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Science in Context **31**(1), 61–83 (2018). © Cambridge University Press 2018
doi:10.1017/S0269889718000066

The Changing Nature of Modernization Discourses in Documentary Films

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Argument

Franco's fascist regime in Spain (1939-1975) offers the possibility of exploring the complex relationship between media communication practices and the processes of production, circulation, and management of knowledge. The regime persistently used film, and later on television, as indoctrination and disciplining devices. These media thus served to shape the regime's representation, which largely relied on the generation of positive attitudes of adherence to the rulers through people's submission and obedience to experts. This article examines the changing nature of modernization discourses and practices, as a fundamental element of the regime's propaganda strategies, and as portrayed in documentaries produced under its rule. The rhetoric of modernization involved an explicit deficit model of knowledge management, which aimed at legitimating the regime's deeds and policies in its first decades, as we shall see regarding colonial-medical documentaries produced for the official newsreel in the 1940s. However, the focus of such rhetoric, despite its enduring political aims, had to somehow open up as the relationship between experts and non-experts changed, both in epistemological and practical terms, such as in wildlife documentary films produced for television in the 1970s, the regime's last decade.

Introduction

The aim of this paper is to examine one of the key components of techno-scientific communication processes, the rhetoric of modernization. We argue that discourses and practices around modernization ideas are deeply embedded in the traditional way of understanding science communication as a two-stage, one-way flow of information from the few experts that produce such knowledge to the many non-experts. One of the first upshots of this scheme is that those large ranks of non-experts are supposed to accept and benefit from expert management. A social, political, professional, and cultural hierarchy is then simultaneously strengthened and constructed in the name of collective improvement of living conditions allegedly based upon the production, circulation, and management of techno-scientific knowledge. However, as media ecologies and the technical conditions of communication processes change in time,

https://doi.org/10.1017/S0269889718000066 Published online by Cambridge University Press

such rhetoric is necessarily shaped in different ways. Media practices, understood as multidimensional and fundamentally diverse as well as part of a historically constructed modernization drive, play an essential role in the ways science communication is devised and approached.

In this paper, we examine two instances of science communication that took place in the same socio-political context, Franco's dictatorship in Spain, but at two clearly differentiated historical periods with regard to socio-political circumstances and the media environment. We start with a brief introduction where we point out some key analytical elements pertaining to the weight of media practices in the shift from the so-called deficit model of science communication to the public understanding of science (PUS, hereafter). This was later exemplified in the 1985 Bodmer report to the Royal Society (The Royal Society 1985). Then, we look at our first case study, a set of colonial-medical documentaries produced for the official newsreel in the first decade of the regime, while Franco's administration focused on establishing and legitimating itself. Next, we go into our second case study, a set of extremely popular wildlife documentaries produced for television in the 1970s, the last decade of the regime. And finally, in the conclusion, we briefly ponder the particulars of the two case studies over the significance of media practices in the re-signification dynamics concerning models of science communication. Given that the Bodmer report was produced much later than the episodes we analyze, we contend that it actually drew on and reflected people's everyday interactions with media and the transformation of communication practices we discuss here.

Through our two examples, we analyze the shift of techno-scientific communication practices and discourses from propaganda and indoctrination to popularization and education during Franco's dictatorship in Spain. The dictatorship itself offers the possibility of exploring the complex relationship between media communication practices and the processes of production, circulation, and management of knowledge, above all as it forcefully used an explicit deficit model of knowledge communication and administration. We also focus on documentary films, which convey the accuracy component of a conventionally idealized notion of science as a genuine and definite source of truth produced and managed by experts.

In both instances, discourses were permeated by the rhetoric of modernization. This featured, on the one hand, the strong identity component the regime used from the beginning as a propaganda and legitimating tool; and on the other, the assumption of the two-stage model of knowledge communication where authority rested with experts in both science (medical health and the natural sciences) and media (film documentaries). In the 1940s, propaganda, indoctrination, and disciplining were the main constituents of the regime's discourse. This was clearly mirrored in the exclusive and compulsory official newsreel, *NO-DO* (*Noticiarios y Documentales*, or News Bulletins and Documentaries), screened in cinemas. In contrast, with the more fragmented and personalized use of television in the 1960s, documentary productions came to emphasize popularization and education.

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The increasing use of television in the second half of the twentieth century fundamentally changed, in epistemological and practical terms, the relationship between experts and non-experts, and thus transformed the regime's strategies for managing knowledge. Surely, the comparison between these two cases of media practices has to take into consideration the differences between the strategic socio-political importance of medical-health normalization and control processes that were paramount in the 1940s, and the growing weight of the natural sciences as a significant field of socio-political negotiation in the 1960s and 1970s. Yet, these transformations, which were particularly salient under authoritarian conditions, were pervasive beyond the regime's borders, including non-authoritarian administrations, and time span.

On the Deficit Model of Science Communication and the PUS 1985 Bodmer Report

Stephen Hilgartner, in his 1990 seminal paper on science popularization, stated that

> The culturally-dominant view of the popularization of science is rooted in the idealized notion of pure, genuine scientific knowledge against which popularized knowledge is contrasted. A two-stage model is assumed: first, scientists develop genuine scientific knowledge; subsequently, popularizers disseminate simplified accounts to the public. Moreover, the dominant view holds that any differences between genuine and popularized science must be caused by "distortion" or "degradation" of the original truths. Thus, popularization is, at best, "appropriate simplification" – a necessary (albeit low status) educational activity of simplifying science for non-specialists. At worst, popularization is "pollution," the "distortion" of science by outsiders as journalists, and by a public that misunderstands much of what it reads. (Hiltgartner 1990, 519)

First, Hilgartner points at the idealized concept of science as an undisputable source of truth in the hands of a few experts, the scientists. Second, the circulation of that knowledge entails a one-way process of simplification or distortion perpetrated by the required go-betweens, the journalists. Third, that adulterated account is nevertheless misread by the ignorant many, the public. And fourth, considering such a gloomy prospect, the purpose of that circulation must necessarily be educational, since the experts unveiling the truth need to undertake its transmission, as blundering as it may become, for it to have some kind of impact. The resulting distortion and misunderstanding inevitably holds up the benefits that knowledge would afford society as a whole, and thus allegedly provokes unease and discontent in the ranks of scientific knowledge producers and managers (Nieto-Galan [2011] 2016). This process reflects a clear-cut epistemological hierarchy. Yet, Hilgartner contends that such a view of scientific knowledge circulation "greatly oversimplifies the process [and] serves scientists (and others who derive their authority from science) as a political resource in public discourse" (Hiltgartner 1990, 520).

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Such oversimplification directly points at the spirit of the PUS 1985 Bodmer report (The Royal Society 1985), which upheld a one-way linear, hierarchical model of science communication, even though it shifted from the simplistic focus on science literacy to the slightly more complex focus on attitudes toward the scientific-technological endeavor as an effective tool to support it (Bauer 2009). Despite conceptual and empirical problems, as Hiltgartner pointed out, such a model reflected and further expanded a socio-political order built around expertise boundaries. In it, the role of mass media was to fulfil their normalizing potential as technological devices able to generate and broadcast performative, virtual witnessing experiences (Thompson 1995; Kirby 2008; idem 2010; Jiménez-Lucena 2011; Tabernero et al. 2012).

Jean-Baptiste Gouyon reminds us that, at the same time that the Bodmer report was produced, other models of scientific knowledge production, circulation, and management where the boundaries between experts and non-experts were not so definite were suggested (Gouyon 2016; Shinn and Whitley 1985; Shapin and Schaffer 1985). Since then, many studies have shifted the discussion concerning science communication to a science-in-society paradigm that further stresses (the need and presence of) participation and deliberation across those boundaries (Bauer 2009). And yet again, boundaries are maintained in the critiques and characterizations of these processes, even if well-meant analytical tools situate scientific knowledge production "on the shoulders of idiots" (Horst and Michael 2011).

Further research is thus needed in order to map the particulars of such an apparently unsurmountable order of things, which is grounded in the perception that science and technology must be well understood and massively spread in the name of everybody's wealth. These activities are embedded in modernization processes, that is, a set of political-economic practices aimed at the improvement of collective welfare conditions. As such, modernization has always been an implicit commitment in the relationship between the production and management of scientific-technological knowledge and the socio-political arena. Its discourses work as political tools that frame power relations around individual and collective needs and expectations, and are established upon a clear-cut hierarchy of providers (experts, policy-makers, educators, media practitioners) and receivers (the many non-experts, technically, politically, professionally). These discourses typically carry a strong identity component linked to the regard of collective aims in comparative terms, that is, within an "us versus them" dynamics (Latham 2000; Gilman 2003; Muller 2008; Greene [2013] 2014). And in the end, these relationships are primarily played out in the media, which are also technological tools with propaganda and educational potential (Guzman and Tabernero 2016).

Media are thus key constituents of the processes of construction and transmission of modernization discourses. Considering science as a form of communication (Secord 2004), and media as a set of communication practices, that is, focusing on what people do with these technological devices (Couldry 2004; Bräuchler and Postill 2010; Tabernero et al. 2013, 2017), we argue that any changes, insignificant or major, in the communication asymmetry built upon hierarchical, expertise boundaries, reflect

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what happens with people's everyday communication practices. The media ecology in a given context, understood as a lively, multidimensional and essentially diverse set of practices and discourses, play an essential role in shaping knowledge management processes. So, regarding science communication models, the 1980s institutional shift of focus from science literacy to people's attitudes toward the production and management of scientific-technological knowledge merely tried to seize in its own terms the media practices that people developed through their increasing use of television as the new primary mass media since the 1960s.

Building (upon) the Deficit Model of Science Communication

As could be expected in a dictatorship, one of the primary aims of the brand new administration after Franco's troops won the Civil War was to control information and communication services and technologies. Consistent with the early "establishment period" of the regime (Chuliá 1997, 58), the uncertainty linked to its initial legal arbitrariness right after the war, and the ensuing need of control, the sources and platforms where knowledge of all kinds was to be produced and circulated had to be strictly watched over and regulated. In the early 1940s, with the country sunk in appalling living conditions, cinema was already, at least in urban areas, one of the main sources of entertainment (Medina-Doménech and Menéndez-Navarro 2005). As a prominent mass media, it was a crucial channel for the few individuals and institutions (the dictator himself, together with the military, the fascist party that served as political structure – *FE de las JONS*[1] –, and the Church) that made up the new leadership to propagate their socio-political discourse. Newspapers and radio were also important information platforms; they were used in private settings, but communal use was also widespread due to the fact that their consumption depended on access conditions, such as affordability or literacy skills (Jiménez-Lucena et al. 2002; Guzmán and Tabernero 2016). People who for the most part were living in dreadful conditions during the immediate postwar period had to be able to afford going to the movies. Yet, as a shared experience, cinema sustained the construction of potentially large informal socio-cultural communities around the arrangement of daily social, communication, learning and working practices, and, importantly for the regime, around a mix of sternly-selected practical, indoctrinating, and entertainment content (Taibo 2002; Gubern 2004; Tabernero et al. 2017).

The official newsreel, *NO-DO*, became a particularly useful tool for regime propaganda (Ellwood 1987; Rodríguez-Tranche and Sánchez-Biosca 2001; Ramírez-Martínez 2006; Matud-Juristo 2008). Its launch in 1942 acknowledged the importance the regime gave to people's increasing movie going, while it ensured, by means of its

[1] *Falange Española de las Juntas de Ofensiva Nacional-Sindicalista*, or Spanish Phalanx of the Councils of the National-Syndicalist Offensive.

https://doi.org/10.1017/S0269889718000066 Published online by Cambridge University Press

compulsory character, its unavoidable presence in people's amusement practices. *NO-DO* was an essential knowledge management tool for the regime. It clearly reinforced the hierarchical distribution of power between the few in control, "the new State," and the controlled many, for the regime's "propaganda agencies [had] to educate and instruct our people [and] persuade those still possibly mistaken by their error" (*Regulations* 1942; Matud Juristo 2008, 107–108). These regulations underlined the central importance of media, in this case image-based, and particularly documentaries, in the overall knowledge management effort. Accuracy was deemed a measure and justification of authority and control, as based upon the authority of media professionals over captive audiences: "It has become essential to develop a body of documentaries, in the service of our propaganda agencies, able to reflect in an exact, artistic manner, and through a perfect technique, the different aspects of the life of our Fatherland" (*Regulations* 1942; Matud Juristo 2008, 107–108). Thanks to their alleged capacity to produce direct and unmodified images that conveyed unquestionable truths, that is, to create virtual witnessing experiences, documentaries were expected to function as effective indoctrination tools.

NO-DO situated science, coupled with industrial development and the exploitation of natural resources, in the heart of knowledge management. Documentaries had to educate with their accurate expert-generated images, which had to show "the wonders of Spain, the progress of our industry, our natural resources, the discoveries of our science and, in all, the resurgence of our Fatherland in all its aspects as impelled by the new State" (*Regulations* 1942; Matud Juristo 2008, 107–108). The shaping of people's everyday life according to the regime's organizational needs and principles, the said "life of the Fatherland," was upheld by a resolute discourse about the modernization "impelled by the new State." This involved the regeneration of the country after the Republic by the correction of those "mistaken by their error" and the consequent improvement of living conditions.

This deeply hierarchical view of knowledge management and modernization was spelled out in colonial terms. Together with the government, the military, and the Church, and in close relation to people's everyday practices and behavior, science and technology were essential constituents of the regime's intrinsic supervising and control bodies, according to technically perfect documentaries aimed at showing

> the most noble heroic deeds of those great Spaniards – missionaries, officials, teachers, men of science – who proclaimed and proclaim in the lands of Africa the religion of Christ, the conquests of medicine, the essences of culture, that a man needs to live his time. … This task well deserves to be shown on screens, as the screens have already shown the war heroism that made it possible. (Fernández Cuenca 1942, as quoted in Fígares 2003, 234)

So, the regime's defense against detractors inside and outside Spain was its expertise-driven, ideologically, politically, morally, and technically grounded modernization endeavor, which in turn validated an intensely hierarchical and paternalistic

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socio-political scheme. The colonial documentaries produced for *NO-DO* in the 1940s by Hermic Films were a sharp example of this (Fígares 2003; Ortín and Pereiró 2006; Tabernero et al. 2017). We refer here particularly to five 10-minute films: three of them, *Médicos coloniales* (Colonial Physicians), *Los enfermos de Mikomeseng* (The Sick People of Mikomeseng), and *Fiebre amarilla* (Yellow Fever), were directed by the company's co-founder, Manuel Hernández Sanjuán, in Equatorial Guinea in 1946 and produced on commission of the General Director of Morocco and the Colonies, General José Díaz de Villegas, who requested "documentary films about the Guinean colony, with the aim of showing Spain the job that was being done" (Fígares 2003, 234; Ortín and Pereiró 2006). The other two, *Enfermos en Ben-Karrich* (Sick People in Ben-Karrich) and *Médicos en Marruecos* (Physicians in Morocco), set in the Spanish protectorate in Morocco, were directed in 1949 by Sanjuan's close collaborator, the physician Santos Núñez, who had also been a scriptwriter for the Equatorial Guinea series as well as for other documentaries previously shot in Morocco and the Sahara.

A series of 31 films were produced under General Villegas' governmental commission in Equatorial Guinea between 1944 and 1946, and several more in the protectorate in Morocco in the following years, taking advantage of the officially generated market. The whole colonial series was designed to display the regime's modernization aims and work. Science, medicine, and technology (wildlife, ethnology, medical-health issues, and resources) were among the main subjects featured in these films, together with religion, education, discipline and control (missionaries and the military). As portrayed in the films we analyze here, medical-health practices and discourses had an undeniable importance in building and legitimating strategies of the regime during that early establishment period (Chuliá 1997). This was particularly explicit in *The Sick People of Mikomeseng*, where the efficient administration of a newfangled, ideal state (in the form of a compulsorily isolated leper colony) was unabashedly depicted, and in *Sick People in Ben Karrich*, where the medical-health organizational tasks of the colonial administration were thoroughly shown as utterly successful (Tabernero et al. 2017). In those films, the expert authority of the few providers of knowledge and the related services was explicitly juxtaposed to the ignorance and need of the many captive and beneficiary non-experts. And the expected result, always according to the films, was a sweeping improvement of the natives' living conditions.

The work of the Spanish medical-health professionals along with the rest of colonizer officials, the military and the Church, had a clear positive impact on the overall health condition and care of the colonized, the natives at large, and particularly workers, women, and children. The natives' forced adherence to the regime's colonizing modernization imperative was portrayed through a carefully crafted excluding-inclusion dynamic around scientific-medical practices and discourses. Some of the natives were thus trained and enlisted to perform technical albeit clearly subaltern tasks, as medical or laboratory assistants and nurses. In this way, they were allowed to be part of the modernizing endeavor (included), although always short of reaching the

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decision-making ranks (so, in the end, excluded) (Medina-Doménech 2009; Kusiak 2010; Tabernero et al. 2017).

These films directly addressed the regime's indoctrination and enculturation goals not only through the described depiction, but also through their technical and narrative features as documentaries. As a scientific-technological and therefore supposedly objective form of cinema, they provided information through the virtual witnessing of the feasibility, inevitability, generosity, and normalcy of the situations and processes depicted (Boon 2008, 2014a, 2014b; Kirby 2008, 2010; Medina-Doménech and Menéndez-Navarro 2005; Tabernero et al. 2017). Authority and the hierarchical management of knowledge were portrayed as unproblematic and in an entertaining way in the context of Spain's activities in a distant, exotic and heroic reality. All this was conveyed through a markedly didactic tone, devised as an educational tool for audiences in the colonies and the motherland, which included deceivingly explanatory cartoons and maps highlighting Spain's theoretically prosperous and advanced status regarding medical-health knowledge production and management.

The "tension between the meanings and purposes of education, information and entertainment" (Florensa et al. 2014a, 11) in science popularization is usually tackled through the focus on accessibility, literacy, accuracy, and authority, and thus uncritically acknowledging the two-stage model of science communication. In such an approach, the hypothetical problems of "simplification, trivialization and, worse, distortion are the accusations regularly levied against the attempts to popularize science, especially science on screen" (Florensa et al. 2014b, 129). Indeed, in Manuel Hernández Sanjuan's and Santos Núñez's colonial-medical films, simplification, trivialization, and distortion could easily be alleged in relation to the treatment of medical knowledge and practices. The insistent and seamless combination of technical and colloquial expressions about diseases, technologies, and health-care activities explicitly dismissed the viewers' ability to understand, very much according to the deficit model of knowledge communication. But such distortion in scientific-medical content was clearly an effect of the focus, which was not so much on medical-health content than on the colonial endeavor, that is, on the power relations between the expert (healing) colonizers and the non-expert (ailing) colonized and the latter's authority-driven modification of behavior. This was common to colonial depictions in documentary and fiction films, as well as in other media, in Spain and beyond before the 1940s (Cripps 1993; Lynch 2000; Elena 2001; Ostherr 2013; Alcalá-Lorente 2017). The main goal in Sanjuan's and Núñez's films was to depict a hierarchical social stratification (according to race, class, and gender) across the boundary of techno-scientific knowledge production and management, where resistance was carefully shunned (Tabernero et al. 2017).

Furthermore, in these films, the deficit model of knowledge communication operated simultaneously at two deeply intertwined levels, content and form. Regarding content, accuracy was presented as a natural and necessary feature of the physicians at work, aided by the additional precision provided by the abundant technology at hand. This content focal point was matched with the expertise-driven exactness of the

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form, of the documentaries themselves. Unsurprisingly, these films achieved immediate, officially endorsed, critical acclaim. While praising "the importance of cinema when applied to a cultural and patriotic venture for reflecting and broadcasting Spain's fecund civilizing effort in those African lands" (*Primer Plano* 297, 23 October 1946; Fígares 2003, 244), "the official press … was lavish in its praise of the documentaries, speaking highly of the realism and authenticity of the images [and] impressed by the realism of those naked and truthful images, devoid of shady, laboratory-made tricks," as opposed to the "purely manipulative entertainment" of (incidentally foreign-made) fiction films (Florentino Soria, *África* 56–57, August-September 1946; Fígares 2003, 244).[2]

Thus, accuracy was the explicit measure of the authority in charge of carrying out the modernization endeavor. But it is also important to point out that the virtual witnessing experience these films sought to provide was also a product of the filmmakers' actual impressions while experiencing firsthand the regime's colonial and medical-health activities. Undoubtedly, they used documentary film techniques and conventions to deliver a sense of truthfulness, but could not help but transmit their own fascination with their subject. The filmmakers, in this sense, played two complementary roles. First, they were part of the colonizer community on location. Manuel Hernández Sanjuán, underlining the epic nature of the venture and the hardships they had to face, thus recalled

> the shootings in the laboratories of colonial physicians who were working with yellow fever … We had to invent just about anything in order to shoot well because there was hardly anything in place … We also shot for a very hard week at the leprosarium of Mikomeseng … That was really hard, because some of them suffered a lot. (Ortín and Pereiró 2006, 27)

And second, they were also colonized through their fascination with the whole endeavor, precisely in the midst of those adversities. For instance, the medical facilities in Bata and Santa Isabel (Equatorial Guinea) greatly impressed Santos Núñez, the physician-screenwriter, because of the high quality of the medical wings where he saw "a magnificent operating room that ensures the surgical practice to be performed in the most exacting conditions of instruments and asepsis" (ibid., 82, 184). His admiration may very well be understood as a reaction to the conditions of the colonial setting, but also to the low expectations concerning medical facilities in the metropolitan context at the time.

Accordingly, these films were designed to work on metropolitan audiences in two complementary ways. On the one hand, the straightforward identification for

[2]Despite the fact that these positive reviews were produced on the occasion of a highly-publicized official premiere, these films were not widely distributed nor included in the NO-DO magazine Imágenes (Images) they were intended for. This was never explained, and might have just been an upshot of the disorganization in the early Francoist film industry, as Hernández Sanjuán pointed out later on (Ortín and Pereiró 2006); and yet these films still constitute an outstanding example of the regime's communication strategies.

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these audiences had to be with the colonizers, the ruling, white Spaniards, which entailed an implicit approval of the highly efficient political, military, and scientific-medical administration. On the other hand, those same Spanish audiences, who were living in awful conditions, could very well empathize with the colonized patients, workers, peasants and, in particular, women and children. Techno-scientific practices and discourses were depicted as a set of commodities provided by the ruling, self-denying and rigorous ranks of experts in the community, and ready for non-expert people's everyday consumption. What was apparently being achieved in the colonies could at least be attempted in the motherland with the same level of care as shown in the films. In the end, the endeavor on the part of authorities was beneficent, charitable, protective, and peacemaking. And as a result, the explicit enactment of the deficit model of knowledge communication in films like these effectively turned the movie theater into an entertainment-driven educational space, where people's routine communication practices (i.e. going to the movies, to say the least) were intertwined with the regime's essential social, political, moral, and ideological needs and goals. The combined sense of accuracy in content and form provided an unequivocal measure of the multidimensional, techno-scientific authority that was in charge of knowledge production, circulation, and management. And sustaining it all, modernization was the justifying and legitimating discourse that the regime was conscientiously seeking at the time.

Transcending the Deficit Model of Science Communication

As we have seen, science and technology, through medical-health practices as content, and documentary filmmaking as form, lay at the core of the deficit-model communication device, and were used as legitimating tools for socio-political authority. The explicitness of the dictatorship concerning its aims and methods, above all in those early years, helps us examine these processes, which arguably were (and are) not exclusive of authoritarian regimes, because, contrary to what is often contended regarding Franco's administration, science was an essential constituent of its building and upholding, as it was as well for the democracies around it (Romero de Pablos and Santesmases 2008; Herrán and Roqué 2012; Camprubí 2014).

By the end of the 1950s and the beginning of the 1960s, the regime had prevailed, not so much because it had not applied an iron hand inside its borders during its first two decades, but rather owing to its increasing recognition in the international arena. The regime had actively sought that recognition as the isolation it had to endure after the fall of the allied German and Italian fascist regimes in World War II did not allow for any tangible improvement of people's living conditions, which was obviously a significant weakness. International recognition was staged first with the Vatican, with the signing of the Concordat on August 27, 1953, and immediately afterwards with the United States, with the signing of the Pact of Madrid on September 23, 1953. Soon

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afterwards, on December 14, 1955, Spain entered the United Nations, effectively ending the "Spanish issue," that is, the UN 1946 condemnation of the regime (Preston 1994).

Both agreements were, among many other socio-political upshots, of great consequence with respect to the management of scientific knowledge in Spain at the time. The Concordat secured the control of education in Spain for the Catholic Church, and was appreciably weighty in the internal struggle between socio-political pressure and interest groups. The attainment of a catholic science became a central argument in the battle for areas or power within the regime (Florensa 2017). One key aim was to shape the management and policies regarding science and technology, from primary through secondary and college education, to research priorities at the Spanish National Research Council (which had been founded in 1939 and was a key piece of the regime's structure). Another aim was to devise an economic policy and construct an associated productive industrial framework.

In this context, the establishment of air and naval bases in Spanish territory by the United States, together with economic aid, led to major changes in the economic and productive structure of the regime. The techno-scientifically driven modernization the regime was insistently publicizing and pursuing from the beginning was then eventually articulated through the 1959 Stabilization Plan (and later on with three subsequent Development Plans in the 1960s and 1970s) (Official State Gazette 1959). The ensuing economic liberalization, the entrance of foreign investments, and the massive exodus of workers, effectively changed the productive, industrial structure of Spain (Ortega and Núñez 2002).

The massive economic migration that swept the Spanish population in the 1960s – mostly due to adjustments aimed at the entrance of foreign investments and the incapability of the industrial structure to incorporate the increasing ranks of available workers – brought about a greater permeability concerning the circulation of information. Emigrants were not only sending money back home, but became first-hand sources of information about how life was in other countries, mostly European democracies. The international projection also attracted, through escalating campaigns, loads of foreign tourists, who inevitably increased the circulation of information. Significantly, all this was happening at the same time that a new technological device, a new mass medium, the latest development in information, communication, and entertainment technology, was mightily changing the media ecology across the planet by gradually and soon massively entering households. Television was bound to be the means through which people changed their ways to access, consume, process, and use information and entertainment.

In the midst of such sweeping transformations, the regime had to redefine its knowledge management framework. The tight grip that had been enforced in the first and long "establishing" decade, exemplified by the Press Act of April 22, 1938 (Official State Gazette 1938), and the exclusive and compulsory nature of the official newsreel, gave way, after a "normalization period" (Chuliá 1997, 70) where all the aforementioned developments took place, to a slightly broader regulation, consistent with an implicit

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"liberalization period" (Chuliá 1997, 86), albeit still within the principles of the regime, and exemplified by the new Press Act 14/1966 of March 19, 1966 (Official State Gazette 1966). This new law was in fact an attempt to establish a legal framework halfway between the preventive control and censorship needs of the regime and more unrestricted conditions for knowledge circulation, closer to those of the democratic States it was gradually opening up to, but still subject to the repressive, disciplinary measures the regime deemed necessary within the "liberalization" trend (Chuliá 1997).

As television was quickly becoming the main media frame of reference, that is, the leading source of both information and entertainment, the question of education became as prominent as ever. The regime's indoctrination aims and needs had to turn to a wider concept of guidance focused on practical socio-economic outcomes. Manuel de la Rosa Uclés, Secretary General of the Television Writers Guild, addressed these issues directly in a letter written to Félix Rodríguez de la Fuente on June 4, 1968:

> Television, a fabulous means of Social Communication, which has reached a decisive importance in the modern world, having by its weight and power of persuasion conquered the attention of the masses, has to be studied in depth, with love and attention. Its own history, however fresh, shows us that its most valuable technical and artistic advances have been generated by its intellectual elements moved by their eagerness for perfection and improvement. The task of Writers, Critics and Journalists specialized in the complex issues of Television is not only enthusiastic, but essentially guiding. (de la Rosa Uclés 1968, FFRF Archive)

The development of science content was soon considered an essential goal as well as a challenge in the design of education strategies through television, as it was happening in neighboring democratic contexts (Boon 2008, 2014a, 2014b; LaFollette 2012; Gouyon 2014; Boon and Gouyon 2014). Importantly, and drawing from the notion that documentary filmmaking was the main way to generate the necessary virtual witnessing experience of authority, science programming based on documentaries was deemed the main source of expert-managed truths to be levied on the population at large (Alcalá-Lorente and Tabernero 2016; Tabernero 2016).

At the same time, natural history television was swiftly becoming particularly weighty (Davies 1998; Bousé 2000; Scott 2003; Chris 2006; Gouyon 2011), for it addressed red-hot issues, carrying key identity and social justice components, as the natural sciences became a significant field of socio-political negotiation worldwide (Davies 2000; Brockington 2008; Wheatley 2013). The regime was not an exception in this respect; on the contrary, it actually had a significant bearing in the international arena with the wide-ranging repercussion of the founding of the World Wildlife Fund (WWF) and its relation to the development of the Doñana Research Station and National Park in southern Spain (Camprubí 2016). Simultaneously, an increasingly ecologist activism was developing inside its borders (Hamilton 2016).

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As natural history documentary filmmaking was becoming a standard for rigor, accuracy, and quality in science communication and the related media craftsmanship (Wheatley 2004), Félix Rodríguez de la Fuente (FRF hereafter) mightily entered the media landscape of Franco's Spain in the 1960s, to literally explode as a key media icon in the 1970s. Born in 1928 in rural Castile, and marked by a childhood in close contact with nature according to his own later account, FRF developed an interest in falconry that actually started to explore and practice during his years in medical school, in the 1950s, as he was becoming a dentist. In this field, he was helped by José Antonio Valverde, a biologist and pioneering environmental activist, and by Jaime de Foxá, then head of the Department of Agriculture's National Service for Fluvial Fishing and Hunting (*Servicio Nacional de Pesca Fluvial y Caza*). Valverde introduced him to academic and activist circles related to the natural sciences and environmentalism, while Foxá put him in contact with government officials. FRF thus began cultivating and skillfully combining both kinds of contacts, while developing international and official endeavors as an emerging falconer, as well as his early work as a naturalist and conservationist.

It was in the midst of all this, always through falconry, that he became acquainted with media beyond the printed press, where he had been quite confrontational with the County Boards for the Extinction of Damaging Animals and the Protection of Game (*Juntas Provinciales de Extinción de Animales Dañinos y Protección de la Caza*, 1953–1970; Corbelle-Rico and Rico-Boquete 2008; Varillas 2010; Tabernero 2016), that he helped to terminate. His first filmmaking experience took place while he served as falconry consultant in the Samuel Bronston production of *El Cid* (Anthony Mann, 1961). Just three years later, in 1964, he had his first shot at natural history filmmaking with José Luis de la Serna, whom he had met in the set of *El Cid*, and with whom he founded the production company *Natura Films*. That same year, he also had his first opportunity in television, where he was invited by an old friend Foxá to participate in his program, *Fin de Semana / Weekend*. From 1964 on, his media presence started to increase exponentially, and, until his tragic death while shooting a documentary in Alaska in 1980, he rapidly intensified his media output regarding wildlife, conservationism, and education in the natural sciences, ethology (which he developed from falconry), and ecology. Apart from publishing several books (starting with falconry, as expected, also in 1964) and two widely-distributed and well-sold wildlife encyclopedias (between 1970 and 1978), he contributed as a photojournalist and writer with several wildlife series to two mainstream weekly magazines, from 1966 to 1973; directed and/or presented three radio shows (from 1973 to 1978); and participated, presented, produced and/or directed a total of seven TV shows on the Spanish Public Television Corporation (*Televisión Española*), including the flagship of his whole work, his beloved and extremely successful *Man and the Earth*, with the *Venezuelan, Iberian and Canadian Wildlife Series* (1973-1981) (Salcedo 2008; Varillas 2010).

In all, by way of a skillful navigation of politics and institutions, FRF became an extremely successful film, radio, and television broadcaster, producer and director, as

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well as author and editor. Through a carefully crafted and remarkably complex media cross-platform venture, he put across a decidedly influential as well as controversial representation of nature (through conservationist and ethological premises) and the natural sciences (as a discipline and as a profession) (Tabernero 2016). Ultimately, all these efforts made him a staple of the media landscape and a highly charismatic albeit contentious character in the complex socio-political scene of the late Franco's dictatorship and the changeover to the democratic regime in 1960s and 1970s Spain.

Remarkably, by the mid-1960s, that is, at the onset of his media work, FRF had already in mind the basic features of his future endeavor. In a letter sent in February 1965 to Carmelo Martínez, then director of the influential radio and television magazine *TeleRadio,* he outlined his project "Let us defend the wellbeing of the Iberian fauna," and focused mostly on television:

> It is a pleasure to refer my projects regarding the defence of Iberian fauna within the television programme 'Weekend'. As you will see, I am more interested in the working biologist's point of view than in the plain hunter's. I will talk more about hunted down animals in need of defence ... than about extremely well-known classic hunting game ... Will I be able to defend the most chased and slandered living creatures of our fauna? Will I be able to convince viewers that we must get rid of the ignoble word 'vermin'; that there are not the good and the bad in nature, but creatures … living together in a perfect and extremely complex balance? ... If I manage to introduce in the Spanish home, through the small screen, the living and truthful image of those, our creatures, with whom we have shared our land and our sky throughout millennia, we will learn to respect and love the animal world. And so, our spirit and even our economy will benefit ... Protectionist legal measures will be of no avail ... if these knowledge and provisions, conveniently spread, do not reach the country folk. And there is no platform of wider reach than television to set out these proved facts. (Rodríguez de la Fuente 1965, FFRF archive)

All the elements of the classical deficit model of (science) communication were present in this early statement. The purpose was unequivocally educational and addressed to an unaware population concerning the protection of nature in conservationist terms.[3] In addition, the source of authority was, also unambiguously, expert-generated scientific (biological) knowledge, which could be conveyed to perfection only via the technical and narrative qualities of expert documentary filmmaking that was to be broadcasted directly to households through television.

In order to do this, which is fine, it is necessary to substitute the opening bracket in the previous line (marked in green) for a comma.

[3]The focus on the country folk responds to his then lively and then still on-going fight against the County Boards for the Extinction of Damaging Animals and the Protection of Game, and yet it is easily extended to the population at large, viewers that had to be "convinced" on these issues, remarkably the same word used in a completely different context by the regime's officials regarding the making and use of documentaries in the 1940s.

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Later on, his flagship television series *Man and the Earth* (1973-1981) fully developed all he had been testing and exploring concerning content and form in his media work from 1964 to 1973, and comprised the main features that define the quality of this kind of media undertaking. First, it was devised and actually worked as a blue-chip product, in the midst of the Spanish Public Television Corporation's own efforts of improvement and modernization (Ortega and Albertos 1998; Rueda and Coronado 2010), thus requiring a huge production effort that clearly aimed at its selling to other television networks abroad. Second, it sported a decidedly scientific-technical character, based upon the expertise and rigorous work of both naturalists and filmmakers, whose crafts and ability to overcome difficulties, questions, and challenges were persistently insisted upon. And third, the authority that made it possible in all senses was explicitly conveyed through the presenter-led approach, where FRF himself embodied the combined roles of naturalist and filmmaker and adventurer, very much in David Attenborough's fashion in Zoo Quest (1954-1963) or Jean-Jacques Cousteau's in The Undersea World of Jacques Cousteau (1968-1976) (Cabeza and Gómez 2012; Cabeza 2014). This, while securing the outstanding status of celebrity that had been constructed through all his previous media products, increasingly served as an advertising device where the combination of expertise and proximity provided meaning (education), pleasure (entertainment) and, importantly, a sense of belonging, which, in turn, was mainly conveyed through the way the presenter-narrator-expert defined himself and persistently addressed both his subject matter (fauna) and his audiences as "friends" (Tabernero 2016).

Later accounts of FRF's life and work, mostly utterly praising and a few deprecating (Araújo 1990; Pou 1995; Rodríguez Jiménez 2006; FFRF 2006; Salcedo 2008; Varillas 2010), are built, beyond the sorrow of his early and tragic death in the field, upon a top-down notion of science communication and the corresponding consideration of his authority and influence as a scientific celebrity. This status was arguably the result of at least three complementary factors: first, the construction of an allegedly everlasting scientific and cultural backwardness of the Spanish society at large by many interested sources (media, academic, political). Such an insistent message nurtured a decided deficit model of knowledge production and management, for it presumed the need of expert figures able not only to recognize the situation but also to put forward solutions, mostly in the shape of educational ventures. Second, FRF's carefully crafted cross-platform effort, a sort of early *trans-media* endeavor as it allowed story lines to navigate formats and platforms through time, contributed a hammering image of the relentless work of a multi-skilled expert who was fighting precisely against the supposed socio-cultural and techno-scientific backwardness. And third, the fact that FRF's celebrity status was significantly self-built precisely around the previous two factors, and focusing on how, through personal, self-taught and yet community-oriented effort, one (and, by extension, the community at large) could achieve actual and first-rate epistemological agency in an otherwise socio-political unwelcoming environment.

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Importantly, while in his previous TV programs, in the role of an expert teacher in a studio set, such as in other well-known early TV science programs (Boon 2014a), he talked about nature by thoroughly commenting and elaborating around foreign documentary footage bought by the Spanish Public Television Corporation (Televisión Española), Man and the Earth was devised as an adventure-driven series, where naturalists and filmmakers were the main human protagonists. Thus, "Man" was placed at the center of the narrative, not only as subject, as it happened in several chapters of the three Series, where wildlife and anthropological content were seamlessly combined, but also constituting the specialists behind the television product. In this way, Man and the Earth was as much about wildlife and the relationship between human beings and nature, as it was about the practices of the natural sciences and wildlife documentary filmmaking (Tabernero 2016). Naturalists and filmmakers were insistently shown (always around him as director-presenter), and their crafts, challenges, difficulties and solutions meticulously narrated and explained, to the point of even devoting a whole chapter to the depiction of the design and carrying out of a filmed experiment about genetic determinism and its ethological implications (The Wise Vulture, 1978), where the specialists were as much the protagonists as the Egyptian vulture that the chapter featured. [4]

All this, in turn, significantly played on the sense of belonging we have pointed out above. A careful examination of FRF's abundant correspondence with his viewers, listeners, and readers shows precisely that the relationship of most people with his work became fundamentally one of fandom, that is, not so much or not only based upon the assumption of his higher position in relation to processes of knowledge production and management, but on the perceived possibilities to actively participate on those processes. To start with, the cross-platform nature of his work opened a sort of editing capability for audiences, as people could choose among sources and use them at their convenience to build their own discourses. Moreover, the insertion of Q&A sections in many weekly or monthly editorial products, mostly addressed to children and teenagers, provided a kind of direct contact with "the friend" FRF, and greatly amplified this effect. And finally, his media work was coupled with his well-publicized environmental and conservationist activism, which had noticeable repercussions at the institutional level, such as in the ending of the mentioned County Boards for the Extinction of Damaging Animals, the launch of the Spanish WWF agency, ADENA, or the constitution of National Parks, as Doñana. Importantly, it also directly concerned people's everyday-life troubles and their connection with environmental policies, such as the conflict with killer wolves in 1974 and its relationship with the brand new 1970 Hunting Law.

This worked as a measure of the practical potential of the scientific and media crafts shown on television and other media products. An assumed will of participation

[4] Alcalá-Lorente, Mònica, and Carlos Tabernero. 2014. "The Wise Vulture, or Discourses of Modernization in Wildlife Television Documentaries in 1970s Spain." 6th International Conference of the European Society for the History of Science. Lisbon (Portugal), September 2014 (unpublished talk).

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on the part of audiences was undoubtedly taken into account. And FRF's central focus on natural heritage insistently drew on its historical and property aspects (i.e., identity), as well as on its purpose and profit (i.e., will and participation) attributes in a scene where environmental activism was quickly becoming a foremost vehicle to articulate dissent (Hamilton 2016; Gil-Farrero 2016). From his very first appearance on television in 1964, viewers started writing letters praising his work, which in the end led to his continuation and later success in this and the other media he utilized. Such huge and enthusiastic reception soon surpassed the aspects strictly related to the media craft and started dealing with people's everyday concerns that could be articulated as environmental remarks or complaints (Salcedo 2008; Varillas 2010; Tabernero 2016). On August 31, 1967, a 17-year-old viewer and reader wrote him in a rather dramatic manner about Doñana before it became the flagship of the Spanish National Park system. This letter summarized all the elements we are discussing here linking, somewhat awkwardly, environmentalist concerns with strong identity feelings in relation to Spain's backwardness compared to other countries. And it expressed an unequivocal craving for participation in a scientifically-driven quest for modernization:

> I cannot but send you my S.O.S. … The problem is very big, and different countries and future generations may throw this in our faces … According to what I have read and I have been able to prove myself, the more a nation is more civilized, the more that nation feels the need to protect "MOTHER" nature … the naturalists and biologists and lovers of what is beautiful will have to go to other countries to study the animals Spain has destroyed … Please, send an S.O.S. to the whole of Spain and let us show the entire world that Spain is civilization and therefore natural splendor … the whole of Spain, embodied in scientific characters, biologists and naturalists, can take this request to the Spanish government and achieve for generations to come this preservation of the Spanish territory … and I beg you, should you need anything, [to remember] that I am entirely at your disposal. (Spectator 1967, FFRF archive)

FRF was thus aware from the beginning of people's preoccupations and expectations regarding the intersections between media and their everyday lives, the topics he tackled, and its potential socio-political corollaries. Mindful of the importance of maintaining a fluent communication with his rather active audiences, he built his cross-platform work upon these elements.

Concluding Remarks: Re-Signifying the Deficit Model of Science Communication

Given their location in the tightly defined geo-historical and socio-political context of Franco's dictatorship in Spain, the two case studies we have analyzed here are representative of the transformations that took place in the domain of science communication in the last century. In both instances, media, film, and television,

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respectively, albeit in a documentary key, were used as a leading platform for the massive distribution of messages that ultimately concerned the collective organization and development of a particular society. Across the very different socio-economic, political and cultural circumstances of Spain in the 1940s and the 1960s-1970s, modernization remained a core theme and motive of the media productions we have examined. And science, whether related to medical-health practices or the natural sciences, but always associated with the technical traits of the media and communication practices involved, acted as the exclusive source of rigor and authority.

Contrary to the one-way transmission model at work, audiences' will to participate and exert some kind of epistemological agency characteristically surfaced when channels of communication opened up. They thereby outdid the idealized, culturally dominant view of expert knowledge as a mostly unreachable and in any case unquestionable source of truth. Among the conditions of those transformations in communication practices around media, the rapid spread of television in the second half of the twentieth century is crucial. But this process was not exclusively determined by the appearance of the new media technology. Rather, the examples we discussed here reveal that it was one in an overall, co-constructed re-signification of social, political, and cultural dynamics.

The people from Hermic Films, working under the directives of Franco's government in the 1940s, built their discourses upon the acknowledgement of a mandatory and tightly controlled one-way flow of communication. In contrast, FRF was a charismatic figure working in a more independent way in the socio-culturally different 1960s and 1970s, and arguably within a slightly more open media ecology, although still subject to the dictatorship's official control. In this context, he molded his craft and his educational (rather than indoctrinating) aims always taking into account his audiences' concerns and expectations. Granted, the letters of viewers, readers, and listeners to FRF were prompted by his status as a scientific and media authority as well as an activist. But they also carried the emotional bond linked to his rising star as a celebrity. But audiences' praises and criticisms to his work always manifested the desire to have some bearing on the messages and facts considered. They often included requests for information about how "to become someone like you or something similar" (Spectator, October 28, 1975; FFRF Archive). Such requests, coming mainly from children, youngsters, and, remarkably, their parents (i.e. those who were among the young audiences of the *NO-DO* documentaries in the 1940s), paralleled FRF's gradual construction of the roles of the wildlife TV documentary presenter, radio broadcaster, and author as someone who not only knows, like an expert, but also wants and needs to know, like his public (Bell and Gray 2007).

Arguably, such transformations in the epistemological dynamics of media science communication were part of a trend in media communication practices that was widespread throughout contemporary western societies. Yet, by contrast to the socio-political environment around it, these transformations were particularly explicit in Franco's authoritarian and paternalistic dictatorship. The growing potential for

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knowledge co-construction posed a threat to the established bases of authority, even though the sense of authority remained at the core of different communication approaches. The media-linked shift in the relationship between experts and non-experts was unstoppable and had to be taken advantage of but also redirected and controlled.

In this context, modernization began to emerge as a communal experience rather than just a directive of political power. Science, too, gradually ceased to be an insurmountable epistemological barrier. So an emblematic document such as the 1985 Bodmer report can be understood as an attempt to capitalize on the combination of an already existing public understanding of science with a new media landscape that allowed for an increasingly wider range of inputs. The apparent democratization of science it supposedly entailed can thus be understood as an officially endorsed re-signification of the deficit model, aimed at preserving science as a political resource. Access served also as an excuse to justify the policies regulating science communication, as it moved from the focus on literacy toward understanding attitudes toward scientific knowledge and its management. Yet, as the two cases discussed here show, particularly the story of FRF's documentaries, people's everyday practices with and around media are powerful, driving forces of transformation, which directly do away with the deficit model of science communication.

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