

Science Diplomacy in history. From the Suez Canal to a Synchrotron in the Middle East

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In November 1855 the International Commission for the piercing of the isthmus of Suez docked in Alexandria. It was constituted by the major experts in naval and civil engineering and large-scale public works of France, the UK, Prussia, the Habsburg Empire, the Netherlands, Spain and the kingdom of Piedmont - the latter represented by the minister of Public Works of the Cavour Government, Pietro Paleocapa, one the most famous hydraulic engineers of the time, who had supervised the drainage and reclamation of the Venice lagoon and the Danube Delta and, as minister, had just initiated the construction of the Moncenisio tunnel through the Alps. When they landed in Alexandria, the "eminent scientists" - as the chronicles of the time report - who had to express "the scientific decision of Europe" were certainly aware of the importance and complexity of their task - that is, to assess the technical feasibility of the Canal, its possible course and the actual modalities of construction.

But probably they didn't know they were about to carry out what could be seen as the first modern experiment in multilateral techno-scientific diplomacy: a Pan-European project in the Ottoman Middle East, or rather in an Egypt whose Khedive was pursuing political autonomy from the Sublime Porte (and the Canal was functional to this objective); while in Europe - where the echoes of the revolution of 1848 were still resounding - the big Peace Congress of Paris was opening, with the aim to redefine both the European order and the "Eastern Question" after the Crimean war.

Incidentally - though not by chance - the Congress of Paris was also the first high-level international gathering that tackled the issue of the development of big infrastructures for Europe's growth (e.g. the Treaty of Paris provided for the establishment of an

international Commission for the regulation of navigation on the Danube river - the first example of international governance of a strategic trade route).

One could argue that techno-scientific diplomacy was politically "invented" at that very moment, that is, when the so called "first globalization" unfolded, opening up the belle époque of the transport and communication revolution; of booming world trade (of which Suez became the main arterial road); of the steamship, of railways bridges roads canals and Alpine tunnels; of the telegraph and submarine cables; of scientific invention applied to industrial development in pursuit of both welfare and warfare; of new techniques that would "shrink the planet" and would require new forms of international governance, affecting the practice and conduct of foreign policy and the role of expertise in international relations.

Thus started the long history of what has been called the "stormy marriage between science and government", both at the national and the international levels. Such marriage would require a new ideological frame, which will be provided for by scientific internationalism, one of the components of that 19th century ideology of progress, that would support the spread of global modernity as well as of colonial imperialism; that would encourage competition and rivalry among nations, as much as new forms of cooperation and regulation; that would foster Europe's primacy in world affairs as well as inter-societal and inter-cultural encounters and interactions, between North and South, East and West, in unprecedented ways.

However, during the Congress of Paris the Suez canal - a project particularly dear to the French and to the Austrian Chancellor Metternich - was never officially mentioned. The Quai d'Orsay had recommended to keep it "en dehors de la diplomatie", and Cavour was pleased that Paleocapa would deal with the Canal "as an engineer and not as a minister".

The piercing of the Canal was indeed a very sensitive political subject, given Britain's bitter hostility to it, firstly because in competition with British railways in course of construction in Egypt; secondly, because it would enhance French primacy in the

Mediterranean (that prime minister Palmerston feared might become "a French lake"); finally, and most importantly, because by giving political visibility to Egypt's Khedive the Canal could further foster nationalisms and endanger the political integrity of the Ottoman Empire, that after the Crimean war had just been readmitted in the concert of Europe as a bulwark against Russian expansionism, whose "containment" was one of Britain's geopolitical priorities at the time.

What high diplomacy was also facing was the emergence of new international actors beside the States: not only industrial firms, trade and shipping companies, but also international technical organizations - Non-Governmental Organizations as we would call them today (e.g. the Universal Postal Union (1874), the International Bureau of Weights and Measures (1875), or the World Meteorological Organization (1873) etc.), that is, rapidly-multiplying bodies in charge of the governance of global interdependence, and the resulting emergence of new transnational elites, knowledge-based networks, communities of experts - a 19th century transnational techno-scientific estate (a modern *Republique des savants*) representing a new public hand and a new politicization of technical and scientific functions.

These new "experts", precisely like those of the International Commission for the study of the Suez Canal, obviously pursued national / imperial "political" interests - Paleocapa himself, both as an engineer and as a minister, was very much aware that what he was pursuing was not only the construction of the Suez Canal, but the strategic insertion of the Kingdom of Piedmont in the Mediterranean game, at the very moment when Piedmont was taking the lead in Italian unification. At the same time these new elites embodied the new ideology of scientific universalism, not accidentally originated in post-Napoleonic war-torn Europe, and which from then on will provide the intellectual / rhetorical narrative at the root of science diplomacy, with its emphasis on the unifying/universal role of modern science and its capacity to overcome political boundaries and to promote exchange and trust-building, leading, ultimately, to peace. An ideology conceiving "men of science" as an epistemic community at the service of mankind, irrespectively of political affiliation and nationality...

We know that such beliefs - and their inner contradictions - were shattered by the experience of the two world wars, when science (and men of science) would lean to the service of warfare along political-military divisions - a "German" and an "Allied" science in the first world war one; a "Nazi" (even an "Aryan") and an "Allied" science in the second world war; a "Western" and a "Soviet" science during the Cold War.

The Cold war in particular opened up a new chapter in the long-lasting recurrent tension between national / imperial interests (though now differently defined) and international techno-scientific cooperation, according to new ideologies of progress (a Western and a Communist model) and new forms of rivalry within the West itself, between Europe and the US. At the same time, the proliferation of international organizations for scientific and technical cooperation and assistance- many under the new UN umbrella - changed the practice of diplomacy and expanded the influence of scientists (and engineers, agronomists, economists, medical experts etc...) in the management of global institutions, at the moment when nuclear physics was transforming the organization of scientific research and the sites of production of knowledge, calling for large research facilities, such as particle accelerators or nuclear reactors of various kinds.

However, even during the Cold War scientific intercourse continued to cross the iron curtain; while in Western Europe, which was recovering from a devastating war, had lost its techno-scientific primacy and was now "squeezed" between the two superpowers, new original experiments of organization of science were pursued, by rescuing precisely some features of the old 19th century scientific internationalism, but this time applied on a regional scale or in the framework of European integration. Cost was of course a powerful stimulus for postwar European cooperation, given the size of new research infrastructures, but there was more than just cost.

As it was in the case of the birth of CERN in Geneva, the first European big science project on particle physics, conceived - with fundamental American support - under the UNESCO umbrella and, as stated in the 1955 CERN annual Report, in order to promote "European scientific identity", on behalf of the "Europe of tomorrow".

Although not shared by the whole European scientific establishment of the time (e.g. Niels Bohr was against "big machines", and this is another controversial recurrent issue in science diplomacy...), CERN was a project of European scientific modernisation, which was presented and rhetorically constructed as an instrument of European unity (la "mascotte nucléaire" of European unity, as it was called at the time): as Werner Heisenberg declared, German participation in CERN was justified "for 80% by the construction of European unity".

Again, 19th century scientific universalism was redefined and applied on a regional scale through Euratom, a less fortunate (and much less supported by the US ...) though unjustly forgotten experiment of European integration in advanced technology and scientific research to be pursued through the development of Europe's nuclear industry and conceived as an industrial policy tool, a lever for Europe's industrial modernization. Euratom was the first and most relevant of the several (controversial and highly politicized) experiences in European collaboration in big science and advanced technology.

One might just mention here the aerospace industry, initiated by ESRO (European Space Research Organization) and ELDO (European Launcher Development Organization), both created in 1962 under the impulse of Edoardo Amaldi and Pierre Auger (also founders of CERN), and which evolved toward the creation of the European Space Agency in 1973. ESA was meant to make Europe a third force in the Cold War space race; to fill part of the gap with the US in the aerospace industry; and to push the European industry into the commercial satellite telecommunication era, the new revolution in communication - space as the new Suez canal of the the mid-20th century...

Or, last example, thermonuclear fusion. All research in nuclear fusion in Europe developed under the Euratom umbrella, initially through association agreements meant to develop national facilities (like the Italian center of Frascati), then it moved in the 1970s towards the European big machine, JET (Joint European Torus), built in England, that had just entered the Community, up to ITER, currently in construction in Cadarache and to which the European Union (with Switzerland) participates with other six partners

(Japan, China, Korea, the Russian federation, India and the United States). Apparently, ITER is going to be the world's largest tokamak, "three times as heavy as the Eiffel Tower", as the 2014 ITER Annual Report observes, confirming how the comparison with 19th century technological achievements is always intellectually stimulating.

Let me just make some concluding remarks picking up precisely the example of Euratom (a very interesting case from a historian's point of view).

Euratom was a project deeply embedded in the hopes and rhetoric of the European economic miracle of the 1950s, whose discourse revoked the positivist philosophy of growth of the late 19th century.

In a speech held in March 1959 at the Bologna Centre of the Johns Hopkins University, Hans Krekeler, member of the Euratom Commission, compared the Euratom treaty to the American Constitution: "In the final analysis the goal of our Community is the same, namely political integration to preserve freedom and our common heritage."

"Euratom's very name is significant -the first president of the Euratom's Commission Etienne Hirsch stated during a visit to Washington in 1959 - for it couples in a single word two of the revolutionary changes brought about in the 20th Century. The first is the new industrial revolution unleashed by the peaceful application of nuclear energy. The second is the economic and political revolution that is leading toward the unity of Europe."

Trust-building among ex war-enemies was one of the aims: "In our research centres - we read in the Euratom Annual Report for 1961 - [...] the nationals of our six countries are acquiring the habit of working together, of getting to know each other, of overcoming prejudices, and of appreciating and respecting each other's qualities".

I do not need to point out here how this language - even this rhetoric - recalls today's discourse surrounding the SESAME project, in a post-Cold War world and in a war-torn Middle East, where not by coincidence the arguments and hopes of 19th century scientific internationalism are resumed and tentatively applied, as in postwar Europe, on

a regional scale. As Herwig Schopper, director general of CERN in the 1980s and one of the fathers of Sesame, has recently written: "SESAME has already fulfilled one of its promises -it has shown that people from different countries with various traditions, conflicting political systems and diverse mentalities can peacefully work together."

Of course, as scholars we should keep some intellectual distance from the rhetoric of science. However, there is no doubt that today, as in the mid-19th century, that is, in a moment of redefinition of growth and material modernity; of globalization and increased inter-societal and inter-cultural exchange; of a post-Cold war redefinition of national and imperial interests, where even the doubling of the Suez Canal has just been achieved (and we may wonder who the Palmerstons or the Cavours of our time are or will be...), there is no doubt that new forms of governance and new architectures of diplomacy are required, and that scientific cooperation might - at least partly - contribute to the search for these new forms.

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