

The Double Legacy of Bernalism in Science Diplomacy

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Summary: Recent debates in the history of science aimed at reconstructing the history of scientific diplomacy have privileged the analysis of forms of diplomacy coming *from above*. Instead, the objective of this paper is to raise awareness of these debates by looking at attempts at scientific diplomacy *from below*. Such a shift in perspective might allow us to observe the impact of marginalized social agents on the construction of international diplomatic choices. This article particularly focuses attention on how the legacy of Bernalism has fostered the emergence of two different types of science diplomacy. On the one hand, Bernalism has influenced the goals of organizations such as UNESCO and the World Peace Council, which are forms of science diplomacy I would term *from above*. On the other hand, Bernalism has also been at the origin of radical scientific movements that I propose to interpret as forms of scientific diplomacy *from below*. These have, in fact, played a cardinal role not only in raising public awareness of the social and political roles of science, but also in the more direct participation of scientists in defining the political objectives of their research activity. From this point of view, I analyze how an association like the World Federation of Scientific Workers proposed (at least in the beginning) greater democratic participation than the top-down structures of other forms of scientific internationalism.

Keywords: history of science from below, Bernalism, science diplomacy, political epistemology, World Federation of Scientific Workers, World Peace Council, UNESCO

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Case Studies in Knowledge from Below: From Historical to Political Epistemology

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1. Introduction: The *From-Below* Perspective in the History of Science Diplomacy

The widespread diffusion of the concept of science diplomacy has a very recent history. Only in the 21st century has this term become a political buzzword whose use has been strategically promoted, primarily in the context of US international relations policies. The most widespread and impactful definition of this term was provided by the Science and Technology Adviser to the US Secretary of State, Nina Fedoroff (who served from 2007 to 2010): “Science diplomacy is the use of scientific collaborations among nations to address the common problems facing 21st century humanity and to build constructive international partnerships. There are many ways that scientists can contribute to this process.”¹ In recent years, this political category has attracted scholars in the field of international relations, political science, and communication science who have begun to study its history, going back to its origins in the Cold War era.²

The definition of this field of research was obviously based on favoring a *from-above* perspective in observing the dynamics of the formation of various modes of using science in diplomatic contexts. A clear example of this is the definition of science diplomacy provided jointly by the Royal Society/American Association for the Advancement of Science in 2010. In this text, three different meanings are listed: “science in diplomacy” (use of experts in diplomatic relations); “diplomacy in science” (mobilizing diplomats in the promotion of transnational scientific projects); “science for diplomacy” (using science as a “soft power”³ or as political capital in foreign affairs).⁴

The problem of how to construct a solid, coherent narrative, free from *a priori* conditioning, of the history of science diplomacy could not but arouse the interest of historians, and especially historians of science interested in issues including the relations between science/power, science/institutions, and science/international circulation of knowledge.⁵ Indeed, many scholars in this disciplinary community have shown how the dominant narratives of science diplomacy were largely shaped by various underlying ideological assumptions and political orientations.⁶ What had remained completely unexplored—and

¹ Fedoroff 2009, on 9.

² Kunkel 2021; Ruffini 2017, on 17–26; Turchetti et al. 2020.

³ In this context, “soft power” is used in Joseph Nye’s sense, that is, as a strategy in international relations which replaces the use of coercion with the promotion of cultural activities aimed at persuasion. Nye 2004.

⁴ Royal Society/AAAS 2010.

⁵ Turchetti 2012; Krige 2019.

⁶ Turchetti et al. 2020; Turchetti 2020; Adamson and Lalli 2021. Examples of such an approach are reconstructions that emphasize historical cases in which scientific collaboration among nations has positively impacted the building of peaceful relationships among nations—as proposed, for example, by Turekian and Neureiter 2012—or those that, with self-celebrating nationalist overtones, draw a line of continuity between the emergence of scientific societies in early modernity and contemporary science diplomacy—as exemplified in Royal Society/AAAS 2010. On this point, see Turchetti et al. 2020, on 327.

to which historians of science are devoting themselves—was instead the level of analysis of what could be defined as the “political economy of knowledge” and the “cultural politics of science.”⁷ Historians of science have, therefore, tried to also highlight the conflictual aspects of science diplomacy (i. e., the relationship between science and structures of power) by analyzing, for example, the emergence of scientific collaborations in research and development for military purposes; the correlated effects of cultural, political, and economic hegemony; the creation of transnational scientific-political competition dynamics; the dynamics of planning scientific research for political purposes, etc.

Starting from this kind of debate, it seems reasonable to imagine—for specific case studies—a further extension of the focus of historical studies on science diplomacy. Until now, the latter has been largely limited to considering those social agents who, *from above*, in their institutional-political positions, exercise direct decision-making power in the elaboration of strategies of science diplomacy. In order to construct a more complex and articulated narrative, my thesis is that—at least for some specific contexts—it is also useful to recognize a degree of diplomatic agency for some social subjects acting *from below*, or from outside intergovernmental institutions.⁸ Particularly interesting here are those forms of scientific diplomacy that constitute (or have the ambition to constitute) a broad space of democratic participation in the field of scientific internationalism.

As is well known, the attempt to read history through the adoption of a perspective *from below* has also been probed by some historiographic schools, such as the *Annales*, Microhistory, or various declinations of Cultural Studies in the historical field (traditions that have theoretical tendencies in relative tension with each other).⁹ In early modern research contexts, historians of science have highlighted how useful it is to adopt a *from-below* perspective to more fully understand the contribution played by social subjectivities marginalized in standard narratives, such as those of artisans, miners, or midwives, in the constitution of modern science. The contributions of authors such as Boris Hessen, Henryk Grossmann, Edgar Zilsel, Paolo Rossi, and Wolfgang Lefèvre are just some of the possible exemplifications in this context.¹⁰ In other cases, the writing of *A People's History of Science* has even been suggested.¹¹ In the same way, debates within the so-called “global history of science” have made it

⁷ Omodeo 2019, on 115–120; Renn 2020.

⁸ In this context, the analysis proposed by Aant Elzinga between non-governmental organizations (NGOs) and intergovernmental organizations (IGOs) is very interesting. Elzinga 2001.

⁹ Probing different routes in writing history *from below*, some classic cases can be considered: the intellectual history proposed by Marc Bloch, aimed at enhancing aspects of cultural legitimacy (e. g., *Royal Touch: Monarchy and Miracles in France and England*), but also agricultural history, such as *Les caractères originaux de l'histoire rurale française*; *The Cheese and the Worms* by Carlo Ginzburg; *The Making of the English Working Class* by Edward Palmer Thompson, *The Uses of Literacy: Aspects of Working Class Life* by Richard Hoggart; *Culture and Society* by Raymond Williams.

¹⁰ Hessen and Grossmann 2009; Zilsel 2003; Rossi 1962; Lefèvre 2021.

¹¹ Conner 2005.

possible to enhance the study of non-Western scientific production in which artisanal scientific practices are largely considered.¹²

It is clear how the adoption of such a perspective is even more urgent in the context of contemporary science in which the transition from “little science” to “Big Science” has implied a series of structural changes in the field of scientific production.¹³ In this sense, I propose that the various movements for social responsibility in science therefore enter fully into the history of contemporary science and the history of science diplomacy. People and scientists who self-organize in order to face great diplomatic-scientific challenges by bringing out a model of internationalism based on broad democratic participation are to be considered expressions *from below*. A trivial example, taken from contemporary debates: can we analyze contemporary diplomatic choices on environmental issues without considering the social and cultural roles played by certain mass social movements in bringing public attention to specific concerns or in conditioning the policy makers’ agenda?

In the terms of Bourdieu’s social theory, it would therefore be necessary to inquire what is the relationship between the field of power, the scientific field, and the field of cultural production in general.¹⁴ In this article, I focus my attention on a social, cultural, and political phenomenon that I propose to call the “double legacy of Bernalism.” My intention is to show how, in some contexts, collective social actors, such as associations or self-organized groups *from below*, can have an impact on the realm of debates in science diplomacy.

2. The Emergence and Meaning of Bernalism

Bernalism is a cultural phenomenon that emerged in the UK during the 1930s and rapidly expanded beyond its national borders. This term was initially coined by liberal-minded scholars to pejoratively label British Marxist-oriented social, intellectual, and political movements focused on analyzing the social role of science. The expression “Bernalism” was particularly used by its detractors in a reductive way as a category to identify those tendencies aimed at applying a model of socialist planning to scientific activity. Baker provided the following polemical definition:

the doctrine of those who profess that the only proper objects of scientific research are to feed people and protect them from the elements, that research workers should be organized in gangs and told what to discover, and that the pursuit of knowledge for its own sake has the same value as the solution of crossword puzzles.¹⁵

¹² This is a research trajectory begun by Joseph Needham with his monumental work *Science and Civilization in China*—Needham 1954—and then developed in various directions, integrating the postcolonial debates in the history of science. See, e.g., Fan 2012; Raj 2013; Brentjes et al. 2016.

¹³ Price 1963.

¹⁴ Bourdieu 1998; Bourdieu 2004.

¹⁵ Baker 1946 [1939], on 174–175.

Despite this genesis, more recently the term Bernalism has begun to be used as a descriptive historiographic category without negative connotations.¹⁶ I use this term to indicate a broad cultural phenomenon that, in some respects, goes even beyond John Desmond Bernal's own works and intentions. Rather, this cultural phenomenon has to do with a huge intellectual and political movement aimed at highlighting the positive uses and negative abuses of science in contemporary societies.¹⁷

From an intellectual point of view, Bernalism's roots can be traced to the events of the Second International Congress of the History of Science held in London in 1931. During this congress, a Soviet delegation led by Nikolai Bukharin proposed an innovative Marxist approach for analyzing the history of science in order to observe the entanglement of the development of science and technology with social and political factors.¹⁸ The key message that the Soviet delegates set out to spread during the congress was the idea that a "socialist organization of science" was possible (i.e., scientific practices with different objectives from those of capitalist societies).

During the congress and in the following years, Boris Hessen's intervention entitled "The Socio-Economic Roots of Newton Principia" along with Bukharin's "Theory and Practice from the Standpoint of Dialectical Materialism" generated a strong debate whose resonance was broadly perceived by those present at the event in London, such as the active circle of British scientists involved in leftist politics. This group included scholars like Bernal, John Haldane, Lancelot Hogben, Hyman Levy, Joseph Needham, and James Gerald Crowther. These authors had a common interest in the investigation of science's role in society. Apart from Haldane,¹⁹ everybody in this group was at the 1931 congress and remained strongly influenced by the talks of the Soviet delegation. In the following years, this network of Marxist-oriented scientists would extend further to involve an increasing number of people.²⁰

Bernal himself declared that the Soviet delegation "showed what a wealth of new ideas and points of view for understanding the history, the social function, and the working of science could be and were being produced by the

¹⁶ Werskey 2007. As is well known, a similar fate has befallen the category of "externalism" in the history of science. The latter, too, was initially proposed by its detractors, but in subsequent historiography it has been largely consolidated as a historiographical category opposed to that of "internalism."

¹⁷ The term Bernalism has historically had broad overlaps and entanglements with other historiographic categories that, however, need to be kept distinct. These include "externalism" and "social relations of science," which describe theoretical positions or debates rather than broad cultural and political phenomena. Other labels, such as "social responsibility in science" or "radical science movements" seem to me to describe only a typology of declinations of Bernalism that emerged at specific historical moments. For my part, I prefer to use the term "Bernalism" precisely because of its ability to describe the intertwining of a cultural tendency and various forms of political practice.

¹⁸ Bukharin 1971.

¹⁹ Haldane was the only one absent at the congress. He would only turn to Marxism after the Spanish Civil War in 1936.

²⁰ Werskey 1978, on 185–211; McGucken 1984.

application to science of Marxist theory.”²¹ In a footnote, he also added an explicit reference to Hessen’s theses: “Hessen—article on Newton—[...] was for England the starting point of a new evaluation of the history of science.”²² Beyond the internal debates in the history of science (i.e., internalism vs externalism) the discussion of the approach presented by the Soviet delegates immediately took on a political dimension. Socialist-oriented scientists and scholars gave rise to a movement that largely recognized Bernal’s *The Social Function of Science* (1939) as its manifesto (for this reason the movement was labeled Bernalism).²³ For this faction, the goal was to clarify how to put scientific practices and technological innovations at the service of society in order to perform an emancipatory function for humankind. The wide influence of *The Social Function of Science* stemmed from Bernal’s accurate prediction of the political and diplomatic centrality that science would assume in the post-war politics that came to characterize the Cold War. As more and more countries drifted toward fascism or toward socialism in the 1930s, Bernal observed how science took on a different role in capitalist societies: “Science is both affecting and being affected by the social changes of our times, but in order to make this awareness in any way effective, the intersection of the two needs to be analyzed far more closely than has yet been done.”²⁴

From an institutional point of view, the genesis of a social movement focused on the social role of scientists could already be found in the context of the First World War. At the beginning of the 20th century, in both Britain and other national contexts, scientists, engineers, and technicians found themselves invested with an entirely new social role. In particular, the work of chemists and physicists acquired strategic importance both in the military sphere and in that of the rational organization of society and production. Based on this transformation, the first forms of self-organization *from below* emerged, such as professional associations, trade unions, and forms of scientific militancy.

Among these organizations, the most important was the National Union of Scientific Workers (NUSW), founded in Cambridge in 1917 and aimed at defending the interests of scientific workers. Its founding was hailed by leading journals such as *Nature* and was widely echoed both in the Cambridge context and nationally.²⁵ After surviving the years of the First World War, the NUSW underwent a process of radical transformation in the 1930s. In 1929, Archibald Church (one of its initiators) proposed the socialist-oriented biologist Julian Huxley as the first president of the organization, and thus began his career as a scientist in diplomacy or scientific diplomat.²⁶ This trade union quickly established itself as the main forum for radical scientists in Britain, abandoning its status as a trade union and changing its name to the Association of Scientific Workers (AScW) in 1935. It was during this period that—in the wake of the

²¹ Bernal 1946 [1939], on 393.

²² Ibid., on 406.

²³ Goldsmith and Mackay 1966; Ravetz and Westfall 1981; Werskey 2007.

²⁴ Bernal 1946 [1939], on 3.

²⁵ MacLeod and MacLeod 1979.

²⁶ Huxley 1970a, on 197.

intellectual ferment described above—the AScW became the main vehicle for the diffusion of Bernal's ideas in the British context.²⁷ Obviously, organizations such as trade unions, once institutionalized, can turn into a political-diplomatic form *from above*. But what I want to emphasize here is that the movements I have mentioned were, at the time of their founding, animated by a clear ambition to legitimize a broad and democratic participation of scientists *from below* in the definition of the socio-political purposes for which scientific research is done.

Against this leftist wave, liberal scientists and scholars such as Michael Polanyi, John Baker, and Friedrich von Hayek created the Society for Freedom in Science (1940–1946). This society aimed to defend the “purity of science” and the “freedom of research” against the possible emergence of forms of scientific planning (like the Soviet model).²⁸ Bernalism as a cultural phenomenon gradually expanded to involve both professional scientists engaged with the problem of the social responsibility of scientists as well as politicians and diplomats engaged in national and transnational relations. At the same time, this cultural phenomenon spread to various European countries, had echoes in the US, and generated great interest in the Soviet Union.²⁹

Bernalism, based on the idea that science is a key factor in social change, consequently shaped two forms of science diplomacy. On the one hand, it allowed the emergence of a series of diplomatic strategies *from above* that put the issue of science and technology at the center of political/institutional attention. On the other hand, it prompted scientists and intellectuals to self-organize politically *from below* in order to impact national and international policies.

In the next section, I will explore how the cultural phenomenon of Bernalism shaped various organizations within scientific diplomacy. In particular, I will focus on two exemplary cases of science diplomacy *from above*, UNESCO and the World Peace Council (WPC), and one *from below*, the World Federation of Scientific Workers (WFSW), to highlight how much these organizations were based on a common social network.

3. Science Diplomacy *From Above*

After the Second World War, Bernalism's heritage spread throughout the international political context, conditioning the emergence of various forms of science diplomacy *from above*. My objective in this part is to contextualize the emergence of the UNESCO project with the climate of the Cold War and, especially, with the uses of Bernalism in the context of the WPC.

²⁷ MacLeod and MacLeod 1979, on 23; Werskey 1978, on 39–43.

²⁸ On this point, see: Baker and Tansley 1946; Polanyi 1946; McGucken 1978; Shils 1947. For insights and extensive historical reconstructions, see Nye 2011 and Wolfe 2018.

²⁹ For a general reconstruction of the “reverse circulation” of Bernal's thesis in the Soviet Union, see Ienna and Rispoli 2021, on 121–127.

These two organizations emerged during the same period and aimed at similar objectives. Both were organizations with strategic roles in solving problems in post-war international cultural collaborations. Both organizations gave specific relevance to techno-scientific issues, finding their points of reference in some pivotal actors of Bernalism. The fact that science and technology were a fundamental stake between the two sides of the Iron Curtain had charged the debate with ideological tensions.

The idea of creating a “a world educational organization” was established at the San Francisco conference at which the United Nations was founded in June 1945.³⁰ This project came to life in November of the same year with the founding conference of UNESCO in London.³¹ Under the auspices of the United Nations, UNESCO’s objectives were to secure peace and prevent the return of war through the establishment of a forum for intellectual cooperation. Possible candidates for the post of director-general were the liberal and traditionalist classicist Alfred Zimmern (known for his anti-scientific tendencies) and the above-mentioned socialist biologist Julian Huxley. After a dispute—which has been well reconstructed by John and Richard Toye—Huxley was nominated because he was considered the right person to work on overcoming the gap between the “two cultures.”³² This choice conditioned UNESCO’s policies by encouraging a greater focus on scientific issues and allowing Bernalism to permeate the organization. Crowther—at that time Secretary of the Science Commission of the Conference of Allied Ministries of Education—and Huxley played a pivotal role in promoting Needham’s ideas in science diplomacy that led to his obtaining the directorship of UNESCO’s Natural Science Department.³³ Needham’s career as a scientist in diplomacy or scientific diplomat had already begun in the Second World War years during which he was stationed in China as Director of the Sino-British Science Cooperation Office. The successes obtained during this assignment—such as the construction of a Sino-British scientific collaboration in an anti-Japanese key—had given him the opportunity to show all the diplomatic skills and scientific militancy needed to obtain the executive position at UNESCO between 1946 and 1949.

I will not repeat here specific studies which have shown the cardinal role of Huxley and Needham in the construction of UNESCO’s scientific axis.³⁴ Rather, I want to emphasize how specific political and diplomatic practices were consolidated in the wake of the reflections that circulated in those years within Marxist debates on science and society in the UK. It is precisely this union of theory and praxis that I propose to call the “cultural phenomenon of Bernalism.” Prior to their work as scientific diplomats, Huxley, Needham, and Crowther were, in fact, considered key authors in the cultural context of British debate on science and society. Huxley authored *Scientific Research and*

³⁰ See Maurel 2006 for an analysis of the relationship between the United Nations and UNESCO.

³¹ Elzinga 1996, on 165; Archibald 2006, on 38–40.

³² Toye and Toye 2010.

³³ Petitjean 2008, on 256.

³⁴ Petitjean 2008; Petitjean et al. 2006; Mougey 2021.

Social Needs in 1934. This text was the result of a survey commissioned by the BBC to investigate British scientific activity in those years in relation to social needs. Needham is well known—in addition to his monumental work *Science and Civilisation in China*—for a series of articles and speeches on science policy, the internationalization of science, and the correlation between science and social change, on the one hand, and for being a key player in fostering transnational relations in science on the other. Crowther was an attentive observer of science policy, publishing *Science in Soviet Russia* and *The Social Relations of Science*.

The strategy of scientific diplomacy proposed by Needham was completely internal to the cultural climate of the Cold War and Bernalism. The axes of his proposal hinged on two different principles: 1) “Universalism”: that is, the idea that the emergence of science was the result of a long process of ideas circulating among different civilizations, and 2) “The Periphery Principle,” aimed at promoting international scientific cooperation for the purpose of techno-scientific development in disadvantaged areas of the world.³⁵ To carry out these initiatives he had, in fact, largely relied on the networks of scientific militancy that, in those years, animated organizations such as the WFSW and on the type of diplomatic relations already existing between the UK and its colonies in order to trigger profitable scientific collaborations.

Needham’s diplomatic strategy (completely in line with the axes described by Huxley in *UNESCO: Its Purpose and Its Philosophy*) was largely centered on the principles of what I have proposed to call the cultural phenomenon of Bernalism.³⁶ According to Needham’s perspective, it was indeed strategic from the diplomatic point of view to implement, on the one hand, historical consciousness in scientific research (in order to show that science has always been international) and, on the other hand, consciousness of the social function of science in contemporary societies (only through this does the need for cooperation for the purpose of improving the living conditions of mankind clearly emerge).³⁷

One of the most ambitious projects was UNESCO’s project for writing the *Scientific and Cultural History of Mankind*. The coordinators of this cultural initiative—which was to number six volumes—were Huxley, Needham, the well-known French Marxist historian Lucien Febvre, and Armando Cortesão (head of the Department’s History of Science division). This project aimed to show how the collective heritage of mankind had been generated by mutual interactions and dependencies between cultures on a global level. It was therefore a matter of deconstructing the centrality of the Western world, placing particular emphasis on the circulation of scientific ideas and technical apparatuses among civilizations.³⁸

Despite this political orientation, the Soviet Union would not join UNESCO before Stalin’s death. Indeed, it is no coincidence that, after Huxley

³⁵ Mougey 2021, on 472.

³⁶ Huxley 1947.

³⁷ Petitjean 2008.

³⁸ Diogo 2020, on 87–89; Duedahl 2011; Petitjean 2006c.

and Needham left their positions at UNESCO in 1948, this organization became progressively closer and closer to US policies.³⁹

The WPC, on the other hand, grew out of an initiative primarily managed by the Information Bureau of the Communist and Workers' Parties (Cominform)⁴⁰ and, therefore, represents a different model of scientific diplomacy. At Cominform's third plenary meeting in November 1949, Zhdanov focused attention on possible ways to expand the various peace movements and the possibility of establishing a pro-Soviet international organization to coordinate them.

The initial act was the World Congress of Intellectuals for Peace, organized and held at Wrocław University of Technology (Poland) in 1948. The objective that Cominform put on the agenda with this congress was to counter the imperialist hegemony of the US in order to establish a climate of international peace. This conference was attended by a large number of intellectuals, artists, and scientists who traveled from all over the world (more than 400 delegates from 44 countries).⁴¹ Among them were Irène Joliot-Curie, Aldous and Julian Huxley, various Bernalism protagonists such as Bernal and Haldane, but also other protagonists in science studies debates, such as Stanisław Ossowski and Tadeusz Kotarbiński.⁴² Zhdanov was unable to attend the meeting due to an illness (he died during the days of the conference). The task of determining the ideological climate in which the meeting was to take place was given to Aleksandr Fadeyev (President of the Soviet Writers Union).⁴³ In particular, in his introduction to the conference, Fadeyev gave special attention and prominence to Bernal and Haldane, describing them as "the big guns."⁴⁴ Even at this time Bernal was widely considered a "true friend of the Russian people."⁴⁵ During his speech, Fadeyev frontally attacked various authors, such as Jean-Paul Sartre, Thomas S. Eliot, and Wystan H. Auden, comparing them to "jackals" who "learned to use the typewriter" and "hyenas" who "mastered the fountain pen" (because they were suspected of being anti-Soviet writers).⁴⁶

In the wake of the cultural policy of the Zhdanov Doctrine, Fadeyev emphasized the polarization between the Soviet bloc and the US: "The

³⁹ Petitjean et al. 2006.

⁴⁰ Cominform was founded in 1947 on the initiative of the PCUS and Andrei Zhdanov, also known for having conceived the cultural policy known as the "Zhdanov Doctrine." This doctrine was aimed at consolidating an image of global political alignments as crystallized into two blocs: on the one hand, imperialism under the cultural hegemony of the US and, on the other hand, the democratic bloc led by the USSR. At its birth, the organization was composed of representatives of the Communist parties of Yugoslavia (which was expelled from Cominform in 1948), Bulgaria, Romania, Hungary, Poland, France, and Italy.

⁴¹ Chatfield and Van den Dungen 1988, on 237.

⁴² Dobrenko 2016, on 65; Brown 2005, on 324–325.

⁴³ Lottman 1982, on 271.

⁴⁴ Brown 2005, on 325.

⁴⁵ Aronova 2021, on 137.

⁴⁶ Lottman 1982, on 271; Committee on Un-American Activities 1951, on 8; Huxley 1970b, on 62–63.

imperialists of that country [US], whose facade by the irony of fate is adorned by the Statue of Liberty, have taken upon themselves in great haste the role of conspirators and organizers of a new war.”⁴⁷ In an official WPC document, it is claimed that at the end of the meeting, the congress “expressed firm support for the Charter of the United Nations, opposed military alliances, called for the banning of atomic weapons, demanded the limitation of armed forces, with controls, and declared its devotion to the causes of national independence and peaceful cooperation.”⁴⁸

The reactions were, for a large part of the public, enthusiastic and supportive. In particular, Bernal wrote a letter in the *New Statesman* in favor of the activities of the congress and its political objectives, explicitly stating that the US “was preparing a war for complete world domination, in which nothing of the panoply of Fascism is lacking.”⁴⁹ The well-known Marxist theorist Georg Lukács also argued for “the drift toward fascist imperialism in the United States.”⁵⁰

Among the critics, however, Julian Huxley was prominent. Although he was present as Chairman and had been considered an honored guest, he decided to attend only as a private citizen and not as the Director of UNESCO. His reticence was confirmed during the conference and, after protesting the ideological nature of the discussion, he left the meeting before its end (noisily refusing to sign the organization’s manifesto). In an article published soon after, he wrote: “The Congress took a political turn from the beginning; there was no real discussion and the great majority of the speeches were either strictly Marxist analyses of current trends, or polemical attacks on American or Western politics and culture.”⁵¹

As Elena Aronova pointed out, in the hopes of the participants, the meeting in Wrocław should have been the occasion to establish a Soviet alternative to UNESCO because,⁵² as mentioned before, the USSR had not immediately joined this international organization. On the contrary, as Huxley himself recalled, there was never any mention of an intention of scientific-diplomatic collaboration or exchange with UNESCO, the FAO, or the WHO during the meeting.⁵³ For all this clamor, Huxley was frontally attacked by the Soviet press of the period.⁵⁴ It is therefore easy to understand Huxley’s embarrassment in this context since the model he established with UNESCO was, in fact, to carry out cultural-scientific policies for peace but without being directly shaped by one of the two blocs.

The activities of the WPC continued in the following years, giving more and more importance to the role of scientists and science in diplomacy. At the

⁴⁷ Committee on Un-American Activities 1951, on 8.

⁴⁸ WPC 1962, on 4.

⁴⁹ Brown 2005, on 325.

⁵⁰ Wilford 2008, on 70.

⁵¹ Huxley 1970b, on 64.

⁵² Aronova 2021, on 104–105.

⁵³ Huxley 1970b, on 64.

⁵⁴ Aronova 2021, on 105.

Wrocław meeting, the Permanent Committee of the Partisans of Peace was established in Paris, in the heart of Europe. This congress was immediately followed by another one, the Scientific and Cultural Conference for World Peace, held in New York in March 1949. Various well-known scientists were present and became involved in the organization, such as: Harlow Shapley (Harvard), William A. Higginbotham (Brookhaven National Laboratory), Philip Morrison (Cornell), Victor Weiskopf (MIT), Oswald Veblen, and Albert Einstein (Princeton).⁵⁵ Because of Senator McCarthy's anti-communist campaign, the US State Department limited or revoked various visa concessions, preventing a large number of delegates from participating (including Bernal).⁵⁶ The conference was not a great success mainly because of the clashes between groups and considerable opposition from anti-communist organizations such as Americans for Intellectual Freedom.⁵⁷

It was therefore decided to organize a new meeting in Paris in April 1949 to allow wider participation (more than 2,200 delegates coming from 72 countries). At the same time, a meeting was organized in Prague for those who had not been granted a visa by the French government.⁵⁸ During this meeting, the WPC was officially founded.⁵⁹ On the basis of a Franco-British alliance, Frédéric Joliot-Curie was elected as president. He was an important French physicist, Nobel laureate in chemistry, member of the resistance, and open communist sympathizer. In those years, he was also distinguished for being one of the pioneers in the attempted conversion of uranium fission products for energy production. Joliot-Curie was ultimately chosen because of his strategic role as Director of the French Atomic Energy Commission.⁶⁰ Due to the broad cultural and political impact of his personality, Bernal was elected Vice-President for the period 1950–1958, later inheriting the presidency from 1959 to 1965. The aim of the WPC was to influence politics in order to propose worldwide atomic disarmament and to promote the independence and peaceful coexistence of all the world's states. Despite the political tension in Korea, Stalin's main objective was to establish a peaceful international climate⁶¹ as the Soviet Union had not yet developed the atomic bomb (which it would only succeed in building in August 1949). According to information found in Vjačeslav Micajlovič Molotov's archives, it also appears that the two main figures who animated this organization, Fadeyev and Ilya Ehrenburg (a journalist), kept Soviet leaders constantly informed through very detailed reports on WPC activities.⁶² Other congresses followed, the most important of

⁵⁵ Committee on Un-American Activities 1951, on 14–15.

⁵⁶ Brown 2005, on 328; Lottman 1982, on 272; Wilford 2008, on 70–71.

⁵⁷ Wilford 2008, on 70–71.

⁵⁸ WPC 1962, on 4.

⁵⁹ Brown 2005, on 328.

⁶⁰ WPC 1962, on 4–5. From 1951, Joliot-Curie's proximity to communism, both in France and internationally, was publicly overt. For this reason, he was dismissed from his position as Director of the French Atomic Energy Commission for security reasons following his election as President of the WPC and WFSW. Laurens 2019, on 59.

⁶¹ Roberts 2012, on 123.

⁶² *Ibid.*, on 124.

which was in Stockholm in 1951. During this meeting, a document known as the “Stockholm Appeal” was drafted, in which the WPC asked the United Nations for a plan to abolish nuclear weapons. This initiative represented one of the most important results of the organization, and it was finally accepted by the United Nations in 1961.⁶³

However, it is not hard to imagine that the activities of the WPC did not go unnoticed on the other side of the Iron Curtain. In 1951, the Committee on Un-American Activities produced a very detailed report of all pro-Soviet initiatives aimed at disarmament, entitled *Report on the Communist “Peace” Offensive: A Campaign to Disarm and Defeat the United States*.⁶⁴ The main thesis of this paper was that the USSR’s pattern of scientific and cultural diplomacy in sponsoring pacifist activities was ultimately an offensive military strategy to lead to a weakening of the US in the world geopolitical arena.⁶⁵

America’s reaction was immediate, through the establishment of the Congress for Cultural Freedom (CCF) in 1950 as an antithesis to the WPC. The CCF was an organization founded and financed directly by the American intelligence services (CIA), with the aim of limiting the communist influence of the USSR in Europe.⁶⁶ The CCF was therefore aimed at providing cultural and ideological support for the Marshall Plan by orienting cultural and intellectual networks. The CCF was animated by politically heterogeneous positions: on the one hand, by a series of moderate-leftist intellectuals, on the other, by people belonging to conservative circles, united by opposition to the Stalinist policies of the USSR. Polanyi and his Society for Freedom in Science became part of the CCF, within which they acquired considerable recognition. With the economic support of the congress, the Society for Freedom in Science founded the journal *Science and Freedom*, which was published between 1954 and 1961 with the explicit mission to counter rampant Bernalism.⁶⁷

4. Science Diplomacy From Below

Alongside these forms of science diplomacy *from above*, many others emerged from the self-organized activity of scientists *from below*. In this part, I will focus on what may be the clearest exemplification of this trend: the creation of the WFSW. This organization, unlike UNESCO and the WPC, emerged as a transnational social movement of scientists, self-organized and independent (at least in the beginning) from institutional diplomatic organizations. According to the initial wishes of its creators, the WFSW was to have constituted a transnational network of local social movements that emerged spontaneously in various parts of the world. The desire was to constitute a form of scientific

⁶³ WPC 1962, on 6–7.

⁶⁴ Committee on Un-American Activities 1951.

⁶⁵ On the implications within the physics community, see Salvia 2019.

⁶⁶ Coleman 1989; Wilford 2008; Saunders 2013; Scott-Smith and Lerg 2017.

⁶⁷ I cannot expand further on this point in this context. For more detail, see Aronova 2012 and Wolfe 2017.

internationalism—with diplomatic agency—on issues concerning the social and political responsibility of scientists (in this sense identifiable as science diplomacy *from below*). The political line of the WFSW was based on a critique of the functioning of existing scientific institutions and frustration with the scientific-technological development model imposed by capitalist societies.⁶⁸ As we will see later, over time the WFSW lost its political autonomy, becoming more and more the scientific section of the WPC and thus adopting a model of scientific diplomacy *from above*.

As I have already mentioned, in the UK the Association of Scientific Workers had been active for a long time (founded in 1917) and, spurred by Bernalism, gradually tended toward a transnational focus during the 1930s.⁶⁹ At a meeting of the AAAS in December 1938, the American Association of Scientific Workers was also founded, based on local chapters which were already active in the country (for example, in Philadelphia, Cambridge, New York, New Haven, Seattle). The main objective of this association was to promote the socially responsible development of science and to grant scientists control over the applications of science.⁷⁰ In Australia, too, an association of scientific workers was founded in 1939 with the aim of “securing the wider application of science and scientific workers for the welfare of society [...] to promote the interests of science [...] to maintain the interests of scientific workers.” This was followed by similar experiences in New Zealand (1942), South Africa (1943), and Canada (1944).⁷¹

Several organizations already existed in France as well. One key scholar in establishing Franco-British cooperation was Joliot-Curie. In addition to having been head of the WPC and the Anglo-French Society of Science, he was the President of the *Union rationaliste* (1946–1955) as well as of the Association France-USSR (1947–1954), and he was among the founders of the *Comité de vigilance des intellectuels antifascistes*, from which he created the *Association des travailleurs scientifiques*.⁷² The Anglo-French Society of Sciences was also founded in 1940 and played an important role in the establishment of the first international networks of scientific militancy.⁷³ The latter was headed jointly by Joliot-Curie, with Paul Dirac, Crowther, and Pierre Auger⁷⁴ as co-secretaries. Its aim was to counter Nazi hegemony through international scientific cooperation. In other parts of the world (both in the Soviet bloc and the West), other militant associations similar to the ones just mentioned had also developed autonomously. As has been pointed out by David Horner, in its early years the WFSW was formed as a complex result of vectors of political forces through which the Federation sought to be a “true forum for debate and

⁶⁸ Horner 1996.

⁶⁹ MacLeod and MacLeod 1979.

⁷⁰ Strickland 1968, on 13.

⁷¹ Horner 1996, on 135.

⁷² Laurens 2019; Petitjean 2008.

⁷³ Petitjean 2008, on 254–255.

⁷⁴ Auger replaced Needham as Director of the Natural Sciences Department in 1948, maintaining that position until 1959.

political action on national and international science and the social and political role of scientists.” Scientists, understood as a class of workers and not as individual social agents, “did not, and indeed could not, isolate themselves from the main political trends and struggles of the day.”⁷⁵

The idea of founding the WFSW emerged at the 1943 annual meeting of the British Association of Scientific Workers, and in 1945 Bernal was given a mandate to prepare a programmatic document on which to build transnational relationships.⁷⁶ Recently, archival documents have shown that in 1945, even in the Soviet context of the Russian Academy of Sciences, the founding of an international coordination of scientific workers’ movements was favorably discussed.⁷⁷ The WFSW was finally officially established in 1946 in the context of the Science and the Welfare of Mankind conference organized by the British Association.

Among those present at the founding was Needham, as a representative of UNESCO’s science division, who proposed close collaboration between the two organizations early on. Without any of the local organizations losing their autonomy, the underlying goal of the WFSW was to bring together experiences of scientific militancy in various national contexts under a single network of international coordination. In 1946, the federation was founded, and Joliot-Curie was elected as its first President, with Bernal as Vice-President and Crowther as Secretary-General.

While its name might suggest that it was an international trade union, it was in fact registered as a non-governmental association rather than a trade union due to Soviet pressure. Despite this gesture of openness, the Soviet Union refused to become an official member of the WFSW, even though it supported its activities in some cases.

The programmatic points of this organization were completely in line with the general concerns of science diplomacy of the time, such as: 1) to promote the use of science for welfare and peace; 2) to give impetus to international scientific and technological cooperation (thanks also to collaborations with UNESCO); 3) to promote the free circulation of knowledge among scientific workers; 4) to bridge the gap between the humanistic and scientific culture; 5) to raise awareness of the social role of scientific work and its centrality in political life.⁷⁸ The WFSW was, in fact, one of the key networks in which scientists from both sides of the Iron Curtain had the opportunity to discuss issues regarding the social and political responsibility of scientists, nuclear disarmament, and so forth.

In the course of its activities, this federation organized numerous public initiatives.⁷⁹ In order to foster transnational dialogue and communication among local chapters, the WFSW published newsletters and magazines, such as the *WFSW Bulletin*, *Scientific World*, and *Science and Mankind*, with contribu-

⁷⁵ Horner 1996, on 132.

⁷⁶ Petitjean 2008, on 256.

⁷⁷ Styles 2018, on 2.

⁷⁸ *Nature* 1964; Edsall 1968, on 187; Rotblat 1982, on 126–127.

⁷⁹ For a detailed list of meetings and conferences, see Rotblat 1982, on 128.

tions and/or translations in several languages (French, English, German, Russian, and Chinese). A number of pamphlets⁸⁰ (also in various languages) were also written, supporting local claims and proposing collective action.⁸¹ A fundamental contribution to the consolidation of scientists' consciousness, both in their material living conditions and in their role in the public sphere, was the drafting of the *Charter for Scientific Workers*.⁸² This document was a milestone for scientific diplomacy because it was one of the first political documents describing the rights and duties of scientists. Most notably, the *Charter* affirms the principles of internationalism and scientific cooperation without political or racial bias. These were also seen as fundamental resources for preventing war. In this sense, the WFSW proposed to promote all forms of scientific diplomacy aimed at building peaceful living conditions and to encourage scientific research aimed at solving urgent social problems, such as famine, disease, and the improvement of working conditions and human life in general. Throughout, the text emphasizes that it is the duty of scientists to resist forms of censorship and the distortion of scientific knowledge. On the rights side, the *Charter* highlighted the need to improve the conditions of scientific workers throughout the world (especially in developing countries), to rationally organize work in line with social needs, to increase the availability of funding for research (both basic and applied research in the natural and social sciences), to allow as many citizens as possible to pursue high-level training in order to expand access to scientific work, to ensure the rapid and effective dissemination of results, to increase the political participation of scientific workers at all levels, among others.

In 1947, the federation encompassed 17 organizations from 14 countries.⁸³ The WFSW grew to include an increasing number of members: by 1956, it had already acquired 150,000 individual affiliations and established a confederation with at least 19 organizations of militant scientists from 17 countries.⁸⁴ By 1964, membership had further expanded to more than 200,000 scientific workers from 30 countries.⁸⁵ These numbers clearly highlight how the WFSW was a transnational federation capable of bringing together, coordinating, and putting in mutual contact various forms of scientific diplomacy that emerged

⁸⁰ Among these well-known pamphlets, two are particularly noteworthy: *Germ Warfare in Korea* (1952) is a text that collects the work of a commission of inquiry sent to Asia by the WFSW with the aim of producing scientific evidence relating to the use of biological weapons by the US against the Chinese and Korean peoples; *Unmeasured Hazards* (1954) was dedicated to the denunciation of nuclear risks and is the result of the Anti-Atomic Weapons Campaign conducted by the WFSW. In particular, the latter has been translated into 12 languages with a circulation of at least 120,000 copies. Rotblat 1982, on 129.

⁸¹ Anonymous 1957, on 67–71; Crowther 1947; Crowther 1948.

⁸² The first version of the text was drafted by Bernal shortly after the founding of the WFSW in 1946. Horner 1996, on 141. The document was later reprinted and widely circulated in 1964: WFSW 1964.

⁸³ Crowther 1947, on 628.

⁸⁴ Anonymous 1957, on 68.

⁸⁵ *Nature* 1964.

spontaneously *from below*, without strong transnational coordination *from above*.

5. The Interaction between *From Below* and *From Above* Forms of Science Diplomacy

What I am interested in showing is that the WFSW had intense and controversial relationships with both UNESCO and the WPC due to the fact that most of the social actors involved belonged to the same cultural and social milieu of Bernalism. From an institutional point of view, the relationships between these organizations have not always been clear and linear, and especially in the case of UNESCO they have fluctuated.

Between 1946 and 1951, the WFSW occupied a difficult position on the international diplomatic chessboard. On the one hand, this federation worried the Western countries and was perceived to be one of the primary organizations of the Soviet front. In particular, the British and American intelligence services observed its activities with great attention.⁸⁶ On the other hand, despite the initial interest mentioned above, the WFSW project did not sufficiently convince the USSR. Petitjean has suggested that the cause of this reticence may have been rooted in the anti-Western nationalism typical of the Stalin era.⁸⁷ However, it is also possible to imagine that this initial non-recognition of the WFSW was part of a broader diplomatic strategy to try to exert cultural influence only indirectly (especially considering the large overlap between the WPC and WFSW, which I will discuss below).

UNESCO and the WFSW were born in the same year and with very similar goals. Some UNESCO members, such as Huxley, Needham, and Auger, looked favorably on entering into a formal agreement with the WFSW which, by virtue of its rootedness within the various social movements, could have provided useful support for the social legitimation of the organization. On the other hand, Joliot-Curie and Crowther had advanced some misgivings about this agreement because they feared it might undermine the WFSW's political autonomy. However, it became clear that there was a strategic complementarity between the activities of an intergovernmental association like UNESCO and those of a social responsibility movement of scientists like the WFSW. Having overcome this reluctance during the first meeting in 1946, especially thanks to Needham, an initial agreement was made through which the WFSW was officially recognized as a partner organization, obtaining an office in Paris at UNESCO and some funding to cover travel expenses.⁸⁸

By 1947, however, this agreement had already been blocked by the US delegates of UNESCO who were intimidated by the increasingly central role that French and British communists were playing in the organization. The agreement was therefore modified, and the WFSW remained as an "observer"

⁸⁶ Styles 2018; Committee on Un-American Activities 1951.

⁸⁷ Petitjean 2008, on 247.

⁸⁸ Ibid., on 260–261.

of the activities of UNESCO—leaving room for some collaborations without direct funding.

A considerable transformation of the relationship took place in 1948 when Huxley and Needham left UNESCO and the founding congress of the WPC occurred. In particular, Needham was accused of being a Soviet spy and, under such pressure, officially joined the WFSW in order to continue to have access to (and influence on) certain UNESCO activities.⁸⁹ Replacing him in the Directorship of UNESCO's Natural Science Department was Auger (until 1959), who also had an affinity with the WFSW.⁹⁰ At the same time, the Wrocław congress had given to Joliot-Curie and Bernal the leadership of the WPC, constituting a *de facto* informal alliance with the WFSW.

These shifts of axis would determine a reconfiguration of the political positioning of these organizations in science diplomacy. On one side, within UNESCO, an American liberal political-cultural influence gradually replaced that of Bernalism in subsequent years. During this period, Bernal harshly attacked UNESCO, claiming that it represented “the ideological front of the American led majority in the United Nations”⁹¹ and that it was “inextricably linked to the notion of the superiority of Western civilization.”⁹² This mutual tension led to the WFSW's ouster from UNESCO activities from 1950 to 1965. On the other side, the WFSW also lost its political autonomy, of course, becoming more and more the scientific section of the WPC and thus abandoning its initial vocation to be a model of scientific diplomacy *from below*. This led the WFSW to partly give up its initial *from below* vocation by exercising a progressively stronger cultural hegemony over local forms of scientific militancy.⁹³ In order to find that authentic impulse *from below* again, it would be necessary to wait for the emergence of the New Left and May 1968 which would bring the consolidation of new experiences of militancy—also linked with Bernalism, even though with relevant differences compared to the Marxism of the 1950s—with the birth of the Radical Science Movements at both national and transnational levels.

6. Conclusion

In the preceding pages, I have highlighted how the itineraries in science diplomacy traversed by UNESCO, the WPC, and the WFSW were intrinsically entangled despite significant differences in their political positioning. The cultural phenomenon of Bernalism played a crucial role in the emergence of

⁸⁹ Diogo 2020, on 88; Petitjean 2006a, on 79–80.

⁹⁰ Petitjean 2006b, on 46.

⁹¹ Elzinga 1996, on 168.

⁹² Horner 1996, on 145.

⁹³ In the meantime, however, the WFSW had the cooperation—especially thanks to Joliot-Curie—of other forms of scientific diplomacy *from below*, among which the most relevant is certainly the Pugwash Movement—born from the momentum of the publication of the Einstein-Russell Manifesto in 1955. Kraft and Sachse 2019.

various models of science diplomacy and in establishing the invisible colleges⁹⁴—i.e., the informal networks of collaboration—on which they have been constructed. UNESCO, as an intergovernmental organization, has continued its trajectory in establishing forms of diplomacy *from above* by recognizing the particular importance of scientific collaboration. Despite its original ties to British Marxism, this organization gradually shifted towards a liberal US ideological model. On the other hand, the WPC, like the CCF, aimed at performing an ideological function of orienting cultural and scientific activity to strategically support the Soviet cause of nuclear disarmament. The WFSW, instead, represented, at least in its intentions and for a part of its trajectory, an alternative model *from below* in its way of addressing issues of science diplomacy through the attempt at transnationally coordinating local militancy activities.

Beyond membership in the same cultural milieu of Bernalism, the interactions between *from above* and *from below* forms of science diplomacy, however, were not only informal but also substantial. Under Needham's pressure, UNESCO recognized the WFSW as an affiliated non-governmental organization by funding some of its activities. Joliot-Curie was President of the WFSW and the WPC at the same time, just as Bernal was Vice-President of both. Huxley was President of both the NUSW and UNESCO, and Auger, before inheriting Needham's position as Director of the Natural Sciences Department, had already been head of the Anglo-French Society of Science.

There is also the oft-mentioned inseparability of, and strategic interaction between, *from above* and *from below* forms of science diplomacy to consider. The WFSW, thanks to its ability to link the social scientific movements present within individual national contexts, therefore engaged in an intense activity of networking *from below*. In this sense, both UNESCO and the WPC strategically used the aggregative and supportive role played by the WFSW to legitimize, extend, and consolidate their political-diplomatic reach.⁹⁵

My thesis is that, in this case, it is impossible to reconstruct these forms of science diplomacy *from above* without simultaneously looking at those *from below*. The social and cultural legitimization of the former is based also on the wide dissemination of the latter. Further development of this type of analysis might include a specific investigation of the relationships with other *from below* forms of science diplomacy, such as the Pugwash Movement or the Radical Science Movements during the 1970s. Both, though in different ways, had very close relationships with the cultural phenomenon of Bernalism. This research is also intended to suggest a broadening of perspective in the way we look at contemporary forms of scientific diplomacy by taking seriously the role played by social movements in guiding choices in this context.

⁹⁴ Crane 1972; Price 1963.

⁹⁵ Elzinga 1996, on 168.

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