

The Joint Establishment of the World Federation of Scientific Workers and of UNESCO after World War II

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Abstract

The World Federation of Scientific Workers (WFScW) and UNESCO share roots in the Social Relations of Science (SRS) movements and in the Franco-British scientific relations which developed in the 1930s. In this historical context (the Great depression, the rise of Fascism and the Nazi use of science, the social and intellectual fascination for the USSR, a new model of scientific internationalism emerged, where science and politics were mixed. Many progressive scientists were implied in the war efforts against Nazism, and tried to prolong their international commitments to peacetime. They contributed to the establishment of the WFScW and of UNESCO in 1945-46.

Neither the WFScW nor UNESCO succeeded in achieving their initial aims. Another world emerged from the immediate post war years, but it was not the world fancied by the progressive scientists from the mould of scientific internationalism.

The aim of this paper is to follow the path from the Franco-British networks towards the establishment of the WFScW and UNESCO; from an ideological scientific internationalism towards practical projects. It is to understand how these two bodies came to embody two different scientific internationalisms during the Cold War.

Commentaire [DR1] : What is the point that the author seeks to make ?

¹ This paper is based on the following archival sources: Needham Papers (Cambridge Library), Crowther Papers (University of Sussex), AScW and WFScW Archives (Warwick University), Singer Papers (Wellcome Institute), Joliot-Curie Archives (Institut Curie, Paris), FMTS-WFScW Papers (Archives départementales, Bobigny), UNESCO Archives (Paris), National Academy of Sciences Archives (Washington)

Introduction

In many European countries, SRS movements existed, but were less influential and less organized than in the UK. The DSIRS (Division for the Social and International Relations of Science) of the BAAS (British Association for the Advancement of Science) is generally seen as the core of the SRS movement in the 1930s.² Its "social function" aspect has been widely studied. This is not the case for the "international function of science" and the participation of progressive scientists in international science. In many European countries, SRS movements existed, but were less influential and less organized than in the UK.

After World War I, some scientists (mainly from France and Belgium) tried to maintain the boycott of German science as long as possible, notwithstanding the opposition of their colleagues from other Allied Countries.³ The boycott was progressively overruled with the establishment of the International Commission for Intellectual Co-operation (ICIC) by the League of Nations in 1922, and with the development of direct scientific exchanges between scientists and laboratories. The internationalization of science came to be an important phenomenon in the 1930s, even if few scientists participated in these exchanges. The establishment of the International Council of the Scientific Unions (ICSU) in 1931 was a consequence of this internationalization.⁴ The International Institute for Intellectual Cooperation (IIIC), the executive secretariat of the ICIC, was another one, although it only played a minor role in the 1930s. Few progressive scientists committed themselves to these official international relations, whether through the ICSU or the IIIC.

² Gary Werskey: [The Visible College. A Collective Biography of British Scientists and Socialists in the 1930s.](#) (London: Free Association Books, 1988). Gary Werskey (2007) has recently revisited the "visible college" and its replications in a tribute to Bob Young: [The Marxist Critique of Capitalist Science: A History in Three Movements?](#) <http://human-nature.com/science-as-culture/werskey.html>

³ Brigitte Schroeder Gudehus: [Les Scientifiques et la paix](#) (Montréal: Presses de l'Université de Montréal, 1978).

⁴ The Allied countries established an International Research Council (IRC) in 1919. The boycott ended in 1926, and the IRC was renamed ICSU in 1931. In 1939, 8 international scientific unions and 41 national bodies were ICSU members.

Yet, the ICSU itself was certainly sensitive to the pressure of the SRS movement. In response to a proposal by the Royal Academy of Sciences of Amsterdam, the ICSU set up a commission on "Science and its Social Relations" (CSSR), which was endorsed by the council in April 1937.⁵ J.M. Burgers, who voiced this proposal, was chosen as its secretary. He was instrumental in re-establishing it in 1945, after its lapse during the war.

The new scientific internationalism that emerged in the 1930s, was in part a consequence of the growing internationalization of scientific practices, but also signified a reaction to the economical (the Great Depression) and political (the rise of fascisms) context of the times. The development of progressive Franco-British scientific networks was an example of such an internationalism.

Activists from the SRS movement and from the Franco-British networks played a major part in the establishment of the WFScW and of the UNESCO (United Nations Educational Scientific and Cultural Organization) Natural Science Department, both of which took form in 1946. With their common origin and the same founders, the two organizations were at first seen as complementary, and they cooperated in their first years. But with the development of the Cold War, they took opposite directions. They came to represent two different modes of scientific internationalism.

With UNESCO, Needham chose to lean on intergovernmental channels of co-operation as well on privileged links with the ICSU, and with the WFScW.. He attempted to put into practice new forms of international scientific co-operation along three main lines: the "periphery principle" in order to develop science in the countries which were called later the Third World, no science without history of science, no scientific research without caring for the social aspects of science. Needham met some initial successes. But after his departure

⁵ Dutch scientists pursued a line of social responsibility in science, which continued their efforts to bring reconciliation between scientists after the first World War, and met the onslaught of Nazism in the 1930s. Arie Rip & Egbert Boeker, "Scientists and Social Responsibility in the Netherlands", *Social Studies of Science* 5, 4 (nov. 1975), 457-484.

(April 1948), and Huxley's (December 1948), his progressive aims became increasingly weakened, and UNESCO gradually became subordinated to the USA in the 1950s.

The WFS&W tried to develop an activist position and a rank-and-file co-operation between scientists to put into practice their social responsibility. It was controlled by Communist-minded leading scientists who were enthusiastic about the function of science in the USSR.

Commentaire [DR2] : A summary of the last three sentences could go into the abstract as well.

Bernal and Needham

Bernal's The Social Function of Science

Even though the "I" for "international" was included in the name of the Division DSIRS of the BAAS, it did not seem to have many consequences until World War II. The social function of science in capitalist and socialist countries, respectively, as well as the struggle against Nazism and obscurantism, were in the frontline and the international relations of science were left in the shadow.

Commentaire [DR3] : Is there a linking sentence ?

For instance, Bernal's book, The social Function of Science,⁶ is usually considered as the main expression of the SRS movement. It has a chapter "international science" that has attracted less attention. It comprises four pages of general considerations, and nearly fifty pages providing a brief overview of science beyond United Kingdom: other European countries, fascist countries, socialist countries, India, China, and Japan...

Bernal's doctrine is clearly enunciated in the first sentences: "The internationalism of science is one of its most specific characteristics. Science has been from the start international in the sense that men of scientific temper even in most primitive times were willing to learn from others in different tribes or races. (...) In later times, when natural barriers separated civilizations, or when religions or national animosities divided the civilized world into hostile camps, the scientist vied with the trader in breaking down those barriers". And further:

⁶ John Desmond Bernal, The Social Function of Science (London: Routledge, 1939)

"Internationalism in science was maintained and even increased throughout the 19th century, but the present century has marked a definite retrogression. Science, while still remaining international, has begun to suffer from the general tendency towards national exclusiveness, and the unity of the scientific world is being seriously threatened".

Commentaire [DR4] : Some space could be devoted here to the critics of Bernal, e.g. what did Ravetz have to say; what about Elzinga on Bernal and the Comintern.

The economic crisis, capitalism, socialism, and the struggle against fascism, acquired an international dimension in the late 1930s. Science was universal by nature, and in such a context, nobody had to bother more about what "the international function of science" meant exactly, and what the practical consequences were. To the point that, concluding his half page about India, Bernal wrote: "probably the best workers for Indian science to-day are not the scientists but the political agitators who are struggling towards a self-reliant and free community".⁷ In these pages, science in non-European countries is relegated into the distant past, or has to wait for a socialist revolution. Bernal is clearly sharing some common European prejudices about non-European scientists. Modern science could only be diffused from the West and the USSR.⁸

The high status accorded to science by Bernal was an inheritance of Comte's and Spencer's conceptions at the end of the nineteenth Century: "To derive from science all advantages it can offer, there must exist an intimate linkage, perfectly materialized for each stage, between science and social progress: one has to foresee the needs, to study and modify the structures of society, to solve production and distribution problems, and finally to control the results of its application, so that they do not take unexpected or undesirable directions".⁹ His idealistic vision of science was running through the whole Social Function of Science, culminating in his famous sentences: "Already we have in the practice of science the prototype for all human

⁷ Bernal (1939), p.208

⁸ See also, about Central Asia, John D. Bernal, 'A Permanent International Scientific Commission', Nature **3967** (10 November 1945) 557-8.

⁹ John D. Bernal, 'La science et le sort des hommes', La Pensée **5** (oct.-déc. 1945)

action. The tasks which the scientists have undertaken – the understanding and control of nature and man himself – is merely the conscious expression of the task of the human society. The methods by which this task is attempted, however imperfectly they are realized, are the methods by which humanity is most likely to secure its own future. In its endeavour, science is communism".¹⁰

For Bernal, "Science will come to be recognized as the chief factor in fundamental social change".¹¹ He developed at large this thesis in his Science in History.¹² Leon Rosenfeld, a Marxist historian of science and physicist, confessed how "disappointed" he was by this book, and was very severe: "lack of balance and unity", "dogmatic way in which he has chosen to approach his subject", "unhappy effort at systematisation", "On almost every page one meets with statements not explicitly supported by any evidence and worse still, one constantly gets the impression that the author is building up artificial constructions to suit preconceived ideas rather than arriving at the proposed interpretation by rigorous inference". Rosenfeld criticized Bernal's basic thesis (the development of science being primarily conditioned by economic and social factors), and above all, its consequences when analysing the philosophical and scientific ideas.

Bernal's "labourist technoeconomism and vapid internationalism of the neutrality of science"¹³ developed in the 1950s with the political retreat and the anticommunist pressure which followed the Lysenko affair. It has been strongly criticized in the 1960s. "Comrades,

¹⁰ Bernal (1939) p.415. Werskey (2007), pp.11-12, has recently revisited Bernal's identification between Marxism and socialism with science.

¹¹ Bernal (1939), p.414

¹² John D. Bernal, Science in History (London: Watts and Co, 1954). Leon Rosenfeld's review was published in Centaurus 4 (1956) 285-296. See also Jerome Ravetz, 'Bernal's Marxist Vision of History' Isis 72 (1981) 393-402. For Werskey (2007), p.13, "The efforts of Bernal and Crowther to follow on from Hessen seem fairly crude and economic".

¹³ According to the words used by Hilary Rose and Stephen Rose, 'The Two Bernals: Revolutionary and Revisionist in Science', Fundamenta Scientiae 2 n° 3/4 (1981) 267-286. Quotation is from p.267.

don't bother, we are constructing socialism through science for you", as Bernalism has been defined by the Radical Science Journal in the 1970s.

Needham

Needham shared an idealistic conception of science with Bernal and most of his colleagues, and even explained that scientists were spontaneously pre-disposed to international co-operation. This was also called a "functionalist" conception of the international scientific relations.¹⁴ For the immediate post-war years, the most complete exposition of Needham's ideas may be found in his Boyle lecture of 1948.¹⁵ Needham's conceptions of scientific universalism were not free of Eurocentric bias, nor were Bernal's and their fellow scientists. But Needham differed from Bernal's idealistic or political views, particularly in three fields:

Scientism: Even when defining himself as a Marxist, Needham always kept some distance from the crude mechanistic materialism of some of his colleagues. For him, science had to remain linked with democracy,¹⁶ and was a source of ethics and moral values. He feared the development of what he called "scientific opium" and asked "Shall we substitute for the opium of religion an opium of science?"¹⁷ [

Commentaire [DR5] : See comment above

Universalism: Needham's "ecumenical" science only existed with roots in the various civilizations and was constructed by exchanges and borrowings between these civilizations.¹⁸

¹⁴ See Schroeder Gudehus (1978) for an analysis of Needham's orientation under the prism of functionalism.

¹⁵ Joseph Needham, Science and International Relations (50th Robert Boyle Lecture, Oxford, June 1, 1948) (Oxford: Blackwell Scientific Publications, 1949). See also his memos of 1944 and 1945, his proposals for UNESCO programme (UNESCO/Prep.Com/Nat. Sci. Com./12 July 1946, Tasks and Functions of the Secretariat's Division of Natural Sciences), his arguments in favour of the establishment of international scientific laboratories (UNESCO/Nat.Sci./24/1947)

¹⁶ Joseph Needham, 'On Science and Social Change', Science & Society X,3 (Summer 1946), 225-251. Joseph Needham, 'Science and Democracy: A Fundamental Correlation', in Sandra Harding (ed), The "Racial" Economy of Science. Towards a Democratic Future (Bloomington and Indianapolis: Indiana University Press, 1993).

¹⁷ Quoted by Werskey (2007) p.15

¹⁸ Needham shared many views with Lucien Febvre. See hereafter the Scientific and Cultural History of Mankind.

It was not a Western science. Already before the war, he paid a great attention to science in non-European countries. In that, he was far less Eurocentric than Bernal. After the war, the issue of Eurocentrism turned to be a major divide between conservative and progressive historians: Colonialism and Fascism turned impossible to take the Western civilization as a model. But for Bernal, the URSS remained the universal model for scientific development.

The Periphery Principle: with the Sino-British Co-operation Committee, Needham took consciousness of the necessity of voluntary international action for the advancement of science in developing countries, beyond what he called "the bright zone". He denounced the "laissez faire" and the "parochial minds" of the majority of his fellow scientists, who are able to exchange, and to travel easily in Europe and North America. For him, "The picture of world science looks very different when seen from Rumania, Peru, Java, Iran, or China".¹⁹ He called this change in perspective the "periphery principle". International efforts should be, in priority, directed towards the countries, and the scientists, who need to be supported. To apply this "periphery principle," the commitment of the most powerful Governments was absolutely necessary, as shown by the war efforts. The ICSU has proved to be ineffective for that. In its first General Assembly after the war, the ICSU refused to consider the co-operation with underdeveloped countries.²⁰ Initially, the foreseen WFS&W did not look more promising, lacking institutional support. Only in the 1950s the WFS&W joined this Third World priority.

Commentaire [DR6] : Here again we need some context to the formation of ICSU

Differences

¹⁹ UNESCO (12 July 1946), 7

²⁰ In his welcome speech, Sir Robert Robinson (President of the Royal Society) said: "Our organizations restrict their activity to to what Dr Needham lately called the 'bright zone' (Western Europe, North America, South Africa, etc., the scientifically well-equipped countries) and they are of smaller use to the countries of the 'dark zone'. One could say: we form a scientific church, not a mission. We beg UNESCO to leave us the former domain, and take the latter itself, for we are not prepared to do that". FJM Stratton (ed), Reports of the Proceedings of the Fourth General Assembly of the ICSU Held at London July 22nd to 24th 1946 (Cambridge: University Press, 1946), 6. This reflected a conservative, Eurocentric, notion of a division of labour between Unesco and the ICSU.

These ideological differences between Needham and Bernal may explain their post-war choices. Needham was never at ease with the WFScW. He was more attracted by UNESCO scientific humanism, where he could try to implement his agenda for the international function of science. Bernal found in the WFScW a tool to defend a value-neutral science and the scientific revolution developed in the USSR. They had different applications for their common ideals, the social responsibility of scientists, and scientific internationalism.

This appeared even more clearly in the 1960s and in the 1970s, with the rise of a new radical movement about science. Bernal was defending a classical "use / abuse" model of science, when the core of the critics were directed against the neutrality of science, and science itself.²¹

On the contrary, Needham felt closer to these new SRS movements, and accepted the critics against science: "there is a widespread fear of science, and no longer any conviction that its activities are always for the benefit of mankind or even would be under socialism".²² This was very far from the original scientific optimism shared by the SRS movements in the 1930s.

The context of the 1930s and the Franco-British Science

The WFScW not only had roots in the SRS movements, but more specifically emerged from the links between French and British scientists, forged in the common struggle against Nazism.²³ In the 1930s, British and French progressive scientists had strong relations, professional as well as political. Biochemists like Needham and Rapkine, physicists like

²¹ See Werskey (2007), pp.20-21, on Needham, Bernal, Robert Young and the Radical Science Movement

²² Joseph Needham, 'Science and Politics', in Ben and Viviane Karp (coord.) Louis Rapkine. 1904-1948 (North Bennington: The Orpheus Press, 1988) 91-94

²³ Patrick Petitjean, 'Needham, Anglo-French Civilities and Ecumenical Science', in S. Irfan Habib & Dhruv Raina (eds), Situating the History of Science. Dialogues with Joseph Needham (New Delhi: Oxford University Press, 1999),152-197

Bernal, Joliot, Blackett, Auger and Perrin, as well as Crowther and Zuckerman, were active in promoting these bilateral relations.

During the 1930s, the economical crisis led to a contestation of science, for its responsibility for unemployment, or, at least, for its incapacity to face the problem; sometimes, a suspension of scientific research was even proposed. This crisis had also serious consequences for the professional situation of scientists. The same years saw the rise of fascism, its victory in Italy, and, above all, the Nazi seizing power in Germany in 1933. In reaction, new movements developed to help the scientists flee from Nazism, to defend science against the Nazi ideology, and to fight war and fascism. Intellectuals, and numerous scientists among them, took an active part in these movements. The pressure was high for a democratic anti-Nazi alliance between France and United Kingdom in all fields, science being one particular example.

Many scientists were also fascinated by the USSR, whether on social and political grounds (the USSR appeared to have escaped from the 1929 crisis) or on the scientific ground (the public support to science); many Western scientists travelled to USSR in the first half of the 1930s where they eventually admired the scientific progress.

In this particular context, new forms of sociabilities appeared between French and British scientists, with roots in the traditional Academic relations, but going far beyond. They had similar public commitments and participated in the same networks. In both countries, the scientists, whether liberal, socialist or Marxist, radical or reformist, set up some sort of a "scientific popular front"²⁴ with similar aims. Only a small fraction of the scientific community was actively engaged in antifascist politics, but it kept linked with most of their colleagues. Nobel Price-winners and Academicians shared these commitments with rank-and-file scientists.

²⁴ See Werskey (1988)

Some French features

Some differences may be noticed between the commitments of the French and the British scientists. The 1931 International Congress of History of Science, with the Russian delegation, echoed differently. In Great Britain, some scientists channelized their professional and social concerns in the SRS movement. In France, the congress had fewer direct consequences. The social function of science remained secondary to intellectual defense of rationalism and Marxism (with the Union rationaliste and the Groupe d'études matérialistes) as well as subordinated to direct commitment in political struggles. But science and professional concerns were largely apart from politics. When young scientists established a radical professional movement, Jeune Science²⁵, in 1936, it conflicted with the concerns of Jean Perrin (then Minister of the French Government) and the scientific progressive hierarchy. Finally, many French left-minded scientists were more at ease with the political support to the Russian revolution than with the progressive use of science for peace and welfare.

Franco-British scientific internationalism

In such networks in the 1930s, it was difficult to dissociate academic, political, institutional ideological, and even private, levels. Politics were never far away in professional relations, and reciprocally. The networks were shaped by a continuity of commitments, from science to politics. The professional level was always present, and was often the starting point for an exchange. But these networks were never a mere extension of professional links. Some commitments were closely linked to the scientist's capacity: the struggle for the organization, planning and funding of science, the support of progressive uses of science for the welfare of humankind, the defence of science against the Nazi and obscurantist attacks, the refusal of the

²⁵ This movement disappeared well before the war. But the French AS&W is somehow its reconstruction after the war.

abuses of science, scientific trade unionism, the Marxist history of science, the public understanding of science... Other commitments were more in line with common features of intellectuals: pacifism, antifascism, relief for refugees, and fascination for the USSR. But the rebounds from one field to another were permanent. And for the scientists, their belief that science (and themselves) was naturally international.

Franco-British Partnerships

Many partnerships existed between British and French organizations in the late 1930s. Among them, the Cambridge Scientists Anti War Group with the Comité de Vigilance des Intellectuels Antifascistes (CVIA) and the Comité Mondial contre le Fascisme et la Guerre; the Society for the Protection of Science and Learning and the Comité d'Accueil et d'Organisation du Travail des Savants étrangers; the Association of Scientific Workers (AScW)²⁶ and Jeune Science.

British and French scientists frequently crossed the Channel for cross-participation in public meetings and conferences. In the autumn of 1937, most of the scientists involved in these networks participated to the International Scientific Congress which celebrated the inauguration of the Palais de la Découverte.

According to the Australian physicist E.H.S. Burhop, the idea to build an international organization for scientists against the war, and more generally, to defend science and its social function, came out these meetings in Paris during the years 1936 and 1937²⁷.

²⁶ The AScW was the main professional organization for British scientists. It was founded in 1918, with the name of National Union of Scientific Workers. Ten years later, it underwent a big crisis, changed its name to AScW, and de-registered as a trade union. In the mid-1930s, Bernal and his Cambridge friends took the lead in the AScW, which developed rapidly, fighting for the organization and the funding of science in the UK. The AScW joined the Trade Union Congress during the War, and claimed for 16 000 members in 1945. See Werskey (2007)

²⁷ Burhop, E.H.S, "Scientists and Public Affairs", in M. Goldsmith and A. MacKay, The Science of Science (London: Souvenir Press, 1964), 34. "I recall particularly one such meeting when some British scientists, from Cambridge and London, went urgently to Paris to meet Langevin, Frédéric and Irène Joliot-Curie and other French scientists to discuss these matters. In these discussions, the idea germinated of an international

In May 1940, in Paris and London, an Anglo-French Society of Sciences was established to strengthen the common involvement against the Nazis. It disappeared after the French defeat, but was reconstituted in September 1944, soon after the liberation of Paris, when Joliot travelled to London. The Society was co-presided by Dirac and Joliot, with Crowther and Auger acting as co-secretaries. It benefited from the presence of the French Scientific Mission in London in 1944-45²⁸ and had the support of the Society for Visiting Scientists. The links were so strong that Joliot was talking in 1946 of a "Franco-British Science".²⁹ After 1945, the co-operation developed through more classical channels, and through the WFScW and UNESCO.

The SRS Movement in London during World War II

The international function of science and the participation of progressive scientists in the war efforts of the Allied Governments came definitely into focus during World War II. As early as September 1941, the BAAS Division organized a conference in London on "Science and World Order". Twenty two countries were represented. Needham, Huxley, Haldane, Hogben were present. Three more conferences took place in 1942 and 1943. The AS^W organized its own international conferences such as: "the Planning of Science in War and Peace" (January 1943); "Science for Peace" (February 1945), which called upon the Allied Countries to establish an international scientific co-operation.

Between 1943 and 1945 various inter-governmental allied conferences discussed the place of science within the foreseen UN system. The Conference of the Allied Ministries of Education,

Commentaire [DR7] : What was this, when was it formed.

organization of scientists to press for the proper organization of science to constructive ends and against obscurantist and Fascist trends". Burhop presided over the WFScW after Joliot.

²⁸ Dozens of French scientists worked in British laboratories and administrations to catch again the time lost during the Nazi occupation

²⁹ Joliot-Curie, F, "La Science franco-britannique et la guerre", *Dialogues* 1 (juillet 1946) 29-33

prepared UNESCO. After the bombing of Hiroshima in August 1945, science became a major issue for international relations.

It is not surprising that organizing international science for a better world after the victory against Nazis attracted many progressive scientists. In continuity with their wartime commitments, it allowed them to bring coherence to their social and political leanings on the one hand, and their conception of universal science on the other. For a short period, scientific optimism was dominant and everything looked possible.

Two projects

While in China (1942-1946), Needham circulated three memos, developing his conception of scientific co-operation after the war. Crowther was his main relay to the Allied scientific communities. Needham's proposals came from his balance of international scientific co-operation before the war, and in wartime. He discerned the governmental forms of co-operation from the non-governmental ones.³⁰ Typically, a governmental co-operation is ruled by a diplomatic convention, whether bilateral or multilateral, such as the International Bureau of Weights and Measures. The scientific unions, and their international council are generally considered as NGOs, but the reality is more complex. The governments might join the Unions, either directly or through their National Research Council. The ICSU was better characterized as a semi-governmental organization. In fact, there were a lot of hybrid forms of international co-operation.³¹ Needham noticed that the "national interests" have always been present in international co-operations, and that the dependence was important on

³⁰ Needham (1949), pp.6-16

³¹ See Elzinga, Aant, "Introduction: Modes of Internationalism", in Elzinga, A & Landstrom, C, Internationalism and Science (London: Taylor Graham, 1996), 3-20. Elzinga stands for a more rigid typology for the forms of scientific co-operation.

governmental funding. It became increasingly greater along with the progress of government control over large areas of science.

After the war, the WFScW and UNESCO expressed two attempts of new forms of scientific internationalism, the first being purely professional but mixing science and politics, the latter being intergovernmental. The WFScW failed to maintain itself as a pure NGO. Scientific NGOs proved to be more successful in the 1970s, for instance the British Society for Social Responsibility in Science.

Needham underlined that the government-based co-operations were obviously dominant in wartime, even if they were not the only modes of co-operation that remained after suspension of activities formerly promoted by the ICSU and the IIIC. The Sino-British Science Co-operation Office in Chungking and the British Commonwealth Scientific Office in Washington were the main examples held forth by Needham as being the most appropriate during wartime. He proposed "to combine the methods which have spontaneously grown up for assuring international scientific relations in time of peace, with those which the nations have had to work out under the stress of war".³²

While Needham was circulating his memos for an "International scientific co-operation service", Bernal and the AScW were attempting to build the WFScW. The 1943 AScW annual Council decided to establish the WFScW. The "Science for Peace" conference (February 1945) comforted the project. In March 1945, Bernal was charged to prepare an official document proposing a Federation, to circulate among world scientists to be discussed during the foreseen Moscow meeting.

Needham was present in London in December 1944, where he wrote his second memo. He participated in January 1945 in the council of the Anglo-French Society of Sciences. His friend Crowther represented the British Council in the Science Commission of the Conference

³² UNESCO (12 July 1946), 6

of Allied Ministers of Education (CAME) where the UNESCO project was being elaborated. Crowther was secretary of this commission, where he voiced Needham's proposals. In March 1945, then in Washington, Needham realized how advanced was the preparation of the new educational international agency, and proposed to fusion his international scientific service with this agency, which he named UNESCO for the first time.

The USSR refused to join both projects

Curiously, even if belonging to the same group of progressive scientists, Needham and Crowther on one hand, Bernal and the AScW on the other, did not seem to know much of their parallel projects. Joliot, who received a letter from Needham asking for help to convince the USSR,³³ never looked interested in the UNESCO project. Inside the progressive camp in 1945, different dynamics were already at work.

The USSR organized the first important gathering of scientists after the war, to commemorate the 220th anniversary of the Russian Academy of Sciences in June 1945. Bernal and Blackett were prohibited by the British Government from travelling to Moscow, but Needham, Joliot, Auger,³⁴ Peter Wooster (for the British AScW), Huxley,³⁵ Harlow Shapley (an Astronomer from the American AScW) were there with dozens of scientists. Wooster said that he only discovered Needham's projects in Moscow, which were de facto pursued on grounds similar to those advocated for the WFScW, and was surprised by their state of advancement. Needham, Joliot, Shapley, Auger had informal meetings with Russian scientists to try to convince them to participate in the international scientific agencies under construction. But they refused to join both projects:

³³ Needham to Joliot, 19 May 1945 (Needham Archives, D25)

³⁴ Auger succeeded Needham in May 1948 in heading the UNESCO Science Department

³⁵ Huxley would become the first Director General of UNESCO

- The WFScW looked premature, the British AScW being "singular", with no equivalent in other countries. Consequently, for them, such associations were to be built before establishing a Federation.

- The USSR refused to join UNESCO until 1954, arguing that the UN (United Nations) Social and Economic Council could deal with all scientific matters as well as UNESCO. Its interests were protected by the right of veto in the UN Security Council, but were not in the specialized agencies.

In fact, the USSR was afraid of the cosmopolitan Western ideas upon its own intellectuals. The regime was even suspicious of the Western communists with their foreseen WFScW. This double refusal was symptomatic of the nationalist and anti-Western turn of the Stalinist regime after the war. The commemoration of June 1945 was an exception. After the war co-operation, the cultural and scientific exchanges between the USSR and the West fell to nearly nothing, a situation similar to the immediate pre-war years.

In the West, the Royal Society and the American National Academy of Sciences were equally hostile to Needham's memos, and didn't see the necessity to include science in UNESCO. On behalf of the American Academy, Field and Cannon consulted the scientific community through an inquiry about what should be the nature of international scientific co-operation after the war. The enquiry took place in spring 1945, and the report published in September 1945.³⁶ The main proposal was to reinforce and develop the existing Scientific Unions and the ICSU.

Commentaire [DR8] : Who were they ?

³⁶ Walter B. Cannon & Richard M. Field, 'International relations in science. A review of their aims and methods in the past and in the future', *Chronica Botanica*, IX (4) (1945), 253-298. Cannon was a Harvard physiologist and Chairman of the Research Council Division of Foreign Relations. Field was a Princeton geologist and active member of the ICSU, also participating in its Committee for Science and its Social Relations. Both were members of the National Academy of Science.

Setting up UNESCO

An international conference to establish UNECO was convened by the British Government for November 1945 in London. About forty delegations participated in the conference. Three months before, Hiroshima was bombed, and despite the opinion of the majority of scientists, the "S" was introduced in UNESCO with the support of the American and British delegations. Needham's campaigns had finally won. The constitutive conference adopted a Charter to be ratified by governments before UNESCO official birth. It set up a Preparatory Commission to organize UNESCO and prepare a first General Conference for late 1946.

Julian Huxley became the first provisional Director General. In April 1946, he called Joseph Needham back from China to organize the Natural Sciences department. A sub-committee wrote the science program in June 1946, which the Preparatory Commission adopted in July 1946. The most immediate action was Needham's decision to establish an agreement between UNESCO and the ICSU, giving a strong financial and administrative support to the scientific unions.³⁷ A provisional agreement was adopted during the first ICSU post-war Assembly in July 1946. The final agreement was signed in December 1946, just after the first UNESCO General Conference.

The WFScW

Immediately after the Hiroshima bombing, nuclear weapons became a major public issue for science and politics. French and British physicists discussed the topics during a conference on Cosmic Rays organized by N Mott in Bristol (September 1945). Back in London, Blackett, Joliot and other physicists held a conference on "the social consequences of the atomic bomb", for the Society of Visiting Scientists. The atomic question was to overdetermine the character of international scientific co-operation for years.

³⁷ A previous agreement had been signed between the IIC and the ICSU in 1937. It was less ambitious, and had no time to be operational before the war.

Giving way for the WFScW

The AScW organized a new international conference in London, February 1946, "Science and the Welfare of Mankind" to discuss how science could be used in peace times to solve the major social problems of humankind. With over six hundred participants, it was a major success, even if the BAAS refused to participate. The Russians declined the invitation. Nuclear weapons were a major issue of this congress, with a report by Blackett. Joliot was unable to attend, and Bonet-Maury read Joliot's speech. UNESCO was represented by Julian Huxley, its new Director General.

Following the Russian refusal during the Moscow meeting, establishing the WFScW was not among the official items of the programme. But the success of the conference opened the road for an international Federation. Informal meetings took place with foreign delegates, and the AScW was mandated to convene a formal conference to establish the desired Federation.

Former resistance movements had constituted a French AScW after the war, which was to be the second pillar of the WFScW. It was not a Trade Union, but it defined itself as a "Science and Society" movement, co-operating with existing Trade Unions for teachers or engineers. The Russians were reluctant about the founding of an international trade union, and consequently, the coming Federation was defined as a "Science and Society" movement and not as an international Trade Union to be affiliated to the World Federation of Trade Unions, in order to leave the door opened to the Russians.

The establishment of the WFScW

The founding conference of the WFScW took place in London, July 1946. The same month, London welcomed many international gatherings of scientists: The Newton Tercentenary celebrations, organized by the Royal Society; the meeting of the UNESCO Preparatory

Commission, dedicated to the elaboration of its first programme; the British Commonwealth Scientific Conference; and finally, the first post-war General Assembly of the ICSU.

A dozen associations and six observers participated in the founding conference. Blackett, president of the AScW, delivered the inaugural speech, remembering the history of the project. Needham was the official UNESCO representative. He presented its main general objectives and the science programme. He proposed a co-operation agreement between UNESCO and the WFScW, similar with the ICSU's one. [Burgers represented ICSU through its "Committee for Science and its Social Relations". The most numerous associations were the British AScW, and an American Engineers Union. The Federation of American Scientists was present, as an observer, but finally refused to join the Federation. Among the participants were Leon Rosenfeld from the Netherlands, Homi Bhabha from India, Eric Burhop from Australia, etc

Commentaire [DR9] : Something is missing here.

Joliot was elected President, Bernal Vice-President, and Crowther Secretary-General. An American (Harlow Shapley) and a Russian (N N Semenov) were also both elected to the Executive Committee, in their absence. Harlow Shapley accepted on condition that his Russian colleague accepted. But the latter declined, and the Federation continued only with a British and French leadership.

A constitution defined the agenda of the Federation, whose aim was "to promote understanding and co-operative action between the member organizations", and included eight functions. The first was "to work for the fullest utilization of science in promoting peace and the welfare of mankind, and especially to ensure that science is applied to solve the urgent problems of the time". The second was to enter into co-operation with UNESCO: "to promote international co-operation in science and technology, in particular through close co-operation with UNESCO". One had to wait for the seventh function to meet professional problems: "to

improve the professional and social status of scientific workers". And the last one: "to encourage scientific workers to take an active part in public affairs".³⁸

Clearly, the Federation was principally turned towards the "social responsibility of scientists", and not a classical Trade Union. In that, it tried to shape a new form of scientific internationalism, where political struggles and science were intimately mixed. But the Cold War did not let it develop.]

Commentaire [DR10] : The references for this quotations are missing.

UNESCO and the WFScW in 1946

The issue of UNESCO's relations with the Federation was discussed throughout the founding conference. Among the delegates, many were close to Needham. Various participants underlined the similarities between the objectives of both bodies, and some were puzzled about the small space left by UNESCO to the Federation. In his address to the conference, Needham presented the first UNESCO science programme, and proposed that UNESCO should support the Federation through a formal agreement, similar to the one being negotiated with the ICSU. Later, he insisted on the complementary functions of UNESCO and WFScW, between an inter-governmental agency and a rank-and-file scientists movement, only more radical and freer.³⁹ For Needham, the ICSU and the WFScW were the operational bodies through which UNESCO would implement its projects, according to their respective characteristics.

It seems that Joliot and Crowther were more politically reluctant about close relations between the Federation and UNESCO, from the beginning. They feared a threat to the

³⁸ All quotations are from the booklet edited in 1947 by the WFScW to present its first meeting and its constitution.

³⁹ See Huxley's, Crowther's, and Bernal's quotations in David Horner, "The Cold War and the Politics of Scientific Internationalism: The Post-War formation and Development of the WFScW 1946-1956", in Elzinga (1996), 143-144

independence of the Federation⁴⁰ and expected mainly material and financial support from UNESCO. The question of locating the office of the Federation inside UNESCO House in Paris was discussed as early as the founding conference in July 1946.

The WFScW 1946-1951

One year after its foundation, the WFScW federated only 16 groups from 13 countries. Due to the lack of money and to the growing Cold War, the Federation barely survived the first two years. The first General Assembly was scheduled in Prague, September 1948. It had difficulties to bring together nine associations that the constitution required for the quorum of the General Assembly. American associations had left. British and French scientists accounted for 80% of the roughly 24 000 claimed members of the Federation.

It had organized commemorations for Langevin and Rutherford, in London and Paris, published and circulated the manifesto adopted in July 1946, worked for UNESCO, drafted a "Charter for Scientific Workers", and raised the problem of secrecy in science. Despite the important institutional and official recognition (largely due to the personality of its leaders), the Federation did not reach a critical mass of activities, and the Russians still refused to join it.

After the 1st General Assembly, the years 1948-1951 showed no improvement. The Wroclaw Congress (August 1948) had two long-term negative consequences: the pro-communist scientists became more isolated from their former friends of the popular fronts; the WFScW lost its independence and was actually transformed into the scientist branch of the World Peace Council, also headed by Joliot-Curie.

More, the Federation underwent a severe crisis in 1949 and 1950, arising from the split within the World Federation of Trade Unions (WFTU). Some Western associations left the WFScW.

⁴⁰ The ICSU was also very reluctant towards the risk of UNESCO willing to control the Unions.

The AScW had to choose between its affiliation to the Trade Union Congress and a project of agreement between the WFScW and the WFTU, where the former was defined as the scientific advisory body" of the latter. The AScW tried to promote a new, non-communist leadership,⁴¹ but failed. Joliot, Bernal, Crowther and Biquard, the four main leaders, kept their positions. The Federation had to renounce to sign the agreement with the WFTU, which was later publicly regretted by Joliot-Curie and some members.

The second General Assembly had to be postponed from 1950 to 1951. It was unable to meet in Paris. The visas were denied to Eastern delegates, and two meetings were held simultaneously in Paris and Prague.

During these hard times, the WFScW was forced to stay on defensive grounds: the defence of the scientists victim of the loyalty policies in the USA and in Western Europe; the defence of the academic liberties under dictatorships; and above all, the challenge of Lysenkoism. During summer 1948, Lysenkoism became the official doctrine in the USSR. The Marxist scientists were summoned to choose between modern genetics and their political commitment. Some supported Lysenko, some tried not to choose, many among the fellow travellers went aloof. The divisions were extreme among the progressive scientists, who got disillusioned by the USSR and by the socialist perspectives for science. Lysenkoism gave much help to the counter-attack of the ideological right against the left, which led to the victory of "coherent right-wing view of the role of science in society".⁴²

UNESCO

⁴¹ The AScW Council proposed (12 November 1950) Lord Boyd Orr for the presidency. It proposed also to remove Bernal and Crowther from their functions, and kept Biquard only as the representative of the Western European scientists.

⁴² Jones, Greta, Science, Politics, and the Cold War (London: Routledge, 1988), introduction. See also the chapter on Lysenkoism, 16-37

Once the programme definitely adopted by the General Conference, Needham tried to operate a multi-faced programme, with three main lines coming from the SRS movement: the periphery principle; the inclusion of the social aspects of science within the Department; and the inclusion of history of science.⁴³ A further dimension of Needham's agenda could be related to the social function of science: the importance given to the environmental problems, which became the core of UNESCO scientific programmes in the 1950s. The first attempt to establish an international laboratory was dedicated to the Amazonian Hylea in 1946, followed by the proposal of an Arid Zones Institute in 1947. A scientific conference was also held in October 1948 to establish the International Union for the Protection of Nature, after Needham's departure from UNESCO in April 1948.

Commentaire [DR11] : That is four lines.

The "Periphery Principle"

The periphery principle deeply marked the first initiatives. This is evident in:

- The constitution of Field Scientific Co-operation Offices in Latin America, Egypt and China in 1947, in India in 1948. These offices were to support local scientists and to promote scientific research in these regions.
- The proposal of international laboratories, such as a Computing Centre in Asia, and the Amazon Institute in Brazil. Due to the political context in Brazil, the latter one hardly started in 1948, and subsequently closed down. Needham proposed Asia to locate the Computing Centre, as compensation for the destruction of the Japanese synchrotron by the United States Air Forces at the end of the war. But after Needham's departure, UNESCO decided to locate this centre in Europe.

⁴³ I developed various aspects of the history of the Natural Sciences Department in: Petitjean, P., Zharov, V., Glaser, G., Richardson, J., de Padirac, B. and Archibald, G. (eds), *Sixty Years of Sciences at Unesco, 1945-2005*, (Paris: UNESCO, 2006) 29-92. In the ORSTOM commemorative conference (Paris, UNESCO, 1994) Aant Elzinga presented a influential analysis "UNESCO and the Politics of international co-operation in the realm of science", which was later published in Petitjean, P. *Les Sciences coloniales – figures et institutions* (Paris: Orstom éditions, 1996), 163-202

- The organization of regional scientific conferences, the first one was held in Montevideo, in September 1948.⁴⁴

No science without its social aspects

The social aspects of science were dealt with by a special section in the Science Department, headed by Borg Michelsen. It was concerned with many activities:

- Panels dealing with the social aspects of science, October 1947. They were followed by two organized discussions about "Food and Mankind", and "Energy in the Service of Man". Books for the general public and scientific papers were published, on the same subjects. Another book was published on "Science and Freedom".
- Impact (1950), a journal dedicated to science and society. Initially, it was supposed to publish papers on the impact of science upon society, but also on the impact of society upon science.⁴⁵ But the papers about the social issues of science disappeared rapidly. In the 1960s, it was reduced to publishing articles on the one-way impact of science on society.
- Popularization of science was another important field of action for UNESCO, with the worldwide circulation of scientific exhibitions, books, guides, exchanges of know-how and practices, etc.
- Finally UNESCO attempted to co-ordinate worldwide the Associations for the Advancement of Science. A first meeting took place in Paris, September 1950, with 14 associations.

No science without history of science

⁴⁴ After Needham, some initiatives continued in the 1950s, as the committees to develop scientific research on Arid Zones or Humid Tropics, the Advisory Committee with the directors of the National Bodies for Scientific Research, dedicated to support the organization of science in non-European countries, etc.

⁴⁵ Impact n°1 included a critical bibliography of the books dedicated to the effects of science upon society. The reviews were supposed to answer 6 questions about this subject, one being "Which are the social or individual factors that definitely shape the scientific progress?" Among the 101 reviewed books, many were from left-sided authors, Bemal's Social Function of Science being credited as "the most complete study" on the subject. This bibliography is anonymous, but frequently attributed to Samuel Lilley.

The part played by Needham and UNESCO in History of Science was fundamental. The first proposal, submitted in July 1946, was for an International Institute for the History of Science, which was revised in December 1946, into one for the establishment of an International Union for the History of Science, besides the existing International Academy for the History of Science. Such an International Union, affiliated to ICSU, opened the possibility of obtaining financial support from UNESCO.

Armando Cortesao was contracted by UNESCO to build the Union in October 1946, and a History of Science section was created in the Natural Sciences Department. Armando Cortesao was an historian of cartography.⁴⁶ The official birth of the Union took place during the 5th ICHS (International Congress of History of Science), the first after the War, in Lausanne, in October 1947.⁴⁷

Later, Armando Cortesao moved to head another UNESCO's project, the Scientific and Cultural History of Mankind. He was replaced by Jean Pelseneer,⁴⁸ who took the responsibility to publish the Academy new journal, Archives Internationales d'Histoire des Sciences, a successor to Archeion. |

Commentaire [DR12] : Perhaps we could hear something more about Cortesao and Pelseneer to get the context right. What was their relationship with Needham and how were they identified ; did they belong to the scientific fronts and A&Ws.

For Needham and Cortesao, the history of science had an important social function. It could bring into light that "there are few peoples and nations without any contribution, whether reduced or important, to the scientific patrimony of humankind". In opposition to narrow

⁴⁶ Armando Cortesao had to leave Portugal in October 1933, facing threats from the military regime. He was exiled in London from 1935 to 1946, where he had grants from the Society for the Protection of Science and Learning. He worked with Charles Singer. He occasionally participated to the International Academy before the war, but he was elected as a member only in 1947, together with Joseph Needham. They both shared the privilege to have escaped from the preliminary stage of "correspondent". He followed Needham in imposing to the "fossilized" Academy a more democratic functioning, and "fresh blood" such as Samuel Lilley and Leon Rosenfeld. But he did seem to have shared Needham's Marxist ideas.

⁴⁷ Armando Cortesao 'L'UNESCO, sa tâche et son but concernant les sciences et leur développement historique', Actes du Ve Congrès International d'Histoire des Sciences (Lausanne, 1947) 25-35

⁴⁸ Jean Pelseneer was a physicist-turned-historian who led the Belgian group of historians of science for many years since the 1930s. He was a front-row Academy member from the mid-1930s. He is not known to have been left-minded. In 1950, he left UNESCO for a University Professorship for "History of Thought". In the 1950s, he shared the dominant anti-Marxist ideology of most historians of science.

nationalism, the history of science had the possibility to contribute to the UNESCO function, international understanding.

Moreover, the history of science was an irreplaceable tool for understanding the social aspects of science, both ways. Therefore, the International Union established, right at the start, a special commission on "history of the social relations of science", headed by Leon Rosenfeld and Samuel Lilley, both Marxists and friends of Needham.⁴⁹ UNESCO entrusted the commission with the redaction of a report on the "social aspects of history of science", for which Samuel Lilley was the main drafter.⁵⁰ [The central thesis was that the contexts, whether economic, social, political, or cultural may impede or facilitate scientific progress, but without altering its direction. This was not a very strong "externalism". The commission ceased to exist after 2 or 3 years, due to the situation of the history of science in the 1950s.⁵¹

Commentaire [DR13] : A synonym required to replace redactor

Related to Needham's interest in the history of science, was the project dedicated to producing a "Scientific and Cultural History of Mankind". This project had 3 initiators: Joseph Needham, Julian Huxley and Lucien Febvre. It was initially included in the Science Department programme (1947-48).

The aim was to highlight the part played by science and technology in the history of civilizations, to bring into the foreground the mutual dependency of all civilizations, the

⁴⁹ Bernal, Farrington, Childe and Crowther were also members of this commission. Rosenfeld, a physicist, had already published some papers in history of science before the war, including in *Archeion*. He was elected an Academy correspondent after the war. Samuel Lilley was Needham's assistant in Cambridge in developing a history of science program at the Museum of Natural Science Instruments. When Needham was in China, the conservative historians seized power in the Cambridge History of Science Committee, and Lilley was denied any position in Cambridge. He had responsibilities in the British Society for History of Science, but he was unsuccessful to be elected to the International Academy. See Anna-K Mayer, 'Setting up a Discipline II: British History of Science and the 'end of ideology', 1931-1948', *Studies in History and Philosophy of Science* **35** (2004) 41-72

⁵⁰ The report was published: Samuel Lilley 'Social Aspects of the History of Science', *Archives Internationales d'Histoire des Sciences* **2** (1949) 376-443

⁵¹ See Anna-K Mayer (2004). In this paper, Lilley defended a more balanced position than the one Steven Shapin attributed to him when reviewing the emergence of the term "externalism". Steven Shapin, 'Discipline and Bounding: The History and Sociology of Science as seen through the externalism-internalism debate', *History of Science* **xxx** (1992) 333-369. Obviously, UNESCO has boosted the Marxist line in the history of science for some years, but it ended with the conservative backlash.

permanent exchanges and borrowings between cultures, etc. During the gestation period, 1948 and 1949, a fascinating convergence existed between Needham and Febvre⁵² about the aims of the project, and therefore on the structure and the contents of the series of volumes. The agreement arose over a refusal of to produce a positivist, chronological and Eurocentric history, and proposed to write an history where all civilizations would be treated the same way, without setting Western civilization as the model and the final stage of a world civilization.⁵³

UNESCO and the WFScW

The relations between UNESCO and the WFScW were part of the partnership between UNESCO and Non Governmental Organizations, but it remained marginal among other activities of the Science Department, due to the weakness of the Federation and the strong American opposition..

The agreement between UNESCO and ICSU had been forged in July 1946, accepted by ICSU, voted by UNESCO in its General Conference of Paris in November 1946, and finally signed in December 1946. It served as a model for preparing the agreement between UNESCO and the WFScW.

The latter text was ready to be signed by January 1947, but it was vetoed by the American State Department. Nevertheless, Needham had started to apply it, by giving the WFScW an address and an office in UNESCO House. For six months, Joliot, Bernal and Needham had to campaign to convince the majority of the UNESCO Executive Council to accept the

⁵² See the verbatim of the drafting committee, with Needham and Febvre (UNESCO/PHS/DC1/SR1-10, December 1949) and the final report (UNESCO/PHS/Conf.6/1, 24 January 1950) in UNESCO Archives (SCHM23, 2.633(1))

⁵³ This orientation encountered a strong opposition from many traditional historians of science and right-sided governments. When the fifth UNESCO General Conference (Florence, Italy, June 1950) finally decided to undertake the publication of this History, an International Commission was established with a new group of scholars. They completely transformed the project into a more traditional history. The volumes were published only in the 1960s.

agreement. Needham had to retract his first proposal. Official meetings took place between WFScW, the Science Department and the American Delegation. Pierre Auger, the French representative, and Paulo Carneiro, the Brazilian representative, were the main supporters of the proposal. But the State Department did not depart from its hostility to the WFScW. In opposition to the American representative, a second agreement was adopted by the Executive Council in July 1947, giving the WFScW an "observer status", and not full partnership. This meant that the WFScW received much less financial support than had been expected. It was not associated with the preparation of UNESCO's official documents, but only invited to participate in some meetings.

With this agreement, the WFScW participated in the panels on the social aspects of science in Paris and New York in October 1947, in expert meetings, and General Conferences. Crowther represented the WFScW at the Second Conference in Mexico in November 1947. Inversely, Frank Malina, from the Science Department, represented UNESCO at the first General Assembly of the Federation in Prague in September 1948. Needham was excluded from the official British delegation, but represented the WFScW at the Third Conference held in Beirut in December 1948.⁵⁴ Bonet-Maury was the delegate for the Fourth Conference (Paris, September 1949).

Another failed attempt of co-operation between UNESCO and the WFScW happened in 1948, when Burgers (CSSR-ICSU) and Michelsen (UNESCO, Natural Sciences Department) conceived the project of a journal on the social relations of science, supported by UNESCO and the ICSU. The editorial committee was also to contain representatives of the WFScW and of the Lilley-Rosenfeld commission. Such a journal would have associated the four bodies which have inherited from the SRS movement, both the alliances and the social concerns.

⁵⁴ While in Beirut, Needham delivered one of his most influential conferences: Joseph Needham, 'l'Unité de la science et l'apport indispensable de l'Asie', *Archives Internationales d'Histoire des Sciences* 7 (Avril 1949).

But in summer 1948, Stratton and the ICSU council disagreed with this joint project. They feared UNESCO control and refused to cooperate with the WFScW. They also refused to support the Scientist Charter proposed by the WFScW. UNESCO published later its own journal on the subject, Impact.

The WFScW obtained support from UNESCO in the form of a 6-month mission awarded to Crowther in November 1947 by Needham to travel to North America. The official aim was to study the state of preparation of the UN Scientific Conference on the Conservation and the Utilization of resources, to be held in 1949. This conference originated in an American proposal, and was organized by the UN Social and Economic Council. UNESCO felt this conference as a bit of an intrusion into its own field of competence. Unofficially, Crowther's mission was designed to help the construction of the WFScW in North America. On the pretext of the mission, Crowther represented the WFScW at the Mexico Conference, discussed with the Social and Economic Council to try to obtain an observer status, and met the American ASW and other scientists associations in the United States. With this exception, the WFScW never obtained the expected support from UNESCO.

Finally, the WFScW was not represented at the Fifth Conference in Florence in June 1950.⁵⁵ The American delegation succeeded in suppressing the agreement between UNESCO and the WFScW. Even though the USSR joined UNESCO in 1954, a new agreement was only signed in 1965.

Conclusion

Both projects, UNESCO and the WFScW, were undertaken in a short interwar period. The scientists were important political protagonists in this period, even if some of them did not understand immediately this passage from an anti-fascist to a Cold War. Churchill's speech

⁵⁵ This conference has been a turning point for the US control over UNESCO.

about the "Iron Curtain" falling down upon Europe (Fulton, 5 March 1946) marked the symbolic beginning of the Cold War, and preceded the implementation of both projects. Neither UNESCO nor the WFScW managed to fulfil their initial ambitions to found a new scientific internationalism based upon a progressive social function of science, a liberal democratic idealism, and peaceful international relations, an utopia coming out the antifascist alliances.

In the field of the scientific and cultural international relations, the Wroclaw Congress (August 1948) and the UNESCO 5th General Conference (June 1950) were the two turning points for the breaking of popular front alliances, the deepening of the gap between the camps, and the isolation of procommunist intellectuals from the democratic left and pragmatic liberal ones, giving an open field to the right.

The Wroclaw Congress took place when the Cold War reached its peak: President Truman's containment doctrine (March 1947), the Cominform's establishment (September 1947), the Prague coup (February 1948), the beginning of the loyalty trials in the USA, the acceptance of the Marshall plan by Western European countries (April 1948), and the Berlin blockade (running from 23 June 1948).

At the Wroclaw Congress, the USSR initial aim was to establish an alternative to UNESCO. None the less, UNESCO Director-General, Huxley, went to the Congress, despite the US hostility, even with no official mandate. He left the Congress before the end, and refused to sign the final declaration. Fadeyev had denounced the main Western progressive intellectuals as "hyenas and jackals"⁵⁶, in a clear move towards the rupture. The Congress failed to maintain some relations between communist and progressive Western intellectuals.

Within UNESCO, the main supporters of the co-operation with the WFScW were

⁵⁶ Fadeyev's speech was endorsed by Bernal. See Bernal, JD, "Wroclaw and After", *Modern Quarterly* 4 n°1, (Winter 1948-49) 5-27

discouraged. Pierre Auger, a physicist and a socialist, head of the Natural Sciences Department in May 1948, who was a close friend of Crowther in the 1930s, stopped supporting the WFScW and accepted to break the agreement. Paulo Carneiro followed the same path. Neither UNESCO nor the WFScW managed to maintain political diversity.

After the Congress, the Cold War went harder, with the establishment of NATO (April 1949), the first Russian atomic bomb test (August 1949), the Stockholm Statement (18 March 1950), the Korean War (June 1950...)

In this context, the 5th UNESCO conference has been a turning point for the US control over UNESCO. The US delegation obtained favourable votes on key points: China's seat was given to the Kuomintang, and not to the Popular Republic; UNESCO supported the US intervention in Korea; UNESCO refused the proposal of Jaime Torres-Bodet (Director General) to convene an international conference of intellectuals from the Western and the Socialist blocks; the budget proposed by Torres-Bodet was reduced, which led to his resignation. Even if he accepted to come back to his position, he definitely resigned in 1952. This conference was also marked by the US proposal to establish a regional European laboratory for nuclear physics, far from the "periphery principle". After this conference, UNESCO was no longer a possible bridge between the blocks, a situation that it shared with the WFScW.⁵⁷

The same righteous backlash between 1948 and 1950 provoked the disappearance of the Lilley-Rosenfeld commission in the IUHS. Within ICSU, the CSSR encountered difficulties. It failed to conduct a survey among scientists about the funding of scientific research. Its last meeting was in 1950. The ICSU Council decided then to suppress the CSSR, arguing that the

⁵⁷ In that, I disagree with Horner when he wrote that the Federation provided "the only international forum for the discussion of political and professional issues between the scientists of Eastern Europe, the Soviet Union, China and those of Western Europe". Horner, "The Cold War and ..." p.146 in Elzinga (1996).

recently established International Council of Philosophy and Human Sciences has taken the subject among its aims. From 1937, Burgers had participated to the SRS movement and accompanied the creation of the WFScW. The suppression of his commission was highly illustrative of the changing times, as was the editorial line of a new journal, *History of Science*, where Rupert Hall published his critical article on Robert Merton to bury the "externalism".⁵⁸

Has the WFScW managed to be "a unique precedent for a specific mode of international science"⁵⁹ in its first years? Between 1946 and 1951, the WFScW had a very limited scope. It did not meet any support from the USSR, and was fought by the USA. The participation of Chinese Unions was mainly formal. It had collective adhesions from national bodies, but the militancy for the WFScW was due to the hegemony in it of a very small number of scientists. For the great majority of the Union members, the WFScW simply did not exist. It expressed the politics of Communist leading scientists in Western countries. In such conditions, it was very difficult to secure financial and material conditions to exist, a situation which became even worse when the links with UNESCO began to break.

Beyond the political divisions, the WFScW had its own internal problems on some key issues. Its wobbly situation between a Trade Union (the original project of the AScW) and a "science and society" movement, left the Federation with a fuzzy image and permanent oscillations. In fact, its identity was mainly given by the image of its leaders. It changed in the mid-1950s. Another problem was the atomic bomb issue, where the AScW and Joliot-Curie initially reacted differently to the Baruch plan.⁶⁰ Einstein and other scientists promoted the

⁵⁸ A Rupert Hall, 'Merton Revisited or Science and Society in the Seventeenth Century', *History of Science* 2 (1963) 1-16

⁵⁹ Horner, "The Cold War and..." p.132, in Elzinga (1996)

⁶⁰ Jones (1988), 38-48 and 79-95

internationalisation of atomic energy, including atomic weapons to be transferred to the UN Security Council, and defended the idea of a World Government. They were denounced as agents of the US war efforts.

After the Soviet atomic test (1949), the WFScW joined the political campaign for the interdiction of all atomic weapons (the Stockholm Statement) launched by the World Peace Council and Joliot-Curie. This political approach of the disarmament had later to be completed by a more scientific one, taking into account the effects of the atomic tests and of a nuclear war.

But still in the mid-1950s, the partisan, pro-Soviet, image of the WFScW prevented it from organizing the peace scientific conference that it decided in 1951. The WFScW was not a forum for scientists from both blocks. Another frame had to be built later, through the Einstein-Russell appeal and the Pugwash conferences, in which scientists from the WFScW played a major, but discreet, part.

Even if the WFScW pretended to have the "broadest possible base of affiliated membership", the reality was different. It tried unsuccessfully to resolve the contradiction between the will to promote a sharp demarcation between science based on socialist and capitalist principles, while holding its doors open for the majority of the scientists.

The situation and the role of the WFScW changed when the Russians finally decided to join the Federation in 1952, together with the Polish and the Hungarians, but that is another history.

Before the mid-1950s, the WFScW never had the opportunity to experiment with a new mode of scientific internationalism, and never actually influenced UNESCO.

We have seen that, for a short period of time, UNESCO profited by the antifascist impulse. It profited also by its hybrid nature, both intergovernmental and intellectual. It has been an open

room for progressive initiatives for scientific co-operation.⁶¹ This ended by the 5th Conference, even if the same impulse could also be found in the Race Statement some years after.⁶²

Such an open room was also possible because, in fact, UNESCO itself never managed to be central for scientific co-operation for many years. Since its establishment, nuclear physics had been excluded: The UN created a special commission under the authority of the Security Council. Further, the Cold War transformed science into a central issue for some political battles, and provoked in the 1950s a kind of re-nationalization of some scientific sectors, with the formation of scientific-industrial and military complex_s in the West as in the East. In both blocks, the planning of science accompanied this growing state control, and consequently disappeared as a major ideological issue.

Commentaire [DR14] : Where do the terms on quotation marks come from ?

Physics, biology, chemistry, and scientists themselves, were part of national welfare, with secrecy and state control over exchanges. Only other sciences, when of lesser strategic importance, could be left to such an international organization as UNESCO, and to left-leaning scientists.

Commentaire [DR15] : A great deal has already been published on the Nation state and the Cold War, could we have some references here.

Furthermore, after Needham's departure, the "periphery principle" was easily incorporated in the "Technical Assistance"⁶³ programmes. Support for science was reduced to de-politicized, instrumental, support to economical development, the social aims (the welfare of mankind) forgotten, and less priority given to the basic sciences in the developing countries.

But UNESCO inaugurated some directions, which proved to be important for progressive groups or scientists outside UNESCO, and which contributed to the identity of UNESCO: the place of environmental sciences (which are now fundamental), the leaning towards

⁶¹ Elzinga (1996), 89-131

⁶² Jones (1988), 59-78

⁶³ Point IV of Truman's inaugural speech in January 1949

developing countries as the priority commitment for scientific internationalism, the linkages of science with its social aspects as well as of science and history of science.

The space within UNESCO to build a "better world" with science rapidly disappeared, but the influence of the progressive scientists echoed for many years, and is recently rediscovered.

Biographical Note

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