Dr Josef Mengele worked as an assistant at Verschuer's Frankfurt Institute for Genetic Biology and Race Hygiene in 1937 and returned to work with him at the KWI in January 1943, being named camp doctor at Auschwitz in May 1943.⁹⁰ At Auschwitz, Mengele continued his twin research, used live subjects for research, killed others for similar purposes and had blood and other samples sent to Verschuer at the KWI.⁹¹

There were two particular projects that Mengele would pursue at Auschwitz – on specific proteins and eye colour, activities that were approved in August and September 1943.⁹² The Jewish slave-assistant, Dr Miklós Nyiszli, reported on these activities after

⁸⁸ Pauline Mazumdar, 'Two Models for Human Genetics: Blood Grouping and Psychiatry in Germany between the World Wars', *Bulletin of the History of Medicine*, Vol. 70, No. 4 (1996), 609–57 (620).

⁸⁹ See José Aires de Azevedo Novais Basto, File 3117/1, document 9, 'Studienplan des Stipendiaten Dr. José Ayres de Azevedo', IAC Archive, Lisbon.

⁹⁰ Weindling, *Health, Race and German Politics*, 560–2. See also Hans-Walter Schmuhl, *The Kaiser Wilhelm Institute for Anthropology, Human Heredity and Eugenics, 1927–1945: Crossing Boundaries* (Dordrecht 2008), 362–71, on the relations between Verschuer, Mengele and the KWI.

⁹¹ Weindling, *Health, Race and German Politics*, 562; Benno Müller-Hill, *Murderous Science: Elimination by Scientific Selection of Jews, Gypsies, and Others in Germany, 1933–1945*, George D. Fraser, trans., second edition (New York 1998), 77–8.

⁹² Müller-Hill, *Murderous Science*, 76.

the war and noted that four pairs of twins were killed by Mengele, the heterochromatic eyes of which were sent to the KWI's anthropology section.⁹³ With respect to the blood samples derived from Auschwitz, Verschuer acknowledged in March 1944 that these had been sent to the KWI for processing.⁹⁴ It is almost certain that Ayres de Azevedo worked on at least some of these human samples.⁹⁵ In his 1944 thesis he remarked that the assessment of the relative importance of hereditary and environmental factors could be undertaken through twin studies as well as research into the pigmentation of the iris, hair and skin, and the measurement of eyebrows, nose, ears, as well as blood type.⁹⁶

In addition to these activities, researchers at the KWI routinely adjudicated in so-called racial ancestry or paternity cases in accordance with the Nuremberg Laws, that is, on whether 'racial contamination' had occurred between Aryans and Jews.⁹⁷ If in paternity cases a child was found to have a Jewish father, the latter would 'almost certainly be deported to the East to an uncertain future and, presumably, a violent death'.⁹⁸ In order to complete his research on Nazi extermination, Müller-Hill asked as many German human geneticists as he could who had been involved in this work and all of them claimed that they had always related the scientific truth: 'it was not their business to worry about the fate of the person'.⁹⁹ Such practices did not prevent Ayres de Azevedo from praising the population policies of Nazi Germany or from advocating sterilization and the elimination of the descendants of 'dysgenics'.¹⁰⁰

Ayres de Azevedo's doctoral thesis comprised two main parts. The first was a history and systematization of serology, followed by a technical exposition on the determination of blood types. The second part focused on the hereditary transmission of different blood types. This part also contained a section on heredity in twins and twin research. The question of the awareness or otherwise of Ayres de Azevedo with respect to the samples that he employed for his research is posed immediately in the preface to the thesis. Here, he recognized that blood used for research came from many Germans, some of whom were children, and he thanked the hospitality of what he termed this culturally advanced and naturally affable people. The question of how voluntary this participation was or

⁹³ Ibid., 77. This author cites Miklós Nyiszli, *Auschwitz: A Doctor's Eyewitness Account* (1960). On the evidence and the case against Verschuer after the war, see Paul Julian Weindling, *Nazi Medicine and the Nuremberg Trials: From Medical War Crimes to Informed Consent* (Basingstoke 2004), 245–7.

⁹⁴ Müller-Hill, *Murderous Science*, 78.

⁹⁵ Schmuhl, *The Kaiser Wilhelm Institute for Anthropology*, 281.

⁹⁶ José Ayres de Azevedo Novais Basto, *Tipos sanguíneos* (Vila Nova de Famalicão 1944), 169.

⁹⁷ Weindling, *Health, Race and German Politics*, 553. Before arriving at the KWI under Verschuer, Mengele and his team had been trusted by Verschuer to produce 448 paternity opinions by January 1941 (Schmuhl, *The Kaiser Wilhelm Institute for Anthropology*, 363, n. 489).

⁹⁸ Müller-Hill, *Murderous Science*, 203.

⁹⁹ Müller-Hill, *Murderous Science*, 203. Germany and later Nazi Germany were not the only countries or regimes to employ blood research in paternity cases or in the identification of Jewishness. See Schneider, 'Chance and Social Setting', 551–5.

¹⁰⁰ José Ayres de Azevedo, 'Para uma consciência eugénica. VII – Ciência racial e Política racial', *Jornal do Médico*, Vol. 68 (1943), 452; 'Para uma consciência eugénica. XII – O movimento eugénico', *Jornal do Médico*, Vol. 75 (1944), 93.

where exactly the samples came from, however, is not clarified in the preface.¹⁰¹ There were two principal findings that Ayres de Azevedo advanced in his thesis in respect of his twin studies. The first was that there was a strict correlation in terms of blood types in identical twins of 100 per cent and in non-identical twins, this percentage was 70 per cent. Second, for Ayres de Azevedo, this proved beyond doubt Mendelian processes of inheritance. Such information could be employed fruitfully in the paternity cases that the KWI was asked to adjudicate.¹⁰²

Despite the detailed nature of the research presented in his thesis and elsewhere in the Porto-based *Jornal do Médico*, as we have said, the reception of Ayres de Azevedo in this city was far from warm. This arose from three main factors. First, the kind of politically-driven scientific research that Ayres de Azevedo undertook in Germany, with a focus on strong interventionist eugenics and an approval of sterilization, was already out of favour in Portuguese milieus by the mid-1940s. The praise by Ayres de Azevedo for National Socialist science and politics, and his past as a National Syndicalist sympathizer, were apparently not shared by his peers and assessors in Porto and with the tide of the war having turned against Nazi Germany, any approval of this country's research may have been politically dangerous. Certainly, the Portuguese state had begun a rapprochement with the Allied forces.¹⁰³ Second, and related to this, even though such research met with a certain positive reception in Coimbra and among some anthropologists in Porto, at the University's Faculty of Medicine where the thesis was presented, a more social hygienic orientation in medicine prevailed.¹⁰⁴ Third, a question mark had been raised over the integrity of Ayres's work in Germany and there was knowledge of these doubts in the Porto medical circle.¹⁰⁵ It remains unclear whether the doctoral degree was in fact actually ever awarded.¹⁰⁶

¹⁰¹ Ayres de Azevedo, 'Prefácio', in *Tipos sangüíneos*, XIII–XVI (XV).

¹⁰² Ayres de Azevedo, *Tipos sangüíneos*, 143–51.

¹⁰³ Ayres de Azevedo's approval of sterilization and the Nazi race hygiene programme in general can be seen from the series of articles published in 1943 and 1944 in the Porto-based *Jornal do Médico*. See Cleminson, *Catholicism, Race and Empire*, 157–61. Castanheira, *Um cientista português*, 42–3, discusses the police report of 17 February 1939 whereby Ayres de Azevedo's National Syndicalist affiliation and his opposition to Salazar are recorded. On British-Portuguese relations, see Fernando Rosas, *O Salazarismo e a Aliança Luso-Britânica. Estudos sobre a política externa do Estado Novo nos anos 30 e 40* (Lisbon 1988).

¹⁰⁴ Such constraints did not affect the more established Tamagnini at Coimbra, who went on to publish material on blood groups and other characteristics well into the 1950s. See for example, 'Les groupes sanguins (système A B O) et la pigmentation (couleur des yeux et des cheveux)', offprint from *Revista da Faculdade de Ciências da Universidade de Coimbra*, 17 (1948), Coimbra, Tipografia da Atlântida; 'Standardizzazione dei metodi per lo studio della distribuzione dei gruppi sanguigni (sistema A B O)', offprint from S.A.S. *Bollettino del Comitato Internazionale per l'Unificazione dei Metodi e per la Sintesi in Antropologia, Eugénica e Biologia*, 13–19 (1943–1949) (Coimbra 1950).

¹⁰⁵ The matter of the validity of the thesis and whether the work had been approved or not by Verschuer is raised in Castanheira, *Um cientista português*, 131–9.

¹⁰⁶ The inside cover of Ayres de Azevedo's, *Tipos sangüíneos* recorded that the publication was a 'Dissertação de candidatura ao grau de doutor apresentada à Faculdade de Medicina da Universidade do Pôrto'. There are no catalogued copies of the thesis in any of the University of Porto libraries. On Verschuer's doubts, see his report (José Aires de Azevedo Novais Basto, File 3117/2, Document 81). Existing correspondence between Mendes Correia and the German eugenicist Eugen Fischer and between Fischer and Verschuer hints at discrepancies and disagreements among those evaluating Ayres's work. In Mendes Correia to Fischer, 4 April 1947, Correia,

Pure Indígenas: Serology and Colonial Anthropology

As seen above, the active support and mentorship given by Mendes Correia to serological research conducted by his pupils at Porto in the 1920s–30s was first oriented to exploring the imagined racial whiteness of the Portuguese. Soon, however, he pioneered the extension of these methodologies to examine the imagined racial purity of the ‘backward’ and ‘primitive’ ‘indigenous races’ that inhabited the colonial empire. In the 1930s–40s, Mendes Correia’s cautious but consistent understanding of the advantages of articulating serology and anthropometric methodologies would be integrated into an expanded physical anthropological approach to the ‘race problem’ in both Portugal and the Portuguese Empire, an approach he termed ‘anthropobiology’.

In spite of his reservations (which he seems to have never totally abandoned), Correia continued to follow international developments in sero-anthropology attentively and, in the end, incorporated them into the programmatic heart of the Porto Institute of Anthropology and, afterwards, the Colonial Anthropological Missions under his direction. He came to regard serology as a valid procedure in the study of human races: ‘meanwhile, it is valid today’ he declared in 1933, ‘to ground upon the knowledge of blood groups a new aspect of the study of constitutions and races’.¹⁰⁷ Mendes Correia then understood the study of blood groups as a most promising biological or physiological variety of physical anthropology devoted to research on heredity, eugenics, blood groups, constitutional medicine, and ‘other subjects of human biochemistry, constitutions and temperaments, of the determination of the biological basis and activity of the different races, etc.’¹⁰⁸

In this vein, soon after the work of Seirós da Cunha, Mendes Correia was the first also to extend serological methodologies to the study of the ‘native races’ of the Portuguese Empire. In 1934, the city of Porto hosted the First Portuguese Colonial Exhibition, sponsored by the new Salazar regime. At the same time Mendes Correia’s Institute of Anthropology at the University of Porto hosted the First Congress of Portuguese Colonial Anthropology. The exhibition included a ‘human zoo’ with hundreds of ‘natives’ who were brought from Africa and Asia to be exhibited to the public as representatives of distinct ‘tribes’ and ‘races’ of the Portuguese empire. Mendes Correia and the university anthropology experts at Porto had pride of place in the organization of the event and they were also given permission to examine the bodies of the ‘natives’. On this occasion Mendes Correia instructed his disciple, J. R. Santos Júnior, to determine the

(*fnote continued*)

writing in French, states that he has forwarded a letter from Verschuer to the Faculty of Medicine at the University of Porto on the subject of Ayres. He goes on to declare that the Dean of Faculty stated that the ‘reasons upon which the Faculty made its decision’ had ‘nothing in common’ with the views expressed by Verschuer. The true import of the letter is difficult to judge without seeing Verschuer’s original letter but it would tend to suggest that, despite Verschuer’s doubts, the latter supported the integrity of Ayres de Azevedo’s work and the Porto Faculty did not. Mendes Correia to Eugen Fischer 4 April 1947. Personal papers Eugen Fischer. File III/69-06. Berlin, Archives of the Max Planck Society. We are grateful to Maria do Mar Gago for generously sharing access to these archival documents.

¹⁰⁷ A. A. Mendes Correia, *Introdução ao Estudo da Antropobiologia* (Coimbra 1933), 31.

¹⁰⁸ *Ibid.*, 18.

blood groups of the 276 Africans and Asians who had come from the Portuguese colonies as performers in the Colonial Exhibition.¹⁰⁹ A couple of years later, he likewise instructed the same Santos Júnior, whom he designated in 1936 to become the chief investigator of the Mozambique Anthropological Mission, to incorporate the study of blood groups in field research. In 1936, blood groups were collected from 138 ‘natives’, and due to their ‘great anthropological importance’, during the Mission’s many field campaigns (which lasted until 1959), Santos Júnior took pains to collect over 2000 blood samples for the determination of ABO blood groups, from different ‘ethnic groups’ of ‘blacks [*pretos*] from Mozambique’.¹¹⁰

In Mozambique as well as in Correia’s subsequent ‘colonial anthropological missions’ sponsored by the Portuguese imperial state, in Angola and Timor (headed by António de Almeida) and in Guinea-Bissau (headed by Magalhães Mateus), serological methods were used extensively as a means of cracking the long-lasting problem of racial taxonomies and genealogies. Indeed, for Mendes Correia and the chief anthropologists of these Missions, relations between anthropometry and serology should be complementary and cumulative. Beyond anthropometry and blood groups, a plurality of bio-anthropological methods was adopted and different techniques applied – such as psycho-technical tests, dermatoglyphs, arterial tension, and constitutional biotypology. In addition, and importantly for our purposes, in the emerging colonial anthropology, as in the study of the Portuguese people, racial *purity*, the inescapable fact of mixing notwithstanding, was, again, the magnetic centre of research activity. In the coming years, then, the ‘colonial anthropology’ of the ‘natives’ would follow in parallel to the anthropology of the ‘Portuguese’ – separate and yet intimately connected by the obsessive trope of ‘purity’. It is thus significant that a primary concern of physical anthropologists doing blood-grouping fieldwork in the colonies was to guarantee the ‘racial’ or ‘ethnic’ purity of the samples. Santos Júnior assured his readers in 1957,

Registe-se que os pretos das nossas séries, são de relativa pureza tribal. No inquérito preliminar eram aparta dos aqueles que se diziam filhos e netos, pelo lado paterno e materno, de indivíduos pertencentes à mesma tribo. Só esses eram estudados. Era a maneira de se apurar uma relativa pureza, no meio dos muitos cruzamentos entre indivíduos de tribos diferentes’ [It is recorded that blacks in our samples are of relatively high tribal purity. In the initial questionnaire, those who told us they were children and grandchildren, whether on the paternal or the maternal side, of individuals that belonged to the same tribe, were segregated. It was only these that were studied. This was how we arrived at a relative degree of purity among the multiple crossings of individuals from different tribes].¹¹¹

¹⁰⁹ J. R. Santos Júnior and Agostinho Isidoro, ‘Grupos sanguíneos em Pretos de Moçambique’, offprint from *Garcia de Orta*, Vol. 5, No. 3 (1957), 403–30 (at 405). Santos Júnior’s 1937 work, as we saw above, was referred to by Ayres de Azevedo in 1940. Santos Júnior’s article in the proceedings of the Colonial Anthropology Congress. On the Anthropological Mission to Mozambique in relation to Mendes Correia’s programme, Rui Pereira, ‘Raça, sangue e robustez. Os paradigmas da antropologia física colonial portuguesa’, *Caderno de Estudos Africanos*, Vols 7–8 (2005), 210–41.

¹¹⁰ Santos Júnior and Isidoro, ‘Grupos sanguíneos em Pretos de Moçambique’.

¹¹¹ *Ibid.*, 407.

In the Anthropological Missions, blood-group determinations of supposedly ‘pure’ natives were accompanied by work in the laboratory that was also oriented to ascertaining racial purity through statistical work. In this regard, a landmark of blood-group studies in colonial anthropology in the 1940s was the invention of a new index for biochemical races, authored by one of Mendes Correia’s loyal disciples and leader of the expedition to Guinea-Bissau, Amílcar Magalhães Mateus. This index, as we will see next, aimed simultaneously at addressing the two-fold focus of Porto scholars on the purity of the Portuguese racialized (white) ‘self’ and that of its colonized (black) ‘others’.

Magalhães Mateus’s index and the Heyday of Colonial Sero-Anthropology

A self-professed armchair scholar, by vocation a leader but not a fieldworker, Correia never took on the executive leadership of the field missions himself. In his place (he seems to have declined ministerial invitations to lead the missions to Mozambique and Guinea), he designated his loyal disciples to become the Chief Investigators. Yet, he kept the overall scientific orientation of the missions under his control. Faithful to his expertise in classical physical anthropology, he also did not undertake sero-anthropological researches. Despite this, he encouraged his younger acolytes – namely those appointed to lead the missions – to pursue them on a massive scale. In effect, his pupils and mission leaders fully embraced the practice of sero-anthropology and were more outspoken about the value of blood-group research in racial science. The leader of the (Portuguese) Guinea Anthropological Mission, for instance, Amílcar Magalhães Mateus (a Porto graduate in Biological Sciences, a student of Correia, and his assistant professor of zoology and anthropology at Porto University) excelled in racial sero-anthropology: the study of blood groups in ‘raciology’ [raciologia], he declared in 1955, ‘pode contribuir para melhor caracterização racial e para ajudar ao estabelecimento de relações de parentesco entre os grupos étnicos’ [can contribute to a better racial characterization and can help to establish kinship relations between the ethnic groups].¹¹²

In 1947, upon his return from the first field mission in Guinea and basing his work on 1430 indigenous blood samples (as well as on a ‘reclassification’ of data presented by American racial serologist William Boyd), Mateus had come up with an original serological racial index, an alternative to that of the Hirschfelds. He baptized it the ‘haemato-anthropological index’, and on this basis Mateus thought it possible to discern and hierarchize the racial constitution of different ethnic groups both in Europe and further afield.¹¹³ Most importantly, in applying his index to blood-group data collected from the metropolitan Portuguese, Mateus concluded – following Seirós da

¹¹² Mateus, ‘*Os grupos sanguíneos e as suas aplicações*’, 26.

¹¹³ Mateus presented the new index in his dissertation to obtain the position of ‘special professor’ (*professor extraordinário*) of Zoology and Anthropology at the Sciences Faculty of Porto University. See Amílcar de Magalhães Mateus, *Contribuição para o Estudo da SeroAntropologia*, dissertação para concurso ao lugar de professor extraordinário de Zoologia e Antropologia da Faculdade Ciências do Porto, 1947. On the work of William Boyd see Rachel Silverman, ‘The Blood Group “Fad” in Post-War Racial Anthropology’, *Kroeber Anthropological Society Papers*, Vol. 84 (2000), 11–27.

Cunha in the 1920s – that the Portuguese were positioned as the purest European types. According to Mateus, the Portuguese possessed ‘um dos mais elevados da Europa’ [one of the highest [haemato-anthropological indexes] in Europe].¹¹⁴ He argued additionally that blood groups and his new index could help solve the problem of the ‘origins of present-day human groups’, thus coming to the aid of Professor Mendes Correia’s ambitious hypothesis for locating in Southeast Asia and, specifically in Portuguese Timor, the birthplace of mankind – a point that possibly further raised his superior’s hopes for the advantages of serology in the Timor expedition.¹¹⁵ Statements such as Mateus’s, providing serological grounds for his ethnogenic theories on Timor and Oceania, possibly strengthened his superior’s embracing of sero-anthropology.

In the 1950s, in just a few years in fact, Portuguese anthropological literature on blood groups in colonial populations expanded rapidly. In 1955, the same Amílcar Mateus emphasized the momentum it had obtained. He wrote enthusiastically about the ‘applications’ of blood groups in the anthropology of the ‘Portuguese Overseas provinces’, and the numerous results already obtained. He referred to the ‘thousands’ of observations in individuals of various tribes, the very large series then already obtained by António de Almeida’s field campaigns in Angola (6000) and, more recently, in Timor (more than 5600) for ABO blood types.¹¹⁶

Conclusion

The openly racist and colonialist tone of some of the work discussed above may cause surprise, but the integration of serology in such a colonial and overseas form of anthropobiology was not dissonant with broader post-war trends in the systematic study of blood groups in anthropology. In the early 1950s the study of blood groups gained further momentum, both nationally and internationally. The escalation of field campaigns within the framework of the Portuguese Anthropological Missions that took place in this decade was part of this development. Notwithstanding the anti-racist climate and a steady broader scientific and cultural acceptance of racial mixing which followed World War II, international interest in the study of race and human diversity persisted, particularly under the guise of blood-group research and the patterning of its geographical and ‘population’ variability.¹¹⁷

In Portugal, interest in determining blood groups for clinical purposes as well as in crossing serology with anthropology apparently grew exponentially, even independently and outside the purview of Mendes Correia’s programme. This renewed interest in human blood for anthropological purposes was accompanied by a continuing attachment to Portugal’s metropolitan white European colonial venture, both ideologically and practically. On the one hand, simultaneously, but also more or less independently from the

¹¹⁴ Mateus, ‘Os grupos sanguíneos e as suas aplicações, nomeadamente na Antropologia do Ultramar Português’, 21.

¹¹⁵ Mateus, *Contribuição para o Estudo da SeroAntropologia*, 26–7.

¹¹⁶ Mateus, ‘Os grupos sanguíneos e as suas aplicações’, 24.

¹¹⁷ Bangham, ‘Blood Groups and Human Groups’.

Overseas Research Council's and Mendes Correia's jurisdiction, a number of colonial medical doctors in Angola, Mozambique, and Goa – most notably Alexandre Sarmiento and Germano Correia (whose work in Goa may have preceded serological research at Porto)¹¹⁸ – were undertaking their own surveys, determining (especially ABO) blood groups in distinct ethnic groups with a view to racial classification and/or the drawing up of 'anthropological charts'.¹¹⁹ On the other hand, by the late 1950s, interest in blood-group racial research bifurcated into two principal expressions. Mendes Correia's followers – most prominently António de Almeida and his collaborators at the Centre of Anthropobiology Studies in Lisbon – continued the study of blood with a view to producing discrete racialized biological types until well into the 1980s.¹²⁰ At the same time, some Portuguese scholars developed a special interest in the study of *mestiços*, inspired by Freyre's Luso-tropicalism.

The Luso-tropicalist orientation in Portuguese human biology was championed by Dr Almerindo Lessa from the late 1950s onwards. Lessa was a central protagonist of haematology and racial serology research at home and in the colonies, having organized the IV International Congress on Blood in Lisbon in 1951.¹²¹ By the late 1950s, however, he embraced positive views of miscegenation and became an avowed advocate of Freyre's visions in the field of human biology in Lisbon.¹²² Lessa could argue in favour of blood as a marker of individuality and individual 'race', yet he also viewed racial mixing favourably, for example, in the localities of Cape Verde and Macau.¹²³ In 1956, sponsored by the state, Lessa led a sero-anthropological mission to Cape Verde. In the following years, in the context of a nascent Luso-tropicalist human sciences hub at the Centre of Political and Social Studies in Lisbon, led by Adriano Moreira, Lessa expanded his serological researches on 'Portuguese *mestiços*', with a view to demonstrating the biological excellence of the '*mestiço luso-tropical*' [luso-tropical mestizo]

¹¹⁸ Germano Correia possibly started anthropological research on blood groups of specific ethnic groups as early as the 1920s, perhaps even prior to Mendes Correia and his students. He also pioneered physical anthropological research on Portuguese-descendant communities in Goa and Angola with a view to emphasizing the (white) racial purity of luso-descendants. See Alberto Carlos Germano da Silva Correia, *Os grupos antro-po-sanguíneos na Índia Portuguesa: Contribuição para a Antropo-Hematologia do Hindustão* (no publisher information, 1925). For studies of Germano Correia's concerns with purity see Ricardo Roque, "'Portugueses da Índia': Germano Correia e a antropologia dos luso-descendentes de Goa", in Rui Centeno and António Custódio Gonçalves, eds, *Actas do VI Congresso Luso-Afro-Brasileiro de Ciências Sociais* (Porto 2002), 339–46; Cristiana Bastos, 'Um luso-tropicalismo às avessas: colonialismo científico, aclimação e pureza racial em Germano Correia', in Margarida Calafate Ribeiro and A. Paula Ferreira, eds, *Fantasmias e Fantasias Imperiais no Imaginário Português Contemporâneo* (Lisbon 2003), 227–53.

¹¹⁹ See for instance a set of articles in the *Anais do Instituto de Medicina Tropical* of 1953.

¹²⁰ Ricardo Roque, 'The Blood that Remains: Card Collections of the Colonial Anthropological Missions', *British Journal for the History of Science Themes*, Vol. 4 (2019), 29–53.

¹²¹ Almerindo Lessa, *A individualidade biológica do sangue. Importância médica, antropológica e social dos tipos antigénicos* (Porto 1956).

¹²² On Almerindo Lessa see Cleminson, 'Between Germanic and Latin Eugenics'; Cláudia Castelo, 'Gilberto Freyre's View of Miscegenation and Its Circulation in the Portuguese Empire, 1930s–1960s', in *Luso-tropicalism and Its Discontents*, 34–6.

¹²³ Almerindo Lessa, *A história e os homens da primeira República democrática do Oriente. Biologia e sociologia de uma ilha cívica* (Macau 1974), where he drew on his previous work of the 1930s to praise the existence of 'enxertos' (grafts) to make up new people.

idealized by Gilberto Freyre.¹²⁴ Lessa's positioning in fact expressed a Portuguese Luso-tropicalist trend in the fields of social and political sciences (including an emerging cultural anthropology) that accepted more openly racial mixing and did not view it as a negative phenomenon.

Thus, despite the ambivalence of one of the main advocates of serology, Mendes Correia, as the decade of the 1950s began, sero-anthropology prospered by directing its gaze away from Europe as a science that sought out pure-race *indígenas* in the Portuguese colonial world, as much it had prospered as a science of pure-race white Europeans in the metropole in an earlier period. For a moment, racial purity seemed to be consolidated as a programme, a shared obsession, of all those who took human blood as a pathway to raciological analysis. For many, it appeared to resolve the fundamental question of the purity of the Portuguese 'at home' and the integrity of the 'native races' in the colonial empire. Yet, as just our brief overview of Almerindo Lessa's work above reveals, this 'consensus', if that is what it was, would fast wane. Until then, it was no wonder that Mendes Correia, converted warily to the promises of blood-group classification, would speak so authoritatively at the 1951 congress to praise his own contribution to the occasion as the outcome of the 'heroic times' of racial, and racist, serology in Portugal that stretched back in the now distant – but still resonant – past.

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¹²⁴ Castelo, 'Gilberto Freyre's View of Miscegenation and Its Circulation in the Portuguese Empire, 1930s–1960s', 34–6.

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