Science and Visual Colonialism Luis Calvo and Miguel Ángel Puig-Samper (eds.) **CULTURE & HISTORY DIGITAL JOURNAL** 12(1)

June 2023, e003

eISSN: 2253-797X

doi: https://doi.org/10.3989/chdj.2023.003

# CSIC scientists and scholars in Africa: visual, colonial, and scientific action

José María López Sánchez<sup>1</sup>, and Alba Lérida Jiménez<sup>2</sup>

<sup>1</sup>Universidad Complutense de Madrid e-mail: jmlopezs@ghis.ucm.es ORCID iD: https://orcid.org/0000-0002-8766-7718 <sup>2</sup> Instituto de Historia (CSIC) e-mail: alba.lerida@cchs.csic.es ORCID iD: https://orcid.org/0000-0002-9389-6218

Submitted: 12 August 2022. Accepted: 22 October 2022.

**ABSTRACT:** This article deals with the role played by science, scientific institutions, and the administrative apparatus of Francoism in the construction of a particular version of Africanism. The Institute of African Studies, part of CSIC, was created by the Prime Minister through the General Secretary of Morocco and the Colonies. Together with them, a large group of Africanist (journalists, army officers, scholars) from the Institute of Political Studies manoeuvred in the 1940s to create a colonial institute from which to deploy scientific action in Africa. This was interpreted as a mission not only to justify their irredentist positions about Africa but also to reinforce the legitimacy of the dictatorial regime.

KEYWORDS: Africanism; Colonial power; Scientific expeditions; Colonial science; Visual colonialism.

Citation / Cómo citar este artículo: López Sánchez, José María, and Lérida Jiménez, Alba (2023) "CSIC scientists and scholars in Africa: visual, colonial, and scientific action." *Culture & History Digital Journal*, 12 (1): e003. doi: https://doi.org/10.3989/chdj.2023.003

**RESUMEN:** Científicos y eruditos del CSIC en África: acción visual, acción colonial y acción científica.— Este trabajo aborda el papel desempeñado por la ciencia, las instituciones científicas y el aparato administrativo del régimen franquista en la construcción de una particular lectura del africanismo. Desde la Presidencia del Gobierno, a través de su Dirección General de Marruecos y Colonias, se creó el Instituto de Estudios Africanos, adscrito al CSIC. Junto a ellos, desde los salones del Instituto de Estudios Políticos, actuaron en los años cuarenta un nutrido grupo de africanistas (periodistas, militares, eruditos) que aspiraban a la creación de un instituto colonial desde el que desplegar una acción científica en África. Esa acción se leyó como una misión para justificar no solo sus posturas irredentistas en África, sino también para reforzar la legitimidad del régimen dictatorial.

PALABRAS CLAVE: Africanismo; Poder colonial; Expediciones científicas; Ciencia colonial; Colonialismo vigual

**Copyright:** © 2023 CSIC. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International (CC BY 4.0) License.

#### INTRODUCTION

At the end of the Civil War, Franco's government needed to consolidate its victory and ensure its survival, a challenge faced by unleashing a harsh programme of repression against domestic dissidents but also by laying the foundations of a new legitimising political-social order based on state structures. The government's scientific-academic and cultural policies were closely linked to this second strategy. So-called "new Africanism" played a significant role in this, to the extent that some of its features can be used to illustrate various core components of Francoism. In order to understand the scope of this "new Africanism" and its contribution to the conformation of Francoism, this work explores several elements of the regime's ideological matrix and the novelties brought about by the Francoism's formative process. In this endeavour, we adopt interesting analytical proposals based on the paradigm of complexity (Wagensberg, 2003; Wolfram, 2002; Tello, 2022; Gaddis, 2002).

A fundamental premise of this paradigm is the need to examine the socio-historical world as an ever-chaotic system, which tends to order through processes of self-organisation, like physical and biological systems in a natural state (Strogatz, 2004; Prigogine, 1980; Kaufman, 2011). This not only applies to historian-defined moments of historical acceleration or world-changing events, such as the Spanish Civil War but a permanent feature of the historical development of society. Even periods considered to be stable or transitional present both this chaotic nature and tendency to self-organise. The success of the latter and its ability to crystallise into an ordered system, regardless of its specific features, marks the degree of stability diagnosed by historians through the examination of political, economic, social, and cultural events. The historical reality is complex by definition, and its multiple components interact randomly through change and constant systemic tendency towards order, even if the foundations are grounded on disorder and complexity, like in the natural world (Lewin, 2002).

In the issue at hand, we must not underestimate the role played by the academic, scientific, and cultural sectors. The political and ideological families of the new regime, which were not always on good terms, both competed and cooperated to present a legitimising discourse for the new order. Apart from their tribal nationalism and loyalty to the *Caudillo*, monarchists, army officers, fascists, and traditionalists, among others, came from very different political cultures, none of which could claim the upper hand, and this led to balances and imbalances that were to shape the outline of Francoism. In the academic field, following the failure of the Instituto de España, the year 1939 witnessed the foundation of two institutions that became, alongside universities, the main arena for these ideological families to find their pitch: the Instituto de Estudios Políticos (IEP) and the Consejo Superior de Investigaciones Científicas (CSIC). The former, created in September 1939, "held a leading position in the process of cultural institutionalisation in the

post-war period [...] under the close political scrutiny of the Junta Política of *FET y de las JONS*" (Sesma, 2004, p. 176). The CSIC, on the other hand, became the main lectern for the Catholic-propagandistic sectors of the regime since its foundation in November 1939 (Sánchez Ron, 2021; López Sánchez and Fernández Gallego, 2021).

# VISUAL ACTION: THE INSTITUTE OF AFRICAN STUDIES AND THE JOURNAL ÁFRICA

The CSIC was an institution organised by the Ministry of National Education under the direct supervision of Minister José Ibáñez Martín and José María Álbareda, who became its General Secretary. The aim of the institution was to steer research policies in Spain, and it effectively became the country's main scientific body until the downfall of the regime. Although its role became gradually less prominent over time, it never fully lost its leading position vis-à-vis universities and other scientific institutions within the ministry. In the 1940s, the ministry came under the control of national-Catholic propagandists and, increasingly, Opus Dei. The IEP, on the other hand, was an intellectual tool of Falangism, sponsored by Serrano Suñer to develop a Falangist-inspired theory of the State, initially under the direction of Alfonso García Valdecasas. One of the aims of the *Instituto* was to train high administrative cadres, notably a legal *intelligentzia* that occupied important posts in the state's apparatus, including ministries. It was divided into several separate sections, with the participation of falangists, members of the ANP, the odd former liberal, and high-ranking army officers (Sesma, 2004).

Eventually, the Instituto de Estudios Africanos (IDEA) was created in conjunction with both institutions. under the coordination of the office of the Prime Minister (Bosch, 1985; Suárez, 1997), from which Luis Carrero Blanco appointed José Díaz de Villegas Bustamante (1894-1968), a lieutenant colonel in the General Staff of the Army, as director (Fig. 1). Díaz de Villegas, a law graduate from Universidad de Oviedo and alumnus of the Infantry Academy (Toledo) and the Army General Staff School, had previously taught Africa-related topics in the IEP's Foreign Policy Section. Before the war, he had been deployed in Morocco, teaching Geopolitics at the Official Journalism School, and had been one of the leading officers of the rebel army during the conflict. His curriculum also includes the position of Chief of General Staff in the Blue Division (Norling, 2018). Carrero Blanco, subsecretary at the Prime Minister's office, gathered around him a group of army officers that had held prominent positions during the Civil War to become the core of the staff of the new civilian administration. The new officials, hand-picked by Carrero Blanco to execute non-military projects, such as the IDEA and his peculiar approach to Spanish culture, the so-called new Africanism, gave the administration a strong militaristic flavour, as these officials were always keen to emphasise their origins.



FIGURE 1. El teniente coronel José Díaz de Villegas. Source: *África. Revista de acción española*, 1943, 16, p. 2.

In August 1944, Díaz de Villegas was appointed Director General of Morocco and the Colonies, a department with wide powers to coordinate policy in the colonial dominions. Created in 1925, the institution had been disbanded in 1934 and later reorganised by the Burgos-based rebel government in 1938. The General Directorate of Morocco and the Colonies was attached to the Ministry of Foreign Affairs until January 1942, when it came under the aegis of the Prime Minister's office, when Carrero was appointed subsecretary (Suárez, 1997, p. 319). The foundation of the Instituto de Estudios Africanos followed a series of drafts that discussed the matter informally. One of them, entitled "Ideas for the creation of a Centre for Africanist Studies," referred to the Africanist effervescence of the post-war years and a trip to Antwerp to visit the Colonial University of Belgium:

The great growth of colonial research and the increasing importance of the colonies in the Nation's life recommend the creation of a Centre for Africanist Studies, a body capable of centralising activity, data, publications,

and materials that are currently dispersed [...]. Our recent visit to the Colonial University of Belgium, in Antwerp, emphasised even more [...] the need to create a Centre for Africanist studies in Spain.<sup>2</sup>

The Africanist group initially operated within the framework of the *Sociedad de Estudios Internacionales y Coloniales* (SEIC), close to the IEP (Parra, 2012), and authored a project presented by Hermenegildo Tabernero Chacobo, Nicolás Benavides Moro, and José María Cordero Torres (Anonymous, 1943a, p. 40). The main advocates of the project aimed for the centre to coordinate scientific action but not house specialised labs. The original idea was to become part of CSIC:

The [Institute] should contemplate all disciplines that constitute the knowledge of a country, from the natural sciences (zoology, botany, geology, and geography) to economic, sociological, and political disciplines, as well as history, the arts, and especially linguistics. [...] The institution's main aim would be to centralise the disperse efforts and materials, steering research in colonial issues and finding support in existing research centres.<sup>3</sup>

The Instituto de Estudios Africanos was finally created by decree on 28 June 1945, and its functions were established by order of the Prime Minister's office on 10 July 1946.4 The decree was clear: "Loyal to its traditions, Spain cannot neglect any civilising and cultural action in its African colonies and the Protectorate of Morocco." The IDEA, which was based in Madrid, concerned the CSIC but remained closely watched by the Prime Minister's office through the General Directorate of Morocco and the Colonies (Calvo, 1997). The foundational document's second article established that the aim of the institute was "Scientific exploration of the African territories under [Spanish] protectorate and sovereignty, in support of official policies."5 This foundational document also established that the direction of the Instituto was to be entrusted to the Director General of Morocco and the Colonies, José Díaz de Villegas. The steering committee included the director, a vice-director, four members appointed by CSIC at the proposal of the director, and the institute's representatives in Morocco, Western Africa, and the Gulf of Guinea. The Africanist orientation imposed by Díaz de Villegas met the opposition of the SEIC, and the contributions made by its members to the *Instituto*'s publications gradually decreased over time (Parra, 2012, pp. 168-174). Finally, the IDEA relied on the cooperation of other sections in the Consejo to support their research projects. Therefore, although part of CSIC's Patronato Diego de Saavedra Fajardo, it remained close to the Prime Minister's office, which made the appointments and ensured its funding.

The *Instituto*'s 1946 regulations included several measures, such as the structure of the steering committee and the institution's various sections, which, apart from the institute's core staff, employed:

1°.- Specialised collaborators. 2°.- Scholarship holders to be appointed annually. 3°.- Honorary collaborators, who

can thus acquire the necessary training to become future scholarship holders. In addition to this, the *Instituto* will employ: a) Delegates appointed by the *Consejo Superior de Investigaciones Científicas*, from its other institutes, for collaborative work; b) Territorial delegates from the African territories mentioned above, with the same effect.<sup>6</sup>

Section Chiefs were to be appointed by the CSIC at the proposal of the Director General of Morocco and the Colonies. These were to be specialists in their field, to ensure the progress of the *Instituto*'s research. The steering committee, sections, and section chiefs were the nervous system of the institute's research activity. The first steering committee was endorsed by CSIC's executive committee on 25 March 1947, with three members from the natural sciences (Francisco Hernández-Pacheco, Chief of the Physical Geography Section; Arturo Caballero Segares, of the Botany Section; and Eugenio Morales Agacino, Adjunct Chief of the Entomology Section) and three from the humanities (Antonio de la Torre y del Cero, Chief of the History Section; Blas Taracena Aguirre, of the Archaeology and Art Section; and Fray Esteban Ibáñez, of the Moroccan Studies Section).7 The death of Arturo Caballero and Blas Taracena triggered the reorganisation of the committee at a later date; new sections were created, such as the one entrusted to Julio Caro Baroja, while other members, like Eugenio Morales Agacino, left the committee:

INSTITUTO DE ESTUDIOS AFRICANOS. STEERING COMMITTEE.

Director.- Excmo. Sr. D. José Díaz de Villegas.

Secretary.- Sr. D. Manuel Melis Clavería.

Member.- Iltmo. Sr. D. Francisco Hernández Pacheco ) Natural sciences.

Member.- Iltmo. Sr. D. Antonio de la T. y del Cerro ) Humanities.

Member.- Rvdo. P. Fray Esteban Ibáñez ) Humanities. SECTIONS.

GEOLOGY. D. Eduardo Hernández-Pacheco.

PHYSICAL GEOGRAPHY. D. Francisco Hernández-Pacheco

HUMAN GEOGRAPHY. D. Manuel Terán Álvarez.

EDAPHOLOGY. D. Enrique Gutiérrez Ríos.

ETHNOLOGY. Julio Caro Baroja.

ARCHAEOLOGY. D. Antonio García Bellido.

BOTANY. D. Emilio Guinea López.

ANTHROPOLOGY. D. Santiago Alcobé Neguer.

MEDICINE. D. Valentín Matilla Gómez.

PHARMACOLOGY. D. César González Gómez.

ENTOMOLOGY. D. Gonzalo Ceballos y Fdez. de Córdoba.

ARABIC STUDIES. Rvdo. P. Carlos Quirós.

HEBREW STUDIES. D. José Mª Millas Villacrosa.

HISTORY. D. Antonio de la Torre y del Cerro.

ECONOMICS AND LAW. D. Alfonso García Gallo.8

On 29 April 1947, CSIC's executive committee endorsed the appointment of IDEA's section chiefs. Although the regulations established the appointment of

a vice-director, this was never done. The secretary was an important administrative position in the *Instituto*, a responsibility that fell to Antonio Ochoa Iglesias, from the Real Sociedad Geográfica, who held the post until 1 March 1949, when he was replaced by the lieutenant colonel Manuel Melis Claverías. 10 Another of the institute's aims was to draw links with all national and international research institutions interested in Africa, for which reason the IDEA joined the Instituto del África Negra and the Instituto de Medicina Colonial - although it continued reporting to the General Directorate of Morocco and the Colonies – as well CSIC's Patronato Santiago Ramón v Cajal. Article 13 of the 1946 regulations created the "African Museum, whose public collections will present African nature and history, with educational ends."11 In the event, however, the museum did not open until 1961. sharing a building with the General Directorate of African Cities and Provinces, in Paseo de la Castellana 5 (Sastre, 2018; Pérez Armiño, 2020). The scientific work of the institute was published in two journals, the Archivos del Instituto de Estudios Africanos and Revista África, as well as in books and monographs.

The IDEA received funding from the General Directorate of Morocco and the Colonies and the CSIC, although the lion's share of the *Instituto*'s budget always fell to the former. One of the institute's main activities was the publication of the journals and 'Africanist' books, over which the IDEA held a virtual monopoly, after an order issued in 1944 established that all books on African or Islamic topics had to be approved by the General Directorate. 12 At the time, scientific publication in Spain was overwhelmingly dominated by CSIC's publishing section (López Sánchez and Fernández Gallego, 2021), which kept an "account for the exclusive use of Journal 'ÁFRICA', [...], and the Institute of African Studies can keep the revenue raised through advertising, sales, and subscriptions."13 Beginning in 1946-47, the institute started organising annual series of conferences, and from 1948 it sponsored an annual Exhibit of African Painters. Every year, it awarded the literature and journalism "África" prize. 14 This administrative apparatus was, therefore, the visible body of new Africanism, the visual expression of colonial action.

# COLONIAL ACTION: 'AFRICANIZING' AFRICA

The Instituto de Estudios Africanos was the result of the convergence of a heterogeneous and complex group of Africanists from the Instituto de Estudios Políticos, the Real Sociedad Geográfica, the Patronato de Alta Cultura e Investigación de Tetuán and the CSIC in the early 1940s. While the Second World War raged, their publications expressed unfailing loyalty for the Caudillo and the crystallisation of a national identity whose values were expressed by Spanish action in Africa. As the subject of Spain's colonial policies, Africa emphasised Spain's imperial will and national identity through images, discourses, scientific studies, cultural activities, and ways to exercise colonial power that buttressed the identity and legitimacy of Francoism (Nerín, 1997) (Fig. 2).



FIGURE 2. Franco, primer africanista y colonizador. Source: *África. Revista de acción española*, 1948, 73, p. 1.

Before the *Instituto*, the journal *África* – subtitled from mid-1942 as *journal of Spanish action* – served as the stage on which to perform this new Africanism. The refoundation of the journal, in January 1942, coincided, and not accidentally, with the reassignment of the General Directorate to the Prime Minister's office. This is illustrated by an essay published by José María Cordero y Torres, a lawyer close to the JONS and a member of the IEP, in January 1942. The article's significant title was "El nuevo africanismo español a través de los libros [New Africanism through books]" and the arguments put forth could not have been better suited to IDEA and its conceptualisation of Africanism: "On the one hand, the theory, the book; on the other, action, military or civilian" (Cordero, 1942, p. 35). As such, Cordero was presenting one of the keys of new Africanism:

Imperial Spain produced not only Great Captains [...] but [also] *conquistadores*, missionaries, sailors, literary geniuses. [...] The decadent Spain of Encyclopedism is a Spain whose literature dragged behind the French model, and which abandoned [...] its African mission (Cordero, 1942, p. 35).

Although not explicitly, Cordero was vindicating the figure of the medieval and early modern Christian knight,

like Lope de Vega, the cultivated soldier who pairs decisive action by the sword and reason by the pen. This was the portrait of the Spanish soldier in Morocco presented by Díaz de Villegas and Gómez Jordana, whom the journal congratulated for his appointment as Foreign Secretary, "for all Spanish foreign policy is African, because it is in Africa that Spain digs its vital roots and the open horizons of its future" (Anonymous, 1942, p. 3).

In his essay, Cordero also presented other identity features of Africanist circles. First, the Civil War, which for him had a strong Africanist flavour, because Ketama was the starting point for what he regarded as "Our history's decisive movement;" for this reason, "Without Africa, an acceptable place in it, the word Empire rings hollow" (Cordero, 1942, p. 36). After the war, most Africanist books were sponsored by the IEP, of which Cordero was a member, a hub for Falangist intellectuals and Africanist army sectors. The seminal publication of a new Africanist book was Fernando María Castiella and José María de Areilza's *Reivindicaciones de España*, with a prologue by Alfonso García Valdecasas, all of them IEP members, and in the case of García Valdecasas the *Instituto*'s director. For Cordero, this book was the work of "two new Spaniards in every sense, as new are the theses of the book, even if they respond to an eternal notion; and new are the policies of the Spanish State, [...] with regard to all things African" (Cordero, 1942, p. 37). The theses were hardly new, and the imperial rhetoric was decades old but the stage was indeed unprecedented, because the State had been conquered, and tools to push forward an identity-ridden form of Africanism to support the legitimacy of the new regime had been made available:

The work transpires a general Africanist thesis that argues that Spain simply aspires to recover Gibraltar; to be the only power to assist Morocco; to Oran to pay respect to the civilising efforts of Spaniards, proclaiming our sovereignty there; to Sahara and Guinea to return the land taken from us [...] so we can carry out our civilising mission (Cordero, 1942, p. 37).

Cordero glossed over the work of Africanist authors and politicians, such as Hispanus (pseudonym of Díaz de Villegas), Luis Carrero Blanco, or himself. Others that feature alongside them are Enrique Arqués, José César Banciellas, and Tomás García Figueras, a career soldier who displayed considerable cultural curiosity, and even was appointed Delegate of Education and Culture in Morocco. His review of new Africanist literature also includes Rafael de Roda, Carlos Ronzano, Carlos Ibáñez de Ibero, and Camilo Barcia Trelles, all of the Africanist military officers or scholars summoned by the IDEA, whose creation Cordero requested:

I expect many Africanist publications from the *Consejo Superior de Investigaciones Científicas*, in Spain, and the *Patronato de Alta Cultura e Investigación*, in Morocco. It is a shame that there's no Colonial School to carry out this work [...]. (Cordero, 1942, p. 40)

Also interesting are the arguments put forth by the director of the High Academy of the Army, General Antonio Aranda Mata, whose inaugural speech for the 1941-42 academic year at the *Real Sociedad Geográfica*, "Presente y porvenir de Marruecos," the journal transcribed. The speech talked about the geological, racial, economic, and cultural unity of Spain and North Africa:

And as Geology is the mother of Geography and this, in turn, begets history, it suffices to recognise the Moroccan valleys and mountains, observe their inhabitants, and look into their history to understand that there are no other people in the world, especially in Europe, as suited as us to play in Morocco the role of protector [...] and spiritual and even physical merge (Aranda, 1942, p. 3).

The arguments deployed by Cordero and Aranda were repeated and upgraded throughout the 1940s within the framework of the 'new Africanism' embodied by IDEA. África's inaugural issue published Joaquín Cervela's "Razón y ética de la acción colonial," which argued that colonisation was a substantial part of early modern history, and that the Spaniards were the first nation to take it to America. That 'primus inter pares' led to an even more important idea: "colonial areas must be fairly distributed, and it is important for the colonial action of civilised peoples, whose duty is to assume this task, to generously project it upon the protected multitudes." The colonial mission required accepting that "Colonising, civilising, is licit and a duty; subjugating, exploiting, robbing other peoples of what is justly theirs, is a crime against humanity." Cervela believed to be witnessing the birth of a new economic order, the result of colonial action "from which millions still in virgin jungles, in sleepy lands where civilisation and progress have yet to open their paths, await redemption" (Cervela, 1942a, p. 42). Naturally, Spain was the paradigm of colonial action free from all exploitation; Spanish colonisation aimed to assimilate and "share the metropolis' religion, culture, civilisation, and spirit with the colonies" (Cervela, 1942a, p. 43). For Cervela the metropolis carried out its duty by bringing education, law, justice, and administration to the colonies. Education must begin with basic schooling but "The field of intellectual, moral, and political education is where the colonising State's influence must be felt the most" (Cervela, 1942a, p. 44). Moral education must determine what customs to accept and which to banish, and present civilisation through example, forcing the colonised people to adopt universal moral principles and enter the stream of progress. Although not in words, Cervela illustrated (Fig. 3) that he identified moral order and education with the Catholic creed.

The illustration pointed to the order and hierarchy of national-Catholicism, a creed that saturated Spanish public life during Francoism, and which also reached colonial action. One of *África*'s recurrent arguments was comparing this colonial action to a missional endeavour, based on historical arguments. Africanist circles assumed one of the foundational features of Spanish traditionalist



FIGURE 3. Ceremony in the Church of St. Elizabeth (Cervela, 1942a, p. 43).

thought. Applying historical arguments to colonial policy, it linked the colonisation of America, the greatest success of which was argued to be evangelisation, with the right and duty to bring this spiritual enterprise to Africa. Until his death in 1944, the Director General of Morocco and the Colonies was Juan Fontán Lobé, who signed several articles about Guinea, including "La obra misional de España en Guinea," an intellectual pillar of Spain's colonial action. It was meant as the proof that Spain did not exploit, that its spiritual values overcame material interests, as illustrated by a Guinean novice (Fig. 4), whose portrait's caption read: this indigenous novice proves that the good seed thrives in the heart of our charges" (Fontán Lobé, 1942b, p. 4).

Fontán had begun a series of articles in *África* to defend Spain's spiritual work as a counterweight to exploitation:

It is important for Spain to know that, following our colonising traditions, there has always been [...] a deep concern to improve the moral and material life of indigenous peoples. Our colonisation has always given little priority to material profit. Our main concern has been to civilise the indigenous peoples, to win their souls for our religion, to make them understand [...] our concept of family and Christian society, while [...] improving their material existence (Fontan, 1942a, p. 4)

This thesis was also supported by Tomás García Figueras, who compared Spanish colonial action in Morocco with that deployed centuries earlier in America, a spiritual enterprise that "here, as in America, has focused more on winning the hearts of Moroccans than on our own interest; [...] the deep spiritual sense of Spanish action" (García Figueras, 1942a, p. 41). A priest, Pedro Cantero Cuadrado, even spoke of the pending evangelising work in Africa, arguing that Christianity had not made inroads in the continent because Spain had been marginalised: "Our missional performance in America proves beyond doubt not only our colonial abilities but also Spain's right to a colonial presence in Africa" (Cantero Cuadrado, 1942, p. 26). In the 1940s, the need to catholicise and



FIGURE 4. Guinean novice (Fontán Lobé, 1942b, p. 4).

morally elevate the colonised peoples was a recurrent argument (Álvarez García, 1949, pp. 18-21).

Protectorates, justified by the spiritual mission, were also essential owing to the lack of ability of those protected to progress on their own, a sign of indigenous immaturity, which was regarded as a scientifically-proven fact:

Experimental studies have highlighted the fact that indigenous children are in their early years almost as intelligent as European children [...] But [...] from fifteen years old onwards, the intelligence curve of indigenous peoples begins to drop so markedly that it is believed that, by the age of twenty, their intelligence has fallen to the equivalent of a twelve-year-old [European] child (Fontán Lobé, 1942c, p. 8).

The Director General of Morocco and the Colonies insisted that "negro psychology demands [...] direction and guidance in their actions. It can be said that for the negro, the solution to all difficulties is Providence" (Fontán Lobé, 1943, p. 3). This triggered the creation of an Indigenous Institute, revitalised by the new Francoist colonial regime. In 1944 Heriberto Ramón Álvarez supported some of Fontán 's theses, arguing that races

are different from one another because of congenital peculiarities acquired by inheritance or other environmental causes, which arrest, or at least hamper, the evolutionary process in some, and these have become the human groups that we classify, from the civilisational point of view, as "primitive" (Álvarez, 1944, p. 92).

It is ironic that the hostility of Francoist academia to Darwinism, because of the dangers it posed to the Catholic dogma, did not stop Heriberto R. Álvarez from using it (Otero Carvajal, 2014; López Sánchez, 2018). Anthropobiological, ethnic, and colonial medicine studies did the rest to ensure the orthodoxy of some of the tenets of social Darwinism. In this way, the auditor of the Indigenous Institute, Ángel García Margallo, argued that "the childlike mentality of indigenous peoples can be easily understood and overcome by the European, who is capable of convincing them of their errors, despite their innate suspicious nature" (García Margallo, 1944, p. 124). Black people, however, were regarded as perfectly suited to physical labour. In 1946, Mariano Alonso, a colonel in chief of Studies in the General Military Academy and ex-governor of Guinea, was convinced that "both the climate and the prestige of whites advise against using white labour, [...] it is much cheaper to use black labour" (Alonso, 1946, p. 5). Alonso, however, insisted on the difference between exploitation and colonisation, grounded on the moral duty of improving a lot of indigenous peoples and bringing them salvation: "millions of human beings, our brothers even if of a different colour, await in Equatorial regions for Christians to bring civilisation, progress, and Christ's word" (Alonso, 1946, p. 4).

Spanish colonial action was not only justified by the Catholic mission and the innate immaturity of aborigines. There were also secular historical and geographical arguments that linked the origins of the Iberian Peninsula, its geographical, historical, and ethnographic features, with North Africa (Cañete, 2021). Although the academics writing for Africa mobilised this paradigm at will, they kept some of its original features. García Figueras was the first to wield the thesis in reference to Morocco. This polygraph was convinced that the geography of Morocco and Spain formed a single unit from the Pyrenees to the Atlas, and even recovered myths and legends that had been at the root of the original Africanist paradigm in the 15th century, such as the Hesperides, Calypso and Hercules, now complemented with the toil of the Spanish soldier in his military and intellectual duty, the combination of arms, science, and culture (García Figueras, 1942a). The unit of Spain and Morocco was also supported by Ernesto Giménez Caballero, when in October 1943 he praised the role played by Morocco in the Civil War and the Moroccan quality of the army: "if a country has the ability to assimilate Morocco, that is Spain; because of their geographical [...], moral, and religious unity" (Giménez Caballero, 1943, p. 26).

Two years later, José Martos de Castro emphasised that Morocco and Spain were not geographically distinct: "The Strait is, therefore, not a chasm that breaks

the continuity of two coastal countries which, from a geographical point of view, are a single unit whose axis is the Straight" (Martos de Castro, 1945, p. 29). Furthermore, this author argued for the faunistic unity between these two territories, and even the ethnic unity of Berbers and Iberians. Enrique Arqués, in a text of a marked historical, or prehistoric tone, went as far as to dig into the contacts between Iberians, Libyans, Phoenicians - even the inhabitants of Atlantis – to decipher ethnological (e.g. Iberians and Libyans with blonde hair) and megalithic mysteries: "these blond Iberians and Libyans were part of the great caravans of merchant tribes that dealt in metals [...]. This path, strewn with monuments of undressed stones, was the first road in their history. [...] And these were also the first giant-like steps of their brothers from Atlantis, the other major Libyan tribe" (Arqués, 1949, p. 11).

The geographic unity argument was only plausible for Morocco; for western Africa, the geological expeditions launched in the 1940s tried to build a similar link with the Canaries; for the Gulf of Guinea, a different approach was necessary. In this case, they began with Isabella I of Castile's will, in which she gave political guidance that was still valid for the present: "Europe, united and aware of its responsibility, must colonise Africa materially and spiritually" (Carrero Blanco, 1942, p. 4). The history of Spanish expeditions, treaties, and presence in western and equatorial Africa, no matter how small or episodic, was read as an Africanist vocation inaugurated by the Catholic Monarchs. Naturally, spiritual colonisation came to fill the gap left by the impossible geographical or ethnic unity with Guinea. The spiritual virtues of Spanish colonisation gave the lie to the prejudices rooted in the Black Legend:

We shall unravel the Black Legend, which defamed our American colonisation, [...] and is not being kinder to the last scrap of our Colonial Empire, saying that Spain has done nothing in [...] our tiny colony can stand as a model, compared with any other colony in equatorial Africa. The work of our missionaries, [...] has reaped abundant fruit (Fontán Lobé, 1942a, p. 5).

Joaquín Cervela attacked the Black Legend in another essay, rebuking others for their colonial action and claiming that colonial expansion in Africa was not possible "without taking Spain into account. Nobody can ignore the fact that, at the far end of Europe, a bridge between two continents, a people remains alert" (Cervela, 1942b, p. 14). These were Castiella and Areilza's demands in their militant book, now quoted by García Figueras to undermine the Black Legend:

Indeed, one of the aspects of the Black Legend, which in this case stands as one of the greatest praises to our Nation, is to reject Spain's colonising qualities. If with this is meant that Spain does not know, and does not want to know, how to take material advantage of the peoples with which it comes in contact (García Figueras, 1942c, p. 12).

This does not exhaust the topic of the ideology of 1940s Africanism but at least it allows us to appreciate

the scope of this programme in the field of science and knowledge. The role of Africanism was neither small nor secondary; the foundation of the IDEA aimed to give Africanist erudition a tool with which to emphasise its own importance. This is how *Africa* hailed the new body:

Its main aim is scientific research in our African dominions and the Moroccan protectorate, and its creation is clear proof of the attention that Spain, and the people that currently rule it, with the *Caudillo* at the head, pay to Africa. This [...] meets one of the most longed-for wishes of Spanish scientific research (Anonymous, 1945, p. 59).

At this point, it is worth recalling Foucault's, Adorno and Horkheimer's, and Said's, warnings against the naïve notion of neutral knowledge. Whatever the setbacks undergone by Spanish science in the first half of the 20th century, and there were many of them, it always had the same patriarchal attitude that mistakes the knowledge of things for their nature as its European counterparts: "the mind, conquering superstition, is to rule over disenchanted nature. Knowledge, which is power, knows no limits, either in its enslavement of creation or in its deference to worldly masters" (Adorno and Horkheimer, 2006, p. 60). On the road to modern science, knowledge gave up the meaning and happiness of knowledge, replacing them with an unquenchable thirst for domination. In the colonial field, therefore, Foucaultian notions of knowledge are of great value (Foucault, 2018). Said, for his part, by distinguishing between pure and political knowledge, cunningly explored the role played by science in the construction of power relations between the 'Orient' and western identities. On a more modest scale, the IDEA tried to 'Africanise' Africa (Said, 2001, pp. 35-51; 2008, pp. 30-38; Fanon, 2007).

Measuring, weighting, cataloguing, representing, and naming were intellectual operations that pursued to impose strict control over the object under study, not an objective description of reality. For the Spanish colonial action, knowing the subjects of this action had no other purpose than to ensure their subjection. The colonial discourse speaks of progress, improved living standards, moral development, and assimilation; these were nothing but tautologies to conceal the will for domination and empire, under the mantle of a benign scientific discourse. The spiritual values of Catholicism and scientific knowledge were the alpha and omega of Spanish colonial action in Africa. The beneficial virtues of technical-scientific knowledge were put at the service of 'colonisation', not of the colonial exploitation of the immature aborigine. This is why post-war Africanists pushed for an institution to steer scientific activity in Africa. García Figueras was convinced that there was a scientific bibliography on Africa in Spain, waiting to be organised according to scientific principles:

Our observations will be more interesting for those who, from a higher plane, can stimulate these tasks with wise measures, which will progressively allow us to compile publications that, from a rigorously scientific perspective, can give us a clear and precise notion of Spain's role in the world, especially the African continent (García Figueras, 1942b, p. 15).

In October 1942, Enrique Arqués joined the call for an Africanist body: "The foundation of a Colonial Institute with all possible support is of the greatest interest. The raw materials are not lacking" (Arques, 1942, p. 28). In 1943, *África* echoed a revealing editorial in the newspaper *Arriba*, which displayed the importance of scientific action for the regime:

Recently, the *Instituto de Estudios Políticos* has sent its third expedition to Spanish West Africa. This noble enterprise, having Spanish specialists look at African problems, is worthy of the warmest applause [...]. The *Instituto de Estudios Políticos* and the leading journal África [...] are two nearby examples [...] of what intelligence and will can do at the service of a people rescued from inertia and abandon. There is still an adventure out there for those who wish to learn or teach something about the core existence of human groups. [...] Spain in Africa, [...], has not only left an imprint of its blood and generosity of spirit but also its politics and sciences, especially under the leadership of the *Caudillo*, who became in Africa the man Spain longed for (Anonymous, 1943c, p. 87).

Those for whom there was "still an adventure out there" were CSIC professors and researchers, supported by the IDEA. During CSIC's 7<sup>th</sup> plenary meeting, held in December 1946, Díaz de Villegas presented the new institute as a living, firm, and promising reality:

Spanish science has the right organisation to channel and stimulate Africanist research. [...] In the 7<sup>th</sup> plenary meeting of *Consejo Superior de Investigaciones Científicas*, the president of I.D.E.A. [...] offered its services to the other institutes, and, especially, begged their cooperation, because this is a *sui generis* institute within the *Consejo*; unlike the others, it is not vertically conceived around a well-defined branch of knowledge or science: it has to be interpreted as a horizontal body, which brings together all strands of knowledge and science within a given space: Africa, Morocco, Ifni, Sahara, and Guinea, where there are remains [...] of our former empire. For this reason, I.D.E.A. comes to work with all other institutes, using them, in a manner of speaking, to the benefit of Spanish Africanist action.<sup>15</sup>

# SCIENTIFIC ACTION: THE NATIONAL MUSEUM OF NATURAL SCIENCES

After a few decades of growth during the Silver Age (1907-1936), within the context of the consolidation of modern discourse about the natural sciences in Spain, the Civil War and its aftermath plunged the National Museum of Natural Sciences in Madrid (MNCN) into crisis (Navas, 2007, p. 312). In this new phase, the museum, which depended on the recently created CSIC, was divided into several institutes, the most important of which was the *In-*

stituto José de Acosta, which was in essence identical in administrative structure to the previous museum (Galera Gómez and Martín Albaladejo, 2020, p. 43). The institution was affected by the need to legitimise some tenets of national-Catholicism and the rigid norms that were to mark its future development. In addition to administrative changes and the losses suffered by the collections, the 1940s witnessed a harsh process of a political purge, which, along with the exile of some important researchers from the previous period, drained it of human capital and sent overboard many of the gains achieved by the scholars of the Junta para Ampliación de Estudios (JAE) in previous decades.

In the 1940s, the museum tried to remain active, and the annual reports of the *Consejo* describe the main functions of its staff members, especially in terms of scientific achievements and publications. The staff was divided into several groups according to function:

The work undertaken by *Instituto de Ciencias Natu*rales "José de Acosta" requires personnel to be harmoniously distributed according to their function in the institution.

The work of the institute is divided into:

- a) General functions: secretarial functions, clerks, draughtsmen, etc.
- b) Museum functions: arrangement and preservation of collections; taxidermy; laboratory work, systematic work, geographical work, etc.
- c) Research: biology, compared histology, compared physiology, and experimental biology. <sup>16</sup>

In addition to these functions, there were also external activities, excursions, and expeditions, despite the museum's difficult financial situation in a general context of social, cultural, and political crises. Although the *Instituto* José de Acosta was under considerable budgetary constraints in the aftermath of the civil war,17 which clearly undermined the museum's activities, this did not deter the imperialist aspirations of the new leaders of the CSIC and the museum. Despite the small budget granted the MNCN by the CSIC and the chaotic system of permits for action abroad, the period that followed the Civil War witnessed an intensification of colonial action, especially as a result of the autarchic economic policies adopted by the government, the need of raw materials, and the wish to exalt national symbols outside the metropolis (González, 2002, p. 331; Suárez, 1997).

In this context, there was an increased demand for knowledge about the nature (botany, geology, zoology, geography), culture and lifestyles (ethnography, anthropology) of African territories under Spanish rule, triggering a number of expeditions, originally on the direct initiative of the MNCN and, afterwards, of the IEP and the IEA. The participation of all these institutions in the African expeditions raises an interesting question: what was the scope of these initiatives? and what was the real

TABLE 1. Expeditions to the Spanish colonies in Africa in the 1940s

COUNTRY	DATE	INSTITUTION	EXPEDITION MEMBERS	SCIENTIFIC FIELD
Equatorial Guinea	1940	MNCN	Manuel García Lloréns, Augusto Gil Lletget, Pascual Curats, Juan Lizaur	Zoology and geology
Western Sahara	1941	Unspecified	Eduardo y Francisco Hernández-Pacheco	Geology
Western Sahara	1941-1942	Instituto Español de Oceanografía	Francisco de P. Navarro	Ichtyology
Western Sahara	1942	Unspecified	Francisco Hernández-Pacheco and Manuel Alía Medina	Geology
Western Sahara	1943	Instituto de Estudios Políticos	Francisco Hernández-Pacheco, Carlos Vidal Box and Emilio Guinea	Geology, botany. Ethnography, and archaeology
Western Sahara	1943	Personal enterprise?	Manuel Alía Medina	Geology
Equatorial Guinea	1945	Dirección General de Marruecos y colonias	Emilio Guinea	Botany
Western Sahara (Tinduf depression)	1945	Universidad de Madrid, CSIC and Dirección General de Marruecos y Colonias	Manuel Alía Medina	Geology
Fernando Poó	1946	Unspecified	Emilio Guinea	Botany
Rif and valleys of rivers Guis and Nekor	1947	IDEA	Los Hernández-Pacheco and Vidal Box	Geology
Western Sahara (El Aiún and Esmara)	1947	IDEA	Manuel Alía Medina	Geology
Equatorial Guinea	1948	IDEA, MNCN	Juan Gómez Menor, Joaquín Mateu Sampere, Eugenio Ortiz de Vega, Manuel Alía Medina, José Mª Fúster, Santiago Alcobé, Jesús Fernández Cabezas, Augusto Panyella	Zoology, geology, anthropology and ethnology
Guinea	1949	IDEA	Six university professors under Gómez Menor's direction	Geology and mineralogy, Zoology, psychology and psychotechnics
Western Sahara (Tigris region)	1949	IDEA	Manuel Alía Medina	Geology

drive (science, colonisation, etc.) behind these visits to the Spanish colonies in Africa? This work shall focus on the important missions led by leading geologists such as Manuel Alía Medina, Eduardo y Francisco Hernández Pacheco and Carlos Vidal Box.

# **GEOLOGY IN THE SPANISH COLONIES**

Although the geological understanding of Africa improved substantially in the period spanning 1860 and 1936, this knowledge was not placed on a more formal footing until 1915, with the creation of the *Comisión de Estudios Geológicos de Marruecos*, constituted by mining engineers. This initiative was supported by the Ministry of

State, which understood that sound geological knowledge (water sources, material and soil resources) was essential for the purposes of colonisation. The *Comisión*, which remained in operation until the Civil War, was very active, promoting numerous research projects and publications (Gomis, 2002, pp. 308-313).

Following these seminal geological works, activity after the Civil War resumed with the first expedition planed by the MNCN, in which the State's core ambitions for this research were laid out explicitly:

Eager to fulfil its function now that our country enjoys a well-deserved and better-earned peace, the *Museo Nacional de Ciencias Naturales* considers that there is not a moment to lose to resume studies in our Colonies and Protectorate of Morocco, and in this spirit appeals for the Directorate to support the following expeditions to be undertaken in the next year, with the purposes that will be laid out in the following.<sup>18</sup>

The initial project, dated 8 November 1939, included several geological expeditions. The project emphasised the need to explore little-known virgin territories:

Expedition to the Island of Fernando Poo to draw a geological map of the island, which is but barely drafted, considering the constant danger of losing the race to naturalists from other countries, to the detriment of our scientific-cultural prestige. Similarly, this would signal the presence of useful minerals. This expedition should set out in autumn 1940, to make the most of the dry season.<sup>19</sup>

These expeditions were not only directed to Guinea, as Río de Oro and the Rif were also targeted. In this regard, in addition to completing the geographical-geological and mining surveys initiated in the 1930s, the aim was to gather data to justify the merger of Ifni and Río de Oro, discrediting the French presence in the region.<sup>20</sup>

These ideas, however, never came to pass, or did so only years later, by which time their objectives had changed. The museum's ambitious plans had to be downsized owing to its budgetary shortcomings, and only crystallised in an expedition to continental Equatorial Guinea in 1940, with the participation of Juan Lizaur y Roldán, Manuel García Lloréns, Augusto Gil Lletget, and Pascual Curats. The leader of this expedition was Juan de Lizaur y Roldán, a mining engineer from the Instituto Geológico y Minero, who set the route and studied the existing maps, which Luis Báguena had made available to the group (Lizaur y Roldán, 1941, p. 574). In addition to Báguena's, the expedition also enlisted the invaluable help of Pedro de Novo and Francisco Hernández Pacheco. Lizaur was the only geologist in the expedition, as the other members of the party were zoologists. Geological work was undertaken in Bata, Nniefang, Evinaayong, Akurenan, Nalong, Alum, Ndsok, Akonibe, Efulan, Ayana, and Evinanyong, and included excursions to find fossils and other scientific data to describe the natural resources available in the colonies.<sup>21</sup> Initiatives in this scale could not be repeated until decades later. Although in 1948 the MNCN again took the lead of a foreign expedition, with the support of IDEA, the transcendence of this second expedition, at least in terms of specimen collection for the museum, was much smaller.

At this point, it is worth putting the focus on the people and, especially, the motivations at the forefront of these works and expeditions. Their protagonists have left us their direct impressions in articles and books, as well as maps, drawings, and even photographs. The compared accounts of these geologists and geographers present a complex discourse. First, Spanish geologists were generally supportive of the colonial action, insofar as it resulted in valorisation of natural resources; second, they were aware of their role as agents of civilisation in a territory that was geographically similar to the Iberian Peninsula but much

wilder and largely underexplored (Felipe, López-Ocón and Marín, 2004, p. 99); finally, they felt the need to document their perspective of these colonial landscapes and societies photographically, generating the so-called 'geographical landscapes' on which nature and human action converged (Mollá, 2012, p. 56). But, in addition to these more or less standard reactions, the idea that stands out in the record left by expedition members was that their mission was not one of rapacious exploitation, even if it mostly aimed to seek natural resources. They believed that their colonisation was not exploitative but balanced, fair with the indigenous peoples and beneficial for the colony, something that other European powers failed to do. This idea was even illustrated with eloquent photographs (Figs. 5 and 6).



FIGURE 5. England has invested fabulous amounts to turn its territories into a giant farm for agricultural produce and meat (Borrás, 1949, p. 7).



FIGURE 6. The edge of the virgin forest, in one of the arms of the Manyani River, near the Muni Estuary, during the low tide (Guinea, 1943, p. 36).

The dialectic of these expeditions conveys another important concept, that of territorial assimilation and geographical unity. Geology played a central role in the old Africanist paradigm of Iberian/North African continuity: Morocco, on the one hand, was where many army officers had forged their careers and character, and was understood as a prolongation of the Iberian Peninsula that needed tutelage; on the other hand, the geological links of the Spanish Sahara, much more often the target of expeditions than Morocco, with the Canaries was often emphasised, largely because of the interest to keep both regions closely related. These attempts to draw links between metropolitan regions (the Iberian Peninsula and the Canaries) and colonial territories were constant and explicit. With Equatorial Guinea things were less straightforward, and other arguments were required, for instance the cultural and missional links. Norling highlights an essay by Hispanus in *Africa*, which presented all of these arguments:

First, Morocco, which is a defensive shield for the Peninsula and a subject of tutelage for us, is a defensive imperative. Second, Atlantic West Africa is, in a similar way, a continental frontier for the Canaries and an inescapable path of vital future routes from Africa to America. Third, Spanish Guinea is, above all, a colony for extraction, a provider of some exotic products that Spain needs, although they are only supplied in limited quantities (Norling, 2018, p. 212).

The geologists that undertook these early expeditions of the post-war years included Carlos Vidal v Box (1906-1972), Manuel Alía Medina (1917-2012), Juan Gómez Menor (1903-1983), Eduardo Hernández-Pacheco y Estevan (1872-1965), Francisco Hernández-Pacheco de la Cuesta (1899-1976), José María Fúster Casas (1923-2000), and Eugenio Ortiz de Vega (1919-1990). Among these, the figure of Eduardo Hernández-Pacheco y Estevan clearly stands out. A few authors have already paid some attention to Hernández-Pacheco (Casado, 2000; Mollá, 2009), and they all agree on his great intellectual qualities. One of the leading Spanish geologists in the 20th century, he is not only important for his major contributions to the geological map of Spain and other achievements but also for the large number of students that he trained. His legacy and influence, marked by the spirit of the Institución Libre de Enseñanza (ILE) and the JAE, despite his serious disagreements with Ignacio Bolívar, spread far and wide through university and high-school classrooms (Otero Carvajal and López Sánchez, 2012, pp. 621-624). His influence on his son, Francisco, whose doctoral dissertation was entitled Fisiografía, Geología y Paleontología del territorio, cannot be overstated. The teachings of Eduardo Hernández-Pacheco greatly contributed to forming several cohorts of geologists that adhered to the highest scientific standards (González Bueno y Gomis Blanco, 2007, pp. 279-280).

# THE EXPEDITIONS

At the end of the war, the Hernández-Pachecos were one of the Spanish scientific dynasties with links with the

previous regime to unhesitatingly embrace the Francoist cause, which earned them the trust of the authorities at the ministry. In terms of research, they continued the work initiated earlier, seeking sources of phosphates in Ifni. In the spring of 1941, they travelled the northern half of the Spanish Sahara (Hernández-Pacheco, 1942, pp. 24-30), and realised the need to bring in more scholars interested in the issue. Then, Francisco Hernández-Pacheco met Manuel Alía Medina, at the time a doctoral student who, on Hernández-Pacheco's request, joined the laboratory of physical geography at *Universidad de Madrid*, which allowed him to begin the exploration of Africa from an early stage of this scientific trajectory. In the lab, already under the direction of his mentor Francisco Hernández-Pacheco, he began a long career peppered by numerous African trips that brought him closer to the all-important discovery of the phosphates (Capote del Villar and Barrera, 2018, p. 132).



FIGURE 7: The Devonian constituted by folded and faulted sandstones and limestones. In the background, the hamada formation sits on it. View towards the northwest (Hernández-Pacheco and Alía Medina, 1942, p. 510).

Overall, Manuel Alía Medina travelled to Africa on geological missions six times during the 1940s, five to the Sahara and one to continental Guinea. The most important was the first one, in the spring and summer of 1942, when he went along with his mentor after showing his aptitudes for geological survey. The aim of this trip was to examine the geological and morphological features of the territory, and the results are recorded in several documents: Francisco Hernández-Pacheco's field notebook, which recorded geological materials and formations in detail;<sup>22</sup> and the Boletín de la Real Sociedad de Historia Natural for the year 1942. The trip followed two routes: one, from the village of El Aaiún to Villa Cisneros; and the other, from El Aaiún to the Guelta Zemur post. The photographs, taken by Alía Medina and Hernández-Pacheco, show plains of quartzites, sandstone and limestones landscapes, cliffs, and rock formations (Hernández-Pacheco and Alía Medina, 1942, p. 507). Eduardo Hernández-Pacheco was a keen photographer, and his expeditions were documented by numerous photographs, in which natural and wild landscapes feature prominently; the consideration of people as "accessory elements of the landscape" was fully in line with the ideology of the new Africanism (Hernández-Pacheco, 1955-1956).

Manuel Alía Medina travelled to the Spanish Sahara again in 1943; there he began his doctoral dissertation, which he published one year later under the title Rasgos fisiográficos y geológicos de la zona septentrional del Sáhara Español (Capote del Villar and Barrera, 2018, p. 132). In his eagerness to study phosphate sources, he returned to the Sahara in 1945, 1947, and 1949, and helped to organise the IEP's expedition in 1943. A new period began in November 1943, when the IEP was presented as an incarnation of the regime's greatest and most honourable values: "The Instituto de Estudios Políticos is honoured to have prepared and funded this enterprise, which, in addition to leading to splendid results, has at the present time great symbolic value" (Anonymous, 1943b, p. 3). This was so because "The expedition that the *Instituto de* Estudios Políticos sends to the Spanish western Sahara is a clear embodiment of our current national and falangist policies" (D. F. B., 1943, p. 89).

In the preparations stage, two work teams were created: one made up of geologists and naturalists and the other of ethnographers and archaeologists. The former included Francisco Hernández-Pacheco, Carlos Vidal Vox, auxiliary professor of physical geography at Universidad Central, and Emilio Guinea López, professor of natural sciences; the latter comprised Martín Almagro Basch, professor of ancient history at Universidad de Barcelona and director of the city's archaeology museum; Santiago Alcobé, professor of anthropology at Universidad de Barcelona; and Mariano Arribas Paláu, professor of Semitic languages also in Barcelona (Anonymous, 1943b, pp. 3-4).

The journal Africa published the news of the expedition, and included two articles about it, written from two different perspectives, in its issue 23: one dealing with the strictly scientific aspects of the trip and another one exclusively concerned with sending a propagandistic and apologetic message. In the first, Estado Actual de las Investigaciones Geológicas en el Sáhara Español, Francisco Hernández-Pacheco gave a chronological account of the national and international studies published to date about the region, with special emphasis on relief, coastline, fluvial network, erosion cycles and periods, etc. This review was rich in detail and used highly technical language, adopting a positivist and empirical perspective (Hernández-Pacheco, 1943, pp. 5-8); the second, an introduction paper entitled Una nueva expedición española al Sáhara occidental, is paradigmatic in that it consists in the patriotic exaltation of the expedition, which not only had the support of the younger generations "but Spain as a whole, all-powerful in the world stage of History-creating nations." It is worth emphasising this pompous discourse, which was used to deal critically with the past and praise the present, the political and social reality of the time, including mentions of a wide variety of issues, such as university policies, the

demand for more scientific research, and the sad neglect suffered by Spanish African colonies.

The journal not only published accounts of the 1943 expedition but became the main channel to disseminate the work undertaken in Spanish west Africa and the Moroccan protectorate.<sup>23</sup> This propagandistic function became yet more prominent when the IDEA began presenting new conditions to expedition members, whose duties now began before the trip and ended only long after their return. This was followed by the design of a set of regulations (none existed before) for African expeditions, which covered all possible details. Unsurprisingly, special emphasis was laid on the expenses; all expeditions were assigned a budget to cover basic expenses, which were divided into the following concepts:

- A. Living expenses. Calculated on the basis of duration and the diet of each expedition member;
- B. Travel expenses. Return trips from the Iberian Peninsula to the territories, in first class, except for members of lilving expenses group 2, which would travel in preferent class.
- African travel expenses. For personnel and equipment within the territories.
- D. Material. Scientific and camping equipment, fungible equipment (not to revert to the *Instituto*).
- E. Material to be reverted to the *Instituto*. Scientific instruments, camping equipment, etc. subject to inventory, which will become the *Instituto*'s property for later use.<sup>24</sup>

The instructions also established a series of duties for expedition members, not only during the trip but after, such as the obligation to take part in conferences and publications. These instructions were the model followed by the contract signed by the expedition leader and the IDEA:

INSTRUCTIONS FOR RESEARCH TRIPS TO AFRICA FUNDED BY THE *INSTITUTO DE ESTUDIOS AFRI-*CANOS AND DIRECCIÓN GENERAL DE MARRUE-COS Y COLONIAS

First.- The mission entrusted by the I.D.E.A. and *Dirección General de Marruecos y Colonias* will be exclusive. On no account will double missions be allowed.

Second.- The I.D.E.A. or the *Dirección* will provide the necessary funds for the completion of the mission. Expedition members are not allowed to take support, expenses, etc. from any other legal person or public body.

Third.- The results of the trips will be published – depending on extension – in journals "ÁFRICA" or *Archivos* (I.D.E.A.) or in book form by the I.D.E.A. or *Dirección General de Marruecos y Colonias*. Expedition members will not publish issues pertaining to the mission in other publications, until the final works have been submitted.

Fourth.- All expedition members commit to present a public talk in the I.D.E.A. after their return.

Fifth.- Within three months of the end of the trip, expedition members must submit a report, with the conclusions, finds, and advice that may result from the mission.

Sixth.- Expedition members will keep secret the nature of the trip and conclusions, which they will not share with the press without the authorisation of the I.D.E.A. and the *Dirección*. Similarly, they will not share any of the photographs taken during the trip for publication, in Spain or abroad.

Seventh.- All material collected during the trip will be handed over to the *Dirección*. The direction will consider the total or partial return of these for experiments, tests, studies, etc.

Eight.- Accounts will be audited within a fortnight of the return of the mission to the Peninsula.

Ninth.- Before departure, all expedition member of missions sponsored by the I.D.E.A. and the *Dirección* will sign their conformity with these conditions.

Tenth.- The *Dirección General de Marruecos y Colonias* and the I.D.E.A. will ensure that all necessary permits for the success of the mission are granted.<sup>25</sup>

In 1947, the IDEA ended its first full year of existence (since it was founded in mid-1946). From the start, the *Instituto* tried to fulfil its mission by sending expeditions to Africa, in line with a new stage of Africanist studies: "taking the decision to organise fully-staffed and consistent scientific missions which, embracing a range of activities, share the same general programme but with sufficient flexibility to facilitate each research task." The expedition of summer 1947, organised by Francisco Hernández-Pacheco y Vidal Vox, was organised in this spirit, and targeted the Rif and the valleys of rivers Guis and Nekor.

However, full teams were not organised for the first time until 1948. Before then, the expeditions had consisted of individual trips but the new direction adopted by the institute favoured the organisation of multidisciplinary teams. The 1948 expedition "is the greatest joint enterprise of its type to be carried out in Guinea."<sup>27</sup> The so-called Alcobé Mission of 1948 comprised four clearly different teams from Madrid, Barcelona, and Valladolid. The zoological team was formed by Gómez Menor, Mateu Sampere, and Ortiz Vega; the geological team by Alía Medina and Fúster; the anthropological team by Santiago Alcobé Noguer and Fernández Cabezas; and Augusto Panyella led the ethnology team (F. S. 1948, pp. 6-7). The anthropological team compiled anthropometric data from 1500 indigenous subjects, while the zoological team collected approximately 15,000 insects and recorded relevant data for species found in the Muni River and Fernando Poo (a small number of the butterflies collected is still at the MNCN) (Martín, 2016); the geology team, for its part, took 400 soil samples (Díaz de Villegas, 1949,

pp. 2-6). The new approach was, to a large extent, driven by financial pragmatism but it was also argued that multidisciplinarity allowed for the same facts to be approached from different angles, leading to firmer and more meaningful conclusions (F. S. 1948, pp. 6-7).

Finally, the 1940s ended with the dispatch of a new mission in 1949; the team comprised six staunchly Africanist university professors, divided into three teams: geology and mineralogy, led by Gómez Menor y España; zoology, by Fúster; and psychology-psychotechnics, by Ibarrola y Vélez. The leader of the expedition was Juan Gómez Menor, who had also participated in Alcobé's mission in the previous year (Anonymous, 1949, p. 34). The geological targets of this expedition to Guinea are summarised in the following lines:

The geological target was to collect general information, study petrography, and carry out mining surveys – some on manganese sources – as well as determine the presence of diamond sources and subvolcanic minerals. This involved a hard trip of over 500 km through hostile territory for the white man (owing to the climate and the vegetation). If, from a speculative perspective, the results have been limited, the expedition has resulted in a more exact knowledge of the geology of Guinea, and it may be interesting to carry out further surveys in areas of ilmenite and magnetite.<sup>28</sup>

# **CONCLUSIONS**

Despite Spain's difficult financial position during the autarchy period, in the aftermath of the Civil War, the Françoist regime managed to create the scientific-administrative structure from which the IDEA sprang in 1945, and to give the CSIC, the IEP, and the Instituto de Estudios Africanos sufficient funding to carry out their activities, including the 'luxury' of scientific expeditions to the territories under Spanish sovereignty in Africa. In a country beset by hunger, rationing cards, and international isolation, this was so because in the 1940s Africa was more than merely a 'vanity project'. There was a will of empire, inserted in the victory rhetoric but together with this the Africanist circles developed the idea that what was at stake was the very idiosyncrasy of the country and the legitimacy of the regime. These Africanists, including many army officers, had spent much of their careers in Africa and had waged war from and in the Protectorate. Africa, and its moral and material progress, and colonial action were thus seen as a metaphor for the policy of bread, peace, and order that the metropolis demanded, after decades of chaos. The IDEA, the IEP, the CSIC, and the Prime Minister's office, among other institutions, were the visible part of government action, the instruments and testimonies of an effective colonial power. Meanwhile, colonial action was the base of the arguments that supported the positions of the most irredentist positions in Spanish Africanism and their demands concerning Gibraltar and the territorial colonies in Africa. Colonial action also forged the tropes of an Africanism that, still attached to obsolete ideas, was

the result of a process of self-rearrangement that bred concepts related to the evangelising-missional action; the assimilation to Spain of territories that were not rapaciously dispossessed; the rejection of the Black Legend; the moral mission to oversee immature indigenous populations; and the affirmation of Spain's geographic, geological, ethnic, and spiritual rights in Africa. Colonial action meant the exercise of relevant colonial power. Finally, scientific action was one piece among many but an important one, in the performativity of a colonial power conditioned by the requisites of modern science. In this instance, we have focused on a group of geologists who mobilised the scientific method to justify, in some cases the geological and geographic unit of colonial and metropolitan territories, and in some others to act as standard bearers of the benign discourse that emphasised the material advantages that colonists and colonised would reap from scientific and technological development.

## ACKNOWLEDGMENTS

This research work has been carried out within the framework of the Science, racism and visual colonialism project, ref. PID2020-112730GB-I00, funded by MCIN/ AEI/10.13039/501100011033.

## **NOTES**

- Boletín Oficial del Estado, nº 221, 8 August 1944, p. 6028.
- Archivo General de la Administración (AGA). Fondo Dirección General de Plazas y Provincias Africanas. Caja 81/11716. Carpeta Comisión Liquidadora del Sáhara. Asuntos Archivo y Biblioteca (1976-1981).
- AGA. Fondo Dirección General de Plazas y Provincias Africanas. Caja 81/11716. Carpeta Comisión Liquidadora del Sáhara. Asuntos Archivo y Biblioteca (1976-1981).
- Boletín Oficial del Estado, nº 198, 17 July 1945, pp. 342-343 and nº 197, 16 July 1946, pp. 5603-5604.

  Boletín Oficial del Estado, nº 198, 17 July 1945, p. 342.
- AGA. Fondo Dirección General de Plazas y Provincias Africanas. Caja 81/11716. Carpeta Comisión Liquidadora del Sáhara. Asuntos Archivo y Biblioteca (1976-1981).
- Oficio al director del IDEA, 29 marzo 1947. AGA. Fondo CSIC. Caja 31/10402. Carpeta Instituto de Estudios Africanos.
- AGA. Fondo Dirección General de Plazas y Provincias Africanas. Caja 81/11716. Carpeta sin titular.
- AGA. Fondo CSIC. Caja 31/8560. Carpeta Consejo Ejecutivo y oficio al director del IDEA, 1 mayo 1947. AGA. Fondo CSIC. Caja 31/10402. Carpeta Instituto de Estudios Africanos.
- 10 AGA. Fondo CSIC. Libros (05)4, 401, 411 and 458.
- 11 Boletín Oficial del Estado, nº 197, 16 July 1946, p. 5604.
- 12 Boletín Oficial del Estado, nº 325, 20 November 1944, p. 8766.
- 13 Oficio al director del IDEA, 29 abril 1948. AGA. Fondo CSIC. Caja 31/8580. Carpeta Instituto de Estudios Africanos.
- 14 AGA. Fondo CSIC. Cajas 31/8580, 31/8604 and 31/8632, especially Caja 31/9322. Carpeta Memorias del Consejo de los diez primeros años. Patronato Diego Saavedra Fajardo.
- Labor IDEA: El Instituto de Estudios Africanos ante el VII Pleno del CSIC. AGA. Fondo Dirección General de Plazas y Provincias Africanas. Caja 81/11828. Carpeta 2.
- AGA. Fondo CSIC. Caja 31/8537, Carpeta Instituto José de Acosta, 1942.
- In 1940, it was assigned 100,127.02 pesetas, and in 1951 416,827.95.
- Archivo del Museo Nacional de Ciencias Naturales (AMNCN) ACN0281/035. Proyecto de expediciones científicas a los te-

- rritorios españoles del Golfo de Guinea, Sahara español e Ifni, remitido mediante oficio del director del Museo de Ciencias al Director Gral. de Marruecos y Colonias.
- 19 Idem.
- 20 Idem.
- AMNCN. ACN0281/023. Trabajos y estudios realizados para preparar la expedición a Guinea Continental española, llevada a cabo en 1940.
- AMNCN. ACN/0350/020. Diario de viaje por el Sahara Occidental en 1942
- AGA. Fondo CSIC. Caja 31/9322. Carpeta Memorias del Consejo de los diez primeros años. Patronato Diego Saavedra Fajar-
- 24 AGA. Fondo Dirección General de Plazas y Provincias Africanas. Caja 81-11718.
- AGA. Fondo Dirección General de Plazas y Provincias Africanas. Caja 81-11828.
- Idem.
- 28 Idem.

## REFERENCES

- Adorno, T. W., and Horkheimer, M. (2006) Dialéctica de la Ilustración. Fragmentos filosóficos. Madrid: Trotta.
- Alonso, M. (1946) "Problemas de colonización. El África negra muere lentamente." África: revista de acción española, 51, pp. 4-8.
- Álvarez, H. R. (1944) "Estudios coloniales. Notas sobre algunos problemas que ofrece la investigación psicológica del niño negro de Guinea." África: revista de acción española, 27, pp. 92-95
- Álvarez García, H. R. (1949) "El problema religioso en África." África: revista de acción española, 86, pp. 18-21.
- Anonymous (1942) "El General Gómez Jordana." África: revista de acción española, 9, p. 3.
- Anonymous (1943a) onymous (1943a) "Labor de la Sociedad de Estudios Internacionales y Coloniales." África: revista de acción española, 17, p. 40.
- Anonymous (1943b) "Una nueva expedición española al Sáhara occidental." África: revista de acción española, 23, pp. 3-4.
- Anonymous (1943c) "Ciencia y política.' Editorial del diario Arriba, de Madrid, el 28 de noviembre de 1943." África: revista de acción española, 24, p. 87.
- Anonymous (1945) "El Instituto de Estudios Africanos (I.D.E.A.)." África: revista de acción española, 42-43, p. 59. Anonymous (1949) "Vida Hispanoafricana." África: revista de
- acción española, 91, pp. 34-38.
- Aranda Mata, A. (1942) "Presente y porvenir de Marruecos." África. Revista de tropas coloniales, 1: 3.
- Arqués, E. (1942) "Un instituto Colonial español." África: revista de acción española, 10, pp. 26-29.
- Arqués, E. (1949) "En busca de los iberos." África: revista de acción *española*, 85, pp. 7-11.
- Borrás, T. (1949) "La finca de Europa." África: revista de acción española, 88, pp. 4-7.
- Bosch-Pasqual, A. (1985) L'africanisme franquista i l'IDEA (1936-1975). Unpublished degree thesis. Barcelona: Universitat Autònoma de Barcelona.
- Calvo, L. (1997) "África y la Antropología española: la aportación del Instituto de Estudios Africanos." Revista de Dialectología y Tradiciones Populares, LII (2), pp. 169-185. doi: https://doi. org/10.3989/rdtp.1997.v52.i2.363
- Cantero Cuadrado, P. (1942) "África ante la España misionera." África: revista de acción española, 12, pp. 24-26.
- Cañete, C. (2021) Cuando África comenzaba en los Pirineos. Una historia del paradigma africanista español (siglos XV-XX). Madrid: Marcial Pons.
- Capote del Villar, R., and Barrera Morate, J. L. (2018) "El descubridor de los fosfatos del Sáhara Occidental, el geólogo

- Manuel Alía Medina (1917-2012)." In: D. Ruiz-Berdún, dir., Ciencia y Técnica en la Universidad: Trabajos de Historia de las Ciencias y de las Técnicas. Madrid: Universidad de Alcalá, Servicio de Publicaciones, pp. 129-140.
- Carrero Blanco, L. (1942) "África y el mañana de Europa." África, 2, pp. 2-4.
- Casado, S. (2000) "Ciencia y política en los orígenes de la conservación de la naturaleza en España." In: E. Hernández-Pacheco, La Comisaría de Parques Nacionales y la protección de la naturaleza en España [Madrid, 1933]. Madrid: Organismo Autónomo Parques Nacionales, pp. V-XXX. [Reedited in Scripta Vetera, 78. Available at: http://www.ub.edu/geocrit/sv-78.html.
- Cervela, J. (1942a) "Razón y ética de la acción colonial." África, 1, pp. 42-45.
- Cervela, J. (1942b) "La historia, la leyenda y el espíritu colonial de los pueblos." África: revista de acción española, 10, pp. 12-14.
- Cordero Torres, J. M. (1942) "El nuevo africanismo español a través de los libros." África. Revista de tropas coloniales, 1, pp. 35-40.
- D. F. B. (1943) "Geólogos, naturalistas, etnógrafos y arqueólogos constituyen la nueva expedición española al Sáhara occidental." África: revista de acción española, 24, p. 89.
- Díaz de Villegas, J. (1949) "Labor del Instituto de estudios africanos." África: revista de acción española, 85, pp. 2-6
- F. S. (1948) "Expedición científica en la Guinea." África: revista de acción española, 83-84, pp. 6-7.
- Fanon, F. (2007) Los condenados de la tierra. México: Fondo de Cultura Económica.
- Felipe, H., López-Ocón, L., and Marín, M., eds. (2004) Ángel Cabrera, ciencia y proyecto colonial en Marruecos. Madrid: CSIC
- Fontán Lobé, J. (1942a) "Temas de Guinea." África, 3, pp. 3-6.
- Fontán Lobé, J. (1942b) "La obra misional de España en Guinea." África, 5, pp. 1-4.
- Fontán Lobé, J. (1942c) "La enseñanza en Guinea." África, 6, pp. 6-8.
- Fontán Lobé, J. (1943) "Costumbres de Guinea. El clan, la tribu, la propiedad y la justicia entre los indígenas." África: revista de acción española, 13, pp. 2-5.
- Foucault, M. (2018) Vigilar y castigar. Madrid, Siglo XXI.
- Gaddis, J. L. (2002) El paisaje de la historia. Cómo los historiadores representan el pasado. Barcelona: Anagrama.
- Galera Gómez, A., y Martín Albaladejo, C. (2020) "De los nombres del Museo." En: C. Martín Albaladejo, ed., Del elefante a los dinosaurios: 45 de años de historia del Museo Nacional de Ciencias Naturales (1940-1985). Madrid: Ediciones Doce Calles, págs. 19-63.
- García Figueras, T. (1942a) "Consejos a los maestros españoles en Marruecos." África, 3, pp. 35-43.
   García Figueras, T. (1942b) "Bibliografía africana. Investigación,
- García Figueras, T. (1942b) "Bibliografía africana. Investigación ordenación y síntesis." *África*, 6, pp. 14-15.
- García Figueras, T. (1942c) "Reivindicaciones de España en el norte de África." *África: revista de acción española*, 11, pp. 6-13.
- García Margallo, A. (1944) "Consideraciones sobre la psicología del indígena de nuestra Guinea." África: revista de acción española, 33-34, pp. 124-125.
- Giménez Caballero, E. (1943) "España y Marruecos." África: revista de acción española, 22, pp. 24-26.
- Gomis Blanco, A. (2002) "Estudio de las colecciones recolectadas por los naturalistas españoles en los territorios hispanos de África (1860-1936)." In: A. Díez Torre, Ciencia y memoria de África: actas de las III jornadas sobre "expediciones científicas y africanismo español, 1898-1998." Madrid: Ateneo de Madrid y Universidad de Alcalá, pp. 295-316.
- González Bueno, A., and Gomis Blanco, A. (2007) Los territorios olvidados: estudio histórico y diccionario de los naturalistas españoles en el África hispana (1860-1936). Aranjuez: Doce Calles.
- González Echegaray, C. (2002) "Expediciones científicas a Guinea Ecuatorial." In: A. Díez Torre, Ciencia y memoria de África:

- actas de las III jornadas sobre "expediciones científicas y africanismo español, 1898-1998." Madrid: Ateneo de Madrid y Universidad de Alcalá, pp. 329-338.
- Guinea, E. (1943) "Nuestra reserva vegetal del golfo de Guinea." África: revista de acción española, 17, pp. 35-37.
- Hernández Pacheco, E. (1942) "La vida vegetal y animal en el Sáhara Español." África: revista de acción española, 3, pp. 24-30.
- Hernández Pacheco, E. (1955-1956) Fisiografía del Solar Hispano. Madrid: Real Academia de Ciencias Exactas, Físicas y Naturales de Madrid, tomo XVI, 2 vol.
- Hernández Pacheco, F. (1943) "Estado actual de las investigaciones geológicas en el Sáhara Español." África: revista de acción española, 23, pp. 5-8.
- Hernández Pacheco, F., and Alía Medina, M. (1942) "Nota preliminar de una expedición reciente a los territorios del Sáhara Español." Boletín de la Real Sociedad Española de Historia Natural, Tomo XL, pp. 507-512.
- Kaufman, M. (2011) Order and Disorder: Science Essentials for Non-Scientist. Nueva Jersey: World Scientific.
- Lewin, R. (2002) Complejidad: el caos como generador del orden. Barcelona: Tusquets Editores.
- Lizaur y Roldán, J. de (1941) "Expedición del Museo Nacional de Ciencias Naturales de Madrid a la Guinea Continental Española en el verano de 1940." *Boletín de la Real Sociedad Geográfica*, LXXVII, pp. 571-595.
- López Sánchez, J. M. (2018) En tierra de nadie. José Cuatrecasas, las ciencias naturales y el exilio de 1939. Madrid: Doce Calles.
- López Sánchez, J. M., and Fernández Gallego, A. (2021) *A imprenta y tírese. 80 años de la Editorial CSIC*. Madrid: CSIC.
- Martín Albaladejo, C., ed. (2020) Del elefante a los dinosaurios: 45 de años de historia del Museo Nacional de Ciencias Naturales (1940-1985). Madrid: Doce Calles.
- Martín Sanz, I. (2016) "Expediciones, recolecciones y estudios de Lepidopterología en la Isla de Bioko (Guinea Ecuatorial) (Insecta: Lepidoptera)." *Shilap. Revista de lepidopterología*. 174, pp. 237-249.
- Martos de Castro, J. (1945) "Lo bereber en Marruecos y sus relaciones con lo ibero." África: revista de acción española, 39-40, pp. 29-34.
- Mollá Ruiz-Gómez, M. (2009) "Las características de los paisajes españoles según Eduardo Hernández-Pacheco." In: F. Pillet Capdepón, coord., *Geografía, territorio y paisaje: el estado de la cuestión. Actas del XXI Congreso de Geógrafos Españoles.* Ciudad Real: AGE / Universidad de Castilla-La Mancha, pp. 1231-1245.
- Mollá Ruiz-Gómez, M. (2012) "Eduardo Hernández-Pacheco y el papel de la fotografía." *Cuadernos Geográficos*, 51, pp. 53-77.
- Navas, A. (2007) "El Museo Nacional de Ciencias Naturales durante el franquismo." In M. A. Puig-Samper Mulero, ed., *Tiempos* de investigación. JAE-CSIC, cien años de ciencia en España. Madrid: CSIC, pp. 311-321.
- Nerín i Abad, G. (1997) "Mito franquista y realidad de la colonización de la Guinea Española." *Estudios de Asia y África*, 32 (19), pp. 9-30.
- Norling, S. E. (2018) "José Díaz de Villegas. Un militar al frente de la política colonial del franquismo." *Aportes*, 97, pp. 205-231.
- Otero Carvajal, L. E. (2014) La Universidad nacionalcatólica. La reacción antimoderna. Madrid: Dykinson.
- Otero Carvajal, L. E., and López Sánchez, J. M. (2012) La lucha por la modernidad. Las Ciencias Naturales y la Junta para Ampliación de Estudios. Madrid: Residencia de Estudiantes-CSIC.
- Parra Montserrat, D. (2012) La narrativa del africanismo franquista: génesis y prácticas socio-educativas. Tesis doctoral. Valencia: Universidad de Valencia.
- Pérez Armiño, L. (2020) "El Museo de África. Historia en blanco y negro." In: F. J. Arnaldo Alcubilla, A. Herrero Delavenay, and M. Di Paola, eds., Historia de los museos, historia de la museología: España, Portugal, América. Gijón: Trea, pp. 355-360.

- Prigogine, I. (1980) From Being to Becoming; Time and Complexity in Physical Sciences. New York: Freeman & Co.
- Said, E. W. (2001) *Cultura e imperialismo*. Barcelona: Anagrama. Said, E. W. (2008) *Orientalismo*. Barcelona: Debolsillo.
- Sánchez Ron, J. M. (2021) El Consejo Superior de Investigaciones Científicas. Una ventana al conocimiento. Madrid: CSIC.
- Sastre Sánchez, L. (2018) "Buscar piedras en el desierto. África en las colecciones españolas durante el franquismo." In *Dierk Schmidt. Culpa y deudas*. Madrid: Museo Nacional Centro de Arte Reina Sofía, pp. 34-48.
- Sesma Landrin, N. (2004) "Propaganda en la alta manera e influencia fascista. El Instituto de Estudios Políticos (1939-1943)." *Ayer*,

- 53, pp. 155-178.
- Strogatz, S. (2004) Sync: How Order Emerges from Chaos in the Universe, Nature and Daily Life. New York: Hyperion.
- Suárez Blanco, S. (1997) "Las colonias españolas en África durante el primer franquismo (1939-1959). Algunas reflexiones." *Espacio, Tiempo y Forma,* 10, pp. 315-331. doi: https://doi.org/10.5944/etfv.10.1997.2945
- Tello, M. J. (2022) Orden, desorden y complejidad. Un camino hacia el origen de la vida. Madrid: La Catarata.
- Wagensberg, J. (2003) *Ideas sobre la Complejidad del Mundo*. Barcelona: Tusquets Editores.
- Wolfram, S. (2002) A new kind of Science. Champaign: Wolfram Media Inc.