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## Unstable Bonds: CERN's relations with its peripheral member states, 1950s-1960s

Luca FORGIARINI

In the spring of 1954, the convention setting up the European Organisation for Nuclear Research, also known as CERN, came into force. CERN was the first intergovernmental scientific organisation created with the aim of building a large scientific instrument, as well as conduct and facilitate research with and by its various member states. Its initial membership counted twelve, mostly Western European states – Yugoslavia was the one exception. Over the seventy years of its existence, CERN has proven to be a remarkably durable institutional arrangement. Its member base has slowly increased from its initial twelve member states to now include twenty-three members. Today, it houses the largest scientific instrument in the world, the large hadron collider, and is widely considered as the flagship of European cooperation in science, if not of international cooperation in science *tout court*.

This paper investigates the history of CERN as a Europeanising factor. Owing to its uniqueness in the broader landscape of particle physics in Europe – the most powerful accelerators on the continent have been located at CERN since the inauguration of its Proton-Synchrotron in 1960 – CERN exerted a strong Europeanising effect on the development of physics in its member states. In the early Cold War period, it did so independently of the institutional arrangements of the budding European communities. In fact, the first contacts with the EEC came only in 1985, when the European Commission was granted observer status in the CERN Council.<sup>1</sup> The cooperation with the EC was officialised in 1994 through the signature of a ministerial agreement for cooperation between the EC and CERN, which granted CERN participation in the Framework programme, the EU's research funding instrument. In 2009, in the context of the strengthening of the European Research Area, a memorandum of understanding was signed which aligned CERN's research priorities with those of the Framework programmes.<sup>2</sup>

Today then, even if it is institutionally separate from the EU, CERN is firmly embedded within the wider research landscape of the European Union, whereas historically this was not the case. Nonetheless, CERN's place in European science has been an important one ever since its foundation. Owing in part to its place as the first intergovernmental European scientific organisation and to its highly politicised field of research – nuclear physics – CERN was not only hailed as the shining light of the power of science to unite different nations around a common goal, but also served as a model for other types of scientific cooperation. In fact, many of the European scientific organisations set up in the thirty or so years after the end of World War Two – European Southern Observatory (ESO), ESRO (European Space Research Organisation), EMBL (European Molecular Biology Laboratory), EPS (European Physical Society), to give some examples – were either inspired by CERN or owed their initiative to

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<sup>1</sup> CERN Archive [CERN], Council Collection [Council], CERN/1587/Draft, 'Draft Minutes', 30.09.1985, <https://cds.cern.ch/record/29998>.

<sup>2</sup> See <https://international-relations.web.cern.ch/stakeholder-relations/states/european-union>, accessed 22.11.2023.

some of the actors also involved in CERN, sometimes even both.<sup>3</sup> Furthermore, the intergovernmental character of the organisation made it an attractive organisation to be a member of. Many European countries saw it as a way of integrating into a distinctly European community. This was the case for Germany, as well as for Greece and Spain, as we will see below.<sup>4</sup> But perhaps the most striking example of this is the admission of Poland in 1991, and of Hungary and Czechoslovakia in 1992, long before they were finally integrated into the European Union.

Notwithstanding its historical lack of connections with the institutions of the European communities, CERN's early development profited from the same broad cultural-political trend that led to the creation of the Council of Europe, the European Movement, and the European Coal and Steel Community (ECSC). The European dimension is firmly anchored in the rationale for CERN creation. The idea was to help European countries rebuild their scientific capabilities and allow them to compete again with the United States in the field of nuclear physics – a field, that had, historically, developed mostly in Europe.<sup>5</sup> CERN was therefore an organisation in which scientific interests, as well as political and economic ones, combined with idealistic aspirations of a united and peaceful Europe. By serving European science, CERN would serve Europe as a whole. The European character of the organisation was really integral to its institutional identity, especially so in the first few years of its existence.<sup>6</sup> This dimension is, I think, crucial to understand both why many countries, and in particular those at the periphery of the organisation (such as Yugoslavia, Greece and Spain) were interested in becoming members of CERN, and why the negotiations between CERN and these peripheral member states evolved the way they did.

Politically speaking, scientific cooperation at CERN and other similar organisations that developed prior to the emergence of a common research policy by the European Communities can be said to have “challenged the EC-centric path toward European unity” carried forth by the EEC.<sup>7</sup> Indeed, the rationale for CERN was first and foremost to act as a scientific institution – albeit one that was acutely aware of its political significance – and its primary goal was to facilitate the development of European science largely independently from any economic incentives of growth. The type of European integration that CERN promoted is nicely captured in Katharina Cramer's notion of the “other Europe”, which “characterises collaborative Big Science projects as crucial, but largely overlooked political and scientific links between several countries.”<sup>8</sup> This other, CERN-centric Europe, also echoes the idea of “hidden integration” of Europe, developed by Thomas Misa and Johan Schot,

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<sup>3</sup> See for example A. BLAAUW, *ESO's early history: the European Southern Observatory from concept to reality*, ESO, München, 1991; J. KRIGE et al., *A History of the European Space Agency 1958-1987*, ESA, Noordwijk, 2000; J. KRIGE, *The Birth of EMBO and the Difficult Road to EMBL*, in: *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, (2002), pp.547- 564; R. LALLI, *Crafting Europe from CERN to Dubna: Physics as diplomacy in the foundation of the European Physical Society*, in: *Centaurus*, 1(2021), pp.103- 131.

<sup>4</sup> See A. HERMANN, *Germany's part in the setting-up of CERN*, in: A. HERMANN et al., *History of CERN: Volume 1*, North-Holland, Amsterdam, 1987, pp.383-430.

<sup>5</sup> R.H. STUEWER, *The Age of Innocence*, Oxford University Press, Oxford 2018.

<sup>6</sup> K. MOBACH, U. FELT, *On the Entanglement of Science and Europe at CERN: The Temporal Dynamics of a Coproductive Relationship*, in: *Science as Culture*, 2022, pp.1- 26.

<sup>7</sup> V. MITZNER, *European Union Research Policy: Contested Origins*, Palgrave Macmillan, Cham, 2020, p. 4.

<sup>8</sup> K.C. CRAMER, *A Political History of Big Science: The Other Europe*, Palgrave Macmillan, Cham, 2020.

that conceptualises transnational technological infrastructure and the circulation of knowledge as integrating factors.<sup>9</sup>

The political dimension constitutes one important aspect in which CERN can be understood as a Europeanising factor. The other dimension is of course the scientific one. The type of science being done at CERN, i.e., work with a large particle accelerator, required the use of specific practices and instruments, as well as specialist knowledge. These practical demands effected a certain standardisation of the particle physics field across the membership of the organisation, and in this sense helped to europeanise it. To accurately capture the two-dimensional character of the Europeanising effect of CERN in the Cold War period, I propose to conceptualise Europeanisation in the sense used by von Hirschhausen and Patel, that is as “a variety of political, social, economic and cultural processes that promote (or modify) a sustainable strengthening of intra-European connections and similarities through acts of emulation, exchange and entanglement and that have been experienced and labelled as 'European' in the course of history”.<sup>10</sup>

This paper will investigate CERN as a Europeanising factor along political-scientific dichotomy explained above – which it may be added can roughly be mapped onto the distinction between Europeanisation through and in science, respectively – and in particular the role that a number of peripheral member states played in the organisation in the 1950s and 1960s. The states in question are Greece, Yugoslavia and Spain. All three shared a number of characteristics: they were politically removed from the Western European core of the organisation, and, owing to their very limited scientific capabilities in the field of particle physics and their weak economies, they contributed little scientifically and financially to the organisation as a whole. In the 1950s and 1960s, their membership in CERN was unstable and their commitment to the organisation was neither obvious nor unwavering. By diving into the archival material from both the CERN Council and the CERN Directorate, this article explores the relations of the organisation with these three countries and shows how CERN’s Europeanising role was shaped by its interactions with these unstable memberships.

In doing so, my contribution will offer a Eurocentric view of an institution whose history has hitherto been analysed mostly through the lens of the geopolitical context of the Cold War. John Krige’s work on the role and influence of the United States on the reconstruction of European science in the wake of World War Two is an indispensable reference in this context.<sup>11</sup> But while the questions of American influence are undoubtedly important in the history of CERN, and the wider history of European integration, they operate here only in the background as part of the larger context against which this history pitted. When it has been treated with a European outlook, the history of CERN has been sketched both in very broad lines and in intricate detail, but always with a focus on the role of the largest members of

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<sup>9</sup> T.J. MISA, J. SCHOT, *Introduction: Inventing Europe: Technology and the hidden integration of Europe*, in: *History and technology*, 1(2005), pp.1- 19.

<sup>10</sup> U. v. HIRSCHHAUSEN, K.K. PATEL, *Europeanization in history: An introduction*, in: M. CONWAY, K.K. PATEL (eds.), *Europeanization in the Twentieth Century*, Palgrave MacMillan, New York, 2010, pp.1- 18, here p.2. The omission of the emphasis of the EU in Europeanisation is intentional here.

<sup>11</sup> J. KRIGE, *American hegemony and the postwar reconstruction of science in Europe*, MIT Press, Cambridge, 2006.

CERN, France, the UK, Germany, and Italy.<sup>12</sup> With its focus on the detail of the negotiations with the periphery of the organisation, this paper widens the perspective available on the history and influence of this organisation to be more representative of the plurality of its membership. It also, importantly, shows that Europeanisation is a process that not only emanates from the Western-European core of Europe but is fashioned in the interaction with the periphery.

### The structure of CERN

Before we dive into the depths of the negotiation processes between CERN and its member states, it is useful to briefly delineate how CERN functions as an organisation. This will help clarify who or what I mean when I speak of the organisation as a whole and allow the reader to situate the discussions in the following sections. CERN is essentially governed by two distinct bodies, the Council on the one hand, and the Directorate on the other.<sup>13</sup> One can respectively think of them as the legislative and executive arms of the organisation. The Directorate consists of the Director-General, who is appointed by the Council, and their supportive staff. The Director-General is responsible for running the laboratory. This includes everything from suggesting the line of research to follow to managing the budget required to hiring the staff to communication with the member states. Every major decision made by the Director-General is then presented to the Council which votes on the decision, usually by simple majority. The Council is thus effectively the highest authority and determines the policy of the organisation. It is constituted by the delegations of the different member states. Each delegation has two representatives, usually one scientist and one administrator or diplomat. Since the Council usually only meets twice a year, it is supported by three committees that meet on a more regular basis and help with the preparations of the issues to be presented to the Council. These are the Committee of Council (CC), the Finance Committee (FC) and the Science Policy Committee (SPC). Of these three, the CC is the most important for our purposes, not only from the nature of the archival material accessed, but also because it acts a sort of secretariat to the Council. It is composed by the President and two Vice-Presidents of the Council, the chairmen of the FC and of the SPC, respectively, and three additional Council delegates chosen to maintain a balance in the representation of the different member states. The Director-General is also always present at the meetings of the CC, sometimes supported by members of the senior staff. The CC determines the issues to be presented to the Council, which more often than not simply approves the course of action already determined by the CC.

An important aspect of the organisation of CERN in the period under scrutiny in the remainder of this paper is the existence of what Dominique Pestre and John Krige have called the 'CERN lobby', a relatively stable group of Council delegates, whose allegiance to CERN, according to Pestre and Krige's analysis, was greater than their commitment to

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<sup>12</sup> The former has been done by M. KOHLRAUSCH, H. TRISCHLER, *Building Europe on expertise. Innovators, organizers, networkers*, Palgrave Macmillan, New York, 2014. The latter approach was taken in the excellent institutional history of CERN, co-written by John Krige. See A. HERMANN et al., op. cit.

<sup>13</sup> For a very detailed account of the organisation of CERN, see D. PESTRE, *The CERN system, its deliberative and executive arms and some global statistics on how it functioned*, in: A. HERMANN et al., *The History of CERN: Volume 2*, North Holland, Amsterdam, 1990, pp.341-415.

defending the interests of the national governments they supposedly represented.<sup>14</sup> Among this group were men like François de Rose, Jean Willems, Jan Bannier, Edoardo Amaldi, as well as Director-General Victor-Weisskopf, whom we will encounter in the following sections. Importantly, these men continuously held important positions in the various Council bodies, such as President and Vice-President of the Council, or chairmen of the FC or SPC, which meant that the CERN lobby was always well represented on the CC. The existence of this lobby and its important role in the organisation, as well as the relative absence of national science policy across the membership of the organisation in the 1950s and 1960s meant that CERN enjoyed relative autonomy vis-à-vis its member states, and for example facilitated the rapid increase in the financial requirements of the growing laboratory.<sup>15</sup>

### CERN membership considered

In this section, we will be exploring the considerations that went into the participation of Yugoslavia, Greece and Spain in CERN. Doing so will help more clearly define why I consider these three countries as the organisation's periphery and, importantly, really showcases CERN's political dimension. Their memberships, I argue, reflect a desire to integrate a European organisation and constitute a striking example of Europeanisation through science.

Yugoslavia's membership in CERN is perhaps the most surprising when considering the otherwise exclusively Western-European character of the organisation. One important factor why Yugoslavia was considered as a potential member of the organisation in the first place seems to have been the split with the Soviet Union in 1948.<sup>16</sup> As a result, Tito's regime turned toward the West in the hope of securing some economic support to modernise Yugoslavia. The signature of the Balkan pact with Greece and Turkey provided Yugoslavia with a backdoor entry into NATO, which in turn led to an agreement with the US for military and economic support.<sup>17</sup> Economic support also came through agreements with France and the UK in 1951. This political rapprochement of the Western bloc – and non-alignment with the Eastern bloc – may well explain why Yugoslavia was the only communist country to be invited to participate in CERN. Not that other Eastern European states were not interested; in fact, a number of them approached CERN during the 50s.<sup>18</sup> Some of these, like Poland for

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<sup>14</sup> See J. KRIGE, D. PESTRE, *The how and why of the birth of CERN*, in: A. HERMANN et al., *History of CERN: Volume 1*, pp.523-545; and D. PESTRE, op. cit.

<sup>15</sup> See J. KRIGE, D. PESTRE, op. cit.

<sup>16</sup> Stalin had ostracised Tito's Yugoslavia for its own brand of Communism and rejection of Moscow's hegemony.

<sup>17</sup> I. BANAC, *Yugoslav Communism and the Yugoslav State*, in: N. NAIMARK et al. (eds.), *The Cambridge History of Communism: Volume 2: The Socialist Camp and World Power 1941–1960s*, Cambridge University Press, Cambridge, 2017, pp.570- 596.

<sup>18</sup> At the ninth session of the Committee of Council in December 1956, the DG informed the delegates of his contacts with Czechoslovakia and Poland. CERN, Council, CERN/0207, 'Minutes', 1956, <https://cds.cern.ch/record/29935>. As the plans for setting up CERN started to crystallise in late 1950, Pierre Auger, who was one of the main driving forces behind CERN at this time, chose to cooperate with the Centre Européen de la Culture (CEC). The CEC's geographical focus was exclusively Western European but also included Yugoslavia. See D. PESTRE, *The fusion of the initiatives, June-December 1950*, in: A. HERMANN et al., *The History of CERN: Volume 1*, op. cit., pp.97-122. This narrow geographical focus seems to be the reason why no Eastern European states were invited to the negotiation table. Had this been the case, however, it is doubtful whether the Soviet Union would have allowed any of its Eastern European allies to participate in a mostly

example, had significantly better scientific capabilities than Yugoslavia at the time. So, Yugoslavia's membership in CERN cannot be explained from the point of view of scientific benefit. Rather, political considerations seem to have played a more significant role – both for Yugoslavia and for the other countries involved in the organisation as well. Bruno Strasser has shown that Yugoslavia's and Greece's membership found strong support from the Swiss delegation. After Geneva had been chosen as the location of the future laboratory, Switzerland insisted that the membership of the organisation reflected its stance of political neutrality and include not only Western European states or NATO members but also Eastern- and Southern-European states.<sup>19</sup>

A similar rationale seems to have been at play in bringing Greece to CERN. Much like its northern neighbour, Greece was an obvious outlier in the group of foundational member states of CERN. Both economically and scientifically, Greece lay far behind the rest of the CERN membership. Politically though, Greece was far better anchored within the Western bloc than Yugoslavia, even if these developments were still recent in the early 1950s. After the end of the civil war in the late 1940s, Greece had for example obtained Marshall aid and also became a member of NATO in 1952. The pro-American (and US-backed) Greek government and monarchy pursued a policy of modernisation and rapprochement with the European community, especially under the government of Constantine Karamanlis (1955-1963). The development of nuclear physics in Greece can be understood in this context of modernisation and adherence to the Western bloc. In 1952, a commission analysed the possibility of establishing a Greek Atomic Energy Commission (GAEC), which was founded two years later. And in 1955, Greece became one of the first signatories of a bilateral agreement with the US for the exchange of nuclear technology and radioactive isotopes, in the context of the Atoms for Peace programme.<sup>20</sup> The signature of the CERN convention in June 1953 can thus be read into a general political context that was favourable to both modernisation and the integration within the Western bloc.

Spain's membership in CERN also has to be understood from the context of its particular geopolitical position in the wake of World War 2. During the war, the Spanish dictatorial regime led by General Franco had openly sided with Nazi Germany and the other Axis countries. This wartime alliance coupled to the fact that the Francoist regime did not change at the end of the war, left Spain effectively excluded from the international community after 1945. The so-called "Axis stigma" resulted first in a resolution by the UN General assembly that Spain not be admitted as a member of the UN as long as the Francoist regime remains

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Western European organisation. In the late 1940s and early 1950s, Eastern European countries had little autonomy in terms foreign policy, which was being dictated by Moscow. This is why they did not participate in the Marshall Plan, which was in principle open to all European countries, both West and East. See N. NAIMARK, *The Sovietization of Eastern Europe, 1944–1953*, in: M. P. LEFFLER and O. A. WESTAD, *The Cambridge History of the Cold War: Volume 1: Origins*, Cambridge University Press, Cambridge, 2010, 175-197. Additionally, CERN was a laboratory for nuclear science and before the 1955 Atoms for Peace conference in Geneva, the Soviet Union did not engage in any form of scientific cooperation at the international level. For this see D. HOLLOWAY, *Stalin and the Bomb: The Soviet Union and atomic energy, 1939-1965*, Yale University Press, New Haven, 1994.

<sup>19</sup> B.J. STRASSER, *The Coproduction of Neutral Science and Neutral State in Cold War Europe: Switzerland and International Scientific Cooperation, 1951-69*, in: *Osiris*, 1(2009), pp.165- 187.

<sup>20</sup> M. RENTETZI, "Reactor is Critical". *Introducing Nuclear research in post war Greece*, in: *Archives Internationales d'Histoire des Sciences*, 164(2010), pp.137- 154.

in power.<sup>21</sup> A similar resolution was passed by the Council of Europe in 1950, that also made Spain's membership in any European institution (political institution, that is, as we will see shortly, Spain became a member of CERN as of 1961) conditional upon the resignation of Franco's regime.<sup>22</sup> Spain was also one of the only Western European countries not to benefit from Marshall Aid (or membership in the OEEC), nor did it become a member of the North Atlantic Treaty in 1948.

Contrary to the other Axis powers, whose defeat in the war resulted in a regime change, the continuity of the Franco regime led to Spain being branded as a pariah on the international stage. Starting in the 1950s, however, Spain made considerable efforts at reintegrating the international community. In 1953, it signed a military agreement with the US. In 1957, a change of government set Spain on the path of ambitious economic policy reform. This new government of "technocratic modernizers" devised the "Stabilization and Liberalization Plan of 1959" and helped Spain integrate the International Monetary Fund and the World Bank in 1958, as well as the OEEC in 1959.<sup>23</sup> During the late 1950s, Spain also became increasingly interested in the EEC and the increasing economic benefits that a membership in the community seemed to offer. A first approach at cooperation was made in 1962, when Spain requested an associate membership agreement along the same lines as the one Greece had signed in 1961.<sup>24</sup> The Spanish application was badly received at the time, and it would not be until 1970 that relations with the EEC would become officialised in a Preferential Trade agreement.

Although Spain only joined CERN in 1961, it was interested in becoming a member since the very beginning of the organisation. The first approach was possibly made as early as 1952, shortly after the twelve founding states had decided to set up the temporary Conseil Européen de la Recherche Nucléaire (CERN).<sup>25</sup> This provisional organisation, known colloquially as the "interim CERN", was charged with developing a plan for a working international laboratory of fundamental nuclear physics. While nothing came of this first informal approach, Spain reiterated its interest in joining the organisation in late 1954, the year which marked the foundation of CERN and the beginning of the works on the laboratory.<sup>26</sup> CERN's response to the Spanish request at this stage was negative. Shortly after the foundation of CERN, the Council had decided not to accept any applications for membership until the end of 1956. Council documents indicate that many delegations were keen to first get the laboratory off the ground, the scientific work started, and actually give

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<sup>21</sup> I borrow the term "Axis stigma" from A. MORENO JUSTE, C. BLANCO SIO\_LOPEZ, *Spain and the European integration process, 1945–2010*, in: *Virtual Centre for Knowledge about Europe (CVCE)*, 8(2016), [https://www.cvce.eu/en/obj/spain\\_and\\_the\\_european\\_integration\\_processes-bf91b328-fbed-4a65-9a3b-eadc21a7e831.html](https://www.cvce.eu/en/obj/spain_and_the_european_integration_processes-bf91b328-fbed-4a65-9a3b-eadc21a7e831.html). For the UN General Assembly Resolution 39(I), see 'Relations of Members of the United Nations with Spain', 1947, <http://digitallibrary.un.org/record/209755>.

<sup>22</sup> C. POWELL, *The long road to Europe: Spain and the European Community, 1957-1986*, 2015, <https://repositori.uji.es/xmlui/handle/10234/174791>.

<sup>23</sup> *Ibid.*

<sup>24</sup> *Ibid.*

<sup>25</sup> CERN, Directors-General Collection [DG-Files], Box C0642, Folder 424, Amaldi to Dedijer, 09.12.1952. Amaldi mentions a possible application by Spain.

<sup>26</sup> In a 1955 letter, Dakin mentions 18th October 1954 as the date at which Spain submitted an informal request. CERN, DG-Files, Box C0857, Folder 593, Dakin to Verry, 04.01.1955. Verry was a member of the Finance Committee of CERN since 1953 and also regularly acted as an adviser to the British delegation at the Council sessions.

shape to the specific cooperation laid down in the convention.<sup>27</sup> But a letter by Director of Administration, Sam Dakin, to Harold Leslie Verry, British representative to the Finance Committee, suggests that the Council specifically wanted to avoid a Spanish application. Referring to the Council resolution, Dakin spoke of “[t]he Resolution which has obviously been drafted to keep Spain out of CERN for the moment.”<sup>28</sup>

After this second approach, there seems to not have been much active interest in a CERN participation until 1960, when the discussion with CERN became much more formal. Before we dive into this, it is worth observing that one can read the initial interest in CERN participation mostly from a lens of re-integrating the international community. The timing of the early 1950s corresponds for example with the military agreement Spain signed with the US, as well as its membership in UNESCO in 1953 and in the UN in 1955. However, by 1960, when Spain made its third approach to CERN, the political landscape of Europe had changed considerably. The ECSC had given way to the EEC in 1957 and European cooperation was showing signs of economic benefits to the participating six member states, so much so that other states became interested and made attempts at joining the community. As mentioned above, Spain was no different in its interest from benefitting from the European communities and made a (first) request for associate membership in 1962. It is therefore possible – if not even probable – that Spain’s membership in CERN and ESRO (European Space Research Organisation) were to serve as precursors to more ambitious modes of cooperation with Western European states – testing the waters, so to speak.<sup>29</sup>

Once started, the Spanish application process in 1960 was a relatively swift affair. On the Spanish side, everything was ready to initiate the process by February of that year.<sup>30</sup> At CERN, Director General, Cornelis Bakker, and President of the Council, François de Rose, asked the delegates to inquire with their national governments about the attitude to a Spanish membership. At the Council session in June, the member states had unanimously declared themselves favourable to a Spanish application process. The following months were devoted to finalising the terms under which Spain would participate in, but also the so-called “special contribution to capital expenditure”. The latter was a one-time contribution that new members were requested to pay in order to profit from the already existing infrastructure. At this stage, there seem to have been no reservations on the Spanish side about CERN’s way of calculating the national contributions on the basis of net national income, contrary to a couple of years prior when it had asked whether CERN handled the same 1000\$/capita bar as the UN and UNESCO.<sup>31</sup> With all doubts cast aside, the Spanish government submitted its official application for membership on 26<sup>th</sup> August.<sup>32</sup> Spain was

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<sup>27</sup> The decision was taken at the second session of the Council on 24th February 1955. All delegations save Yugoslavia voted in favour. See CERN, Council, CERN/0132/Rev., ‘Minutes’, 1955, <https://cds.cern.ch/record/25631>. The Council and Committee of Council minutes say little of who the main drivers and their intentions were in the passing of the resolution.

<sup>28</sup> CERN, DG-Files, C0857, Folder 593, Dakin to Verry, 25.03.1955. Even though Dakin’s language is highly suggestive, it contains no indication as to why this would have been the case. Lacking any further evidence, I can only attribute the desire to keep Spain out of CERN to the Axis stigma previously mentioned.

<sup>29</sup> The political value of joining ESRO is mentioned in J. M. DORADO et al., *Spain in Space. A short history of Spanish activity in the space sector*, ESA, Noordwijk, 2002.

<sup>30</sup> CERN, DG-Files, Box C0857, Folder 593, Otero to Bakker 22.02.1960.

<sup>31</sup> CERN, Council, CERN/0218, ‘Minutes’, 1957, <https://cds.cern.ch/record/29868>.

<sup>32</sup> CERN, DG-Files, Box C0857, Folder 593, Garcia de Llera to Adams, 26.08.1960.

finally admitted as a member of CERN at the December Council session of that year, when the Spanish delegate was asked to take his seat in the Council.

This brief exploration of the political considerations behind the memberships of Greece, Yugoslavia, and Spain serves to emphasise the political dimension of CERN. CERN both perceived itself and was perceived as a scientific and political entity. CERN, in this period, provided a particular model of European integration that was based on scientific cooperation and was therefore more open in principle to the admission of states that did not share the democratic political systems of the majority of the organisation. CERN's periphery therefore emerges first as a political periphery. Tito's Yugoslavia was the only communist member, and Franco's Spain was a dictatorship that had collaborated with the Axis powers during the war. The second aspect of the periphery is its lack of economic and scientific development at the time of accession to CERN. In this sense, the memberships of Yugoslavia, Greece, and Spain on the one hand added little to the overall scientific aims of CERN, and on the other hand membership also promised little scientific benefit to these countries. This latter fact also had repercussions on the cooperation between CERN and its member states as will be explored in the following section. To the periphery, membership in the organisation fit into a wider context of economic development and desire for modernisation that would be achieved through a strengthening of political ties in Europe, as is most visible in the case of Spain's attempts to join both CERN and ESRO. For the periphery, political reasons prevailed over scientific ones in considering membership at CERN, making 'scientific collaboration [...] an important tool for foreign policy'.<sup>33</sup>

Interestingly, we also saw that political considerations were at play in the organisation itself, as was the case with the membership of Greece and Yugoslavia, and with Spain's application request in 1954. In the latter case, the CERN Council and Directorate may have been afraid of the negative consequences of a Spanish application. This is an early example of CERN's continuous concern with its institutional identity (somewhere between political and scientific organisation) and organisational unity that will re-emerge in the negotiation processes between the organisation and the peripheral member states throughout the 1950s and 1960s, and which we will explore in the next section.

### CERN membership negotiated

The memberships of both Greece and Yugoslavia at CERN were strained before the organisation had even really begun. The convention establishing the organisation foresaw the budget contributions of member states in proportion to the average net national income taken over the last three years for which statistics were available. By this calculation Yugoslavia and Greece were supposed to pay 1,93% and 0,97%, respectively, of the entire CERN budget during the first few years. But already at the time of the signature of the

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<sup>33</sup> J. KRIGE, *The politics of European scientific collaboration*, in: D. PESTRE, J. KRIGE (eds.), *Companion to science in the twentieth century*, Routledge, London, 2003, pp.897-918, here p.900. I do not want to give the impression that only Greece, Yugoslavia, and Spain had political reasons for joining CERN. Since CERN is an organisation formed by different countries, all members can be said to have had political reasons for joining the organisation. Germany, in particular, was keen to participate in a European cooperative enterprise in the field of nuclear science. See A. HERMANN et al., op. cit. Contrary to most other states, however, the periphery had next to no scientific incentive to become part of a costly enterprise like CERN.

convention, both countries were not in a position to spend that kind of money on an international pure science research project. It was thus agreed at the 1953 conference during which the convention was signed that Yugoslavia's and Greece's contributions would be lowered to 0.65% until the end of 1956, while a number of other member states would come up for the difference in budget.<sup>34</sup>

In late 1956, as the period of reduced contribution fixed in 1953 came to an end, Greece and Yugoslavia submitted a first request to be granted "special circumstances" (under Art. VII.1 b) ii) of the convention) to allow for a reduced contribution.<sup>35</sup> The Council's response to the Yugoslav and Greek request was lukewarm at best. In the spring of 1957, at the eleventh session of the Committee of Council, a heated debate emerged between the Yugoslav delegate and professor of theoretical physics, Ivan Supek, and the other members of the Committee. Various members, including the President of the Council, Sir Ben Lockspeiser, the President of the Finance Committee, Jean Willems, and the German delegate, Alexander Hocker, were keen to remind Supek of the binding legal character of the CERN convention, while Supek was claiming that the basis for calculating the contributions laid down in the convention was unfair.<sup>36</sup> Overall, we see that the Council and Committee of Council were afraid to create a precedent by which any member state could claim special circumstances to reduce its own contribution. If enough countries were to resort to this clause, this could obviously threaten the very existence of the organisation. The President of the Council, Sir Ben Lockspeiser remarked that "[i]t was obvious that such special treatment could not be accorded to many countries, since the Organization had to finance a heavy construction programme."<sup>37</sup> Even though many delegates were in principle supportive of the Greek and Yugoslav situations during the Council and Committee of Council sessions, both requests were turned down at the Council session in December of 1957.<sup>38</sup> It seems like the governments of the other member states were not willing to shoulder the additional costs incurred by lowering the financial burden of any member as set out in the convention.

This left both countries in the awkward position of being unable to pay their contributions in full, which could lead to the loss of Council rights under Art. V.5 of the convention, and eventually exclusion from the organisation. Here we see both countries following different negotiation strategies. Yugoslavia proposed alternative institutional arrangements to alleviate its problematic situation. In a letter to the Director General, Cornelis Bakker, the Secretary to the Federal Nuclear Energy Commission of Yugoslavia, Slobodan Nakicenovic, suggested that if the special circumstance clause isn't granted, the Council could create an associate member status, which would allow Yugoslavia to remain a member at a reduced contribution rate but with reduced rights. Alternatively, the basis for calculating

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<sup>34</sup> CERN, Council, CERN/GEN/8, 'Convention for the establishment of a European organization for nuclear research: Paris, 1st July, 1953', 1953, <https://cds.cern.ch/record/480837>.

<sup>35</sup> CERN, Council, CERN/0208, 'Minutes', 1956, <https://cds.cern.ch/record/29914>.

<sup>36</sup> CERN, Council, CERN/0223, 'Minutes', 1957, <https://cds.cern.ch/record/29846>.

<sup>37</sup> CERN, Council, CERN/0234, 'Minutes', 1957, <https://cds.cern.ch/record/29804>, p.3.

<sup>38</sup> Denmark, Norway, and Switzerland voted for the reduction of contributions, while Belgium, France, Germany, Italy, the Netherlands, Sweden, and the United Kingdom voted against the request. CERN, Council, CERN/0260, 'Minutes', 1957, <https://cds.cern.ch/record/34521>. Note that voting behaviour on the Greek and Yugoslav request did not necessarily reflect the attitude taken by the delegates during the Council or Committee meetings. For example, the French delegate, François de Rose, and the Italian delegate, R. Ducci, expressed their sympathy notwithstanding the attitude of their government. See CERN/0223, op. cit.

contributions could be changed to take into account net income per capita instead of net national income, as specified in the convention.<sup>39</sup> Similarly to the response regarding special circumstances, the organisation was not in favour of the Yugoslav suggestions. Both the creation of an associate member status and changing the basis for calculating contributions would involve amending or even changing the convention, which was generally deemed undesirable as it would have meant another long negotiation process. Furthermore, the idea of granting Yugoslavia associate member status would have meant that Yugoslavia first withdraw from the organisation before it could rejoin as an associate member. However, article XII of the constitution prevented any member state to leave the organisation during the first seven years of the existence of CERN (until the completion of its construction programme). Unable to come to an agreement regarding the Yugoslav inability to pay its full contribution, the issue was slowly pushed forward over the course of 1958 and 1959, until at the end of 1959, Yugoslavia was far enough behind its payment to lose its vote on the Council. At its December 1959 session, the Council took note of the fact that at the next session in June 1960, Yugoslavia should not be able to vote.<sup>40</sup>

For Greece, the consequence of the decision taken at the ninth Council session was the same as for Yugoslavia. It increasingly fell behind its dues over the course of 1957, 1958, and 1959, thereby threatening its right to vote in the Council. Unlike Yugoslavia, who was stripped of its vote, the Council was candid towards Greece's situation. The main reason for this was the proposal made by the Greek delegation and accepted at the 12<sup>th</sup> session of the Council in December 1958.<sup>41</sup> The proposal made clear Greece's commitment to the organisation of CERN, and to its desire to pay its contribution in full. Acknowledging, however, that it currently could not do so, the proposal promised the payment of certain sums at specific intervals in accordance with the means of the Greek treasury. To the delegates of the Council and their respective governments, the Greek proposal signified "the special effort made by Greece, her recognition of her commitments towards the Organization" and warranted not stripping it of its vote in the Council.<sup>42</sup>

Overall, we see that despite its European aspiration, in the 1950s, CERN was an organisation very much concerned with its institutional identity and organisational unity. Both the resolution aimed to stop any potential application processes and the Council's reluctance to grant Greece and Yugoslavia a reduced contribution are facets of that same concern. Things would start to change in the early 1960s, however.

The 1960s were a period in which the organisation became more aware of the scientific and economic inequalities that existed between various members of the organisation. This change was due to two reasons mainly. The first was the completion of the "Big Machine", the large particle accelerator that CERN set out to build in 1954. The idea had been that the different member states could benefit from the infrastructure provided by CERN to carry out

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<sup>39</sup> CERN, Council, CERN/0290, 'Request by Yugoslavia to be Granted Associate Member Status', 14.11.1958, <https://cds.cern.ch/record/17652>.

<sup>40</sup> CERN, Council, CERN/0341/Draft, 'Draft Minutes', 05.02.1960, <https://cds.cern.ch/record/18115>.

<sup>41</sup> For the proposal see CERN, Council, CERN/0298, 'Greece's Financial Contribution to CERN', 14.11.1958, <https://cds.cern.ch/record/17648>. For the Council Minutes see CERN, Council, CERN, 'Minutes', 1958, <https://cds.cern.ch/record/17648>.

<sup>42</sup> CERN, Council, CERN/0314/Draft, 'Draft Minutes', 05.02.1960, <https://cds.cern.ch/record/18115>, p.45

experiments with their own national research teams. It soon became obvious that those countries that did not have a very developed domestic research landscape in the field of high-energy physics could hardly profit from this arrangement. This was indeed the case for Yugoslavia, as the Director-General, Victor Weisskopf had acknowledged in his February 1962 letter to the Yugoslav delegate, Supek, and it can also be read into the case of the Greek request for a reduced contribution of 1961 – although the Greek delegation had not officially brought up the issue in the Council by this time.<sup>43</sup> The other reason for this shift was the addition of two new members to the organisation, Austria in 1959 and Spain in 1961. Both of these also suffered similar concerns to Greece and Yugoslavia and their presence in the organisation gave more visibility and credence to the claims that Greece and Yugoslavia had already made in the late 1950s. We will come to see that the Spanish delegation, especially, repeatedly brought up the issue in the Council and Committee of Council sessions.

The first instance of this change in attitude can be seen in the spring of 1960, when Jan Bannier, the Dutch delegate and one of the “fathers of CERN”, led a detailed investigation into the Yugoslav claims regarding its financial difficulties. Bannier summarised the findings of his working group in a letter to the members of the Committee of Council in May 1960.<sup>44</sup> He stated that the claims made by the Yugoslav delegation regarding the unfavourable economic situation of its country were indeed credible and recommended that the Council grant Yugoslavia a reduced contribution rate under the special circumstances clause, as well as reinstate its right to vote in the Council. At its June session, the Council accepted Bannier’s proposal with only Germany abstaining from the vote.<sup>45</sup>

Bannier’s investigation and the subsequent Council decision are noteworthy because they created a precedent whereby the CERN Council became much more willing to accept an appeal to special circumstances again. In fact, it did so again in the spring of 1961. In a letter to Director General, Victor Weisskopf, the Greek government pleaded its case by giving a detailed account of its economic situation and putting its CERN contribution into perspective with its other expenditure on research.<sup>46</sup> At the following session of the Committee of the Council on 1<sup>st</sup> June, the members of the Committee agreed that the best path would be to examine the Greek claims in detail, similarly to Bannier’s investigation into the Yugoslav situation one year earlier.<sup>47</sup> In December of the same year, the Council agreed to reducing the Greek contribution for another three years.<sup>48</sup> The Greek delegation, and later the Spanish one too, would be granted special circumstances again a number of times throughout the 1960s.

Despite the slow process by which the Yugoslav and Greek requests for a reduction in contribution were finally granted in the Council – remember that the initial request had

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<sup>43</sup> CERN, DG-Files, CERN/7956, Weisskopf to Supek, 16.02.1962.

<sup>44</sup> CERN, Council, CERN/CC/0355, ‘The Position of Yugoslavia’, 17.05.1960, <https://cds.cern.ch/record/18175>.

<sup>45</sup> CERN, Council, CERN/0366/Draft, ‘Draft Minutes’, 08.12.1960, <https://cds.cern.ch/record/18440>.

<sup>46</sup> CERN, DG-Files, Box C0632, Folder 411, Letter CERN/8414, Spanides to Adams, 28.04.1961.

<sup>47</sup> CERN, Council, CERN/CC/0406/Draft, ‘Draft Minutes’, 26.10.1961, <https://cds.cern.ch/record/18699>.

<sup>48</sup> CERN, Council, CERN/0438/Draft, ‘Draft Minutes’, 11.06.1962, <https://cds.cern.ch/record/18936>. The minutes of the Council session refer to the adoption of CERN/0425. See CERN, Council, CERN/0425, ‘Contribution of Greece’, 24.11.1961, <https://cds.cern.ch/record/18747>.

been made in late 1956 – both the Council and the Directorate had overall been quite keen to keep both countries in the organisation. This was especially clear in the case of Yugoslavia. The main argument for this was the particular political character that Yugoslavia's participation gave to the organisation. CERN was after all one of the very few organisations of scientific cooperation whose membership extended across the East-West divide. When the issue of the Yugoslav contribution was first discussed in 1957, the French delegate, François de Rose, declared that it would be politically most undesirable if Yugoslavia left the organisation.<sup>49</sup> In 1960, Bannier, writing in a letter about his investigation into the Yugoslav situation, considered "the political side of the matter even more important than the financial. [...] It would be a very bad note for CERN if one of its members would withdraw. And if this member would be the country which is so precariously sitting between East and West, that would draw a lot of unpleasant attention to CERN."<sup>50</sup> Similarly, Victor Weisskopf referred to the "special international character" that Yugoslavia conferred upon CERN.<sup>51</sup>

Nonetheless, despite the political importance attached to Yugoslavia's membership, the latter decided to withdraw in the course of 1961.<sup>52</sup> Trying to preserve that special international character, Weisskopf travelled especially to Zagreb to discuss terms under which the Yugoslav government would be willing to stay on at the end of 1961. The visit was followed up with discussions at CERN that resulted in a proposal to make "Yugoslavia's membership in CERN more profitable."<sup>53</sup> In a letter from February 1962, Weisskopf reassured Supek, that CERN would send some of its physicists to Yugoslavia for regular visits, help with the set-up of high-energy physics research facilities in Yugoslavia, increase the cooperation with Yugoslav scientists, and hand out more industrial contracts to Yugoslav companies.<sup>54</sup> Unfortunately, these terms were not considered sufficient to the Yugoslav government, who had been more interested in the practical application of nuclear physics to military aims than the theoretical physics done at CERN.<sup>55</sup> And so, at the June 1962 Council session, Yugoslavia officially withdrew from CERN with retroactive effect (from 31<sup>st</sup> December 1961) and was granted observer status.<sup>56</sup> The only Central/Eastern European member state of CERN had left the organisation, leaving it as a thoroughly Western-European affair from now on. Despite this ultimate failure, the negotiations with Yugoslavia mark the beginning of the changing attitude in the early 1960s of the CERN Council and Directorate towards the difficulties that some of the member states were facing.

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<sup>49</sup> CERN, Council, CERN/0234, 'Minutes', 1957, <https://cds.cern.ch/record/29804>.

<sup>50</sup> Archivi del Dipartimento di Fisica di Sapienza-Università di Roma, Edoardo Amaldi Fund, Archivio Dipartimento Fisica Collection, Box 117, Folder 1, Bannier to Amaldi, 28.04.1960.

<sup>51</sup> CERN, DG-Files, Box C0642, Folder 424, Weisskopf to Supek, 25.05.1961.

<sup>52</sup> CERN, DG-Files, Box C0642, Folder 424, Nakicenovic to Adams, 19.05.1961. The letter is attached to CERN/CC/404, 26.05.1961.

<sup>53</sup> CERN, DG-Files, Box C0642, Folder 424, Letter CERN/7956, Weisskopf to Supek, 16.02.1962.

<sup>54</sup> Ibid.

<sup>55</sup> See M. MILJKOVIC, *Tito's proliferation puzzle: The Yugoslav nuclear program, 1948-1970*, PhD Thesis, 2021. Yugoslavia's CERN membership is briefly mentioned in Chapter 4. Besides the lack of value attached to the type of physics done at CERN and the high costs associated with CERN membership, Miljkovic also mentions the creation of the International Atomic Energy Agency (IAEA) in 1957 as another argument for leaving CERN. The IAEA's membership was more wide-ranging and the incurred costs would be less than those at CERN.

<sup>56</sup> CERN, Council, CERN/0457/Draft, 'Draft Minutes', 09.10.1962, <https://cds.cern.ch/record/19029>.

As alluded to earlier, the change in attitude was given more impetus by the presence of two new members in CERN, Spain and Austria. Owing to its relatively low national income per capita, and its poor domestic scientific capabilities, Spain found itself in a very similar situation to Greece and Yugoslavia, previously. It submitted its first request for a reduced contribution in 1962, less than two years after it had joined the organisation. At the twenty-second session of the Council, the Spanish delegate, dr. Sanchez del Rio, gave voice to the Spanish concerns, claiming that in the exploitation stage of a machine (after construction) those countries with a better high-energy physics field could profit much more from the instrument than others while “the countries less advanced from the point of view of high-energy physics were to a certain extent subsidizing the research work of the more advanced countries.”<sup>57</sup>

The organisation took the concerns of the Spanish delegation seriously, not least because these were shared with other countries such as Greece. In the spring of 1963, under the leadership of Jan Bannier, a meeting with the smaller members states was organised to discuss the possibilities for enhancing cooperation between CERN and its member states. The resulting report acknowledged the fact that different member states benefitted unequally from their participation in CERN and set out guidelines by which the situation could be remedied.<sup>58</sup> On the one hand, CERN would support the development of high-energy physics in its various member countries. This would be done through the training of scientists through courses, allowing for visits to CERN, and the awarding of fellowships, but may also go as far as the lending of scientific instruments to various national laboratories or supporting them in the development of scientific apparatus by providing both technical assistance and use of CERN facilities for testing. On the other hand, the report also stipulated that an optimal cooperation also required a bigger commitment to the development of high-energy physics capabilities at the domestic level. No exact numbers were given in the report, but the general guideline that was agreed upon by the organisation, was that domestic investment should amount to 10% of a country’s CERN contribution at the very least.<sup>59</sup>

The years following the report saw CERN taking an active stance in offering support to both Greece and Spain for the development of their domestic capabilities. An April 1964 report shows that the Directorate was exploring various options to increase CERN’s cooperation with and support for Greece’s nuclear research centre, Democritus.<sup>60</sup> These included CERN lending instruments for the evaluation of bubble chamber photographs, as well as tasking Democritus with the construction of electronic apparatus to be used at CERN.<sup>61</sup> CERN’s support to Democritus was slow to build, though, and while the terms of this new cooperation were still being defined, Greece had to reapply for a reduced contribution at the

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<sup>57</sup> CERN, Council, CERN/0464/Draft, ‘Draft Minutes’, 07.12.1962, <https://cds.cern.ch/record/19118>, p.12.

<sup>58</sup> CERN, Council, CERN/0482, ‘Draft Co-operation Between CERN and Member States’, 1963, <https://cds.cern.ch/record/19177>.

<sup>59</sup> CERN, DG-Files, Box C0628, Folder 405, CERN/7879, Weisskopf to Polaczek, 27.06.1962.

<sup>60</sup> CERN, DG-Files, Box C0632, Folder 411, ‘Report on a visit to the Electronics Division of the Nuclear Research Centre “Democritus”, Athens, March 31 - April 4, 1964’, undated.

<sup>61</sup> CERN, DG-Files, Box C0632, Folder 411, Zervas to Weisskopf, 24.11.1964. This letter mentions the construction of electrical apparatus and the lending of an analysis unit. Later correspondence shows that the analysis unit in question would be used in the context of bubble chamber experiments. See CERN, DG-Files, Box C0632, Folder 411, Weisskopf to Kanellopoulos, 20.05.1965.

end of 1964, and again in 1967. While the first of these was accepted without further ado, in 1967, the Council decided to postpone a decision on the Greek request until the end of the following year when the scale of contributions was to be reconsidered anyway. In the meantime, the Greek contribution (and the Spanish as will be seen below) was to be kept at the level of the 1967 rate.<sup>62</sup> The request was finally granted by the Council in 1968, but the decision was more reluctant than it had been in 1961 or 1964.<sup>63</sup> Whereas in the past, the decision had been taken unanimously or with just one abstention, the 1968 vote counted a total of four abstentions. The minutes of the Council do not specify the views of the varied delegations and which way they voted – this was done in closed session – but it is safe to assume that the 1967 coup d'état, which established the military junta in Greece, must have been a contributing factor. As a response to the coup, Greece's associate membership agreement with the European community was suspended. It would not be surprising in this context to see some delegations – and in particular those of the EEC members – express doubts about a continued cooperation with Greece in the scientific domain. At a first glance, the period of the dictatorship seems to have had little impact on the relationship between CERN and Greece. The rate of contribution for Greece was kept low to allow it to stay in the organisation in 1968, as we just saw, and again in 1971 covering an additional three years.<sup>64</sup> Additionally to this continued reduction, the Council also accepted the proposal made by Chairman of the Finance Committee to include Greece in the ISR (Intersecting Storage Rings programme) at no additional cost and with the exemption of contribution to capital expenditure in order to ensure the unity of the organisation.<sup>65</sup>

CERN support for Spanish physics took somewhat longer than in the Greek case. The main hindrance for this was that Spain did not have a dedicated high-energy physics group. The Spanish delegate, Jose Otero-Navascues, was acutely aware of the need to develop high-energy physics in Spain, if Spain was to take full advantage of its membership at CERN. This is why he hoped that the money saved on the CERN contribution – Spain was granted a second reduction of its contribution in December 1963 – would go towards the development of a high-energy physics group in Madrid.<sup>66</sup> Unfortunately, establishing the Madrid group proved harder than Otero had hoped for. Correspondence between Director General, Bernard Gregory, and French physicist, Louis Leprince-Ringuet, show that by 1966, very little progress had yet been made to that effect.<sup>67</sup> Fearing that Spain might consider withdrawing from CERN if its cooperation with the organisation did not become more

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<sup>62</sup> CERN, Council, CERN/0776/Draft, 'Draft Minutes', 05.03.1968, <https://cds.cern.ch/record/21624>.

<sup>63</sup> CERN, Council, CERN/0834/Draft, 'Draft Minutes', 1968, <https://cds.cern.ch/record/21466>.

<sup>64</sup> CERN, Council, CERN/1047/Draft, 'Draft Minutes', 24.03.1972, <https://cds.cern.ch/record/23912>.

<sup>65</sup> *Ibid.* The ISR-programme was one of the two measures taken to expand the functionality of CERN; the other one is the building of an even larger accelerator capable of reaching energies of 300GeV (also known as the 300GeV programme). The ISR programme constituted an update of the already existing accelerator, the Proton-Synchrotron, and was seen as an easier, more short-term solution to ensuring the competitiveness of CERN at the international level. All members agreed to participate in this supplementary programme, except for Greece as it could not afford to do so. The decision of the Council to grant Greece free access to this programme is a great example of the organisation's concern with its projected institutional identity and organisational unity.

<sup>66</sup> CERN, DG-Files, Box C0637, Folder 419, Otero to Weisskopf, 11.01.1964.

<sup>67</sup> CERN, DG-Files, Box C0637, Folder 419, Gregory to Leprince-Ringuet, 13.02.1966. The group was apparently created only in 1967 and already disbanded in late 1968, early 1969, as indicated in X. ROQUE, *Cultures of research and the international relations of physics through Francoism: Spain at CERN*, in: A. GOMEZ et al. (eds.), *Science Policies and Twentieth-Century Dictatorships: Spain, Italy and Argentina*, Routledge, London, 2016, 121-140.

profitable, Gregory asked Leprince-Ringuet whether the French CEA (Conseil de l'Énergie Atomique) could help support the setup of the Madrid group.<sup>68</sup> It would not be until the end of 1967 that the Madrid group would start to really take shape. CERN was willing to support the group with the lending of two instruments that could be used in the evaluation of bubble chamber photographs.<sup>69</sup> This gesture by CERN was a token of the more proactive attitude CERN had started to take to support the development of high-energy physics in the smaller member countries.<sup>70</sup>

Ultimately, this support came too late for the Spanish government to deem their membership profitable enough. A devaluation of the peseta in the late 1960s meant that the Spanish government was reconsidering its expenses in lesser applied scientific fields: fundamental physics was one of these fields. In August of 1968, the permanent Spanish Delegation to the UN in Geneva, submitted an official request to CERN for a drastically reduced contribution.<sup>71</sup> Spain wanted a reduction of 50% over five years or would otherwise have to withdraw from the organisation. This was indeed a more considerable reduction than the tiered reduction the Council had granted in 1963 (50% for 1964, 35% for 1965, and 20% for 1966) and the extension of the 20% reduction for 1967 and 1968.<sup>72</sup>

The reaction of the organisation to the Spanish request was both understanding yet firm. The Council acknowledged the economic difficulties that Spain was experiencing and also recognised that Greece had also been granted a reduction of 50% of its contribution. However, the period of five years was deemed too long. Instead, at its 39<sup>th</sup> session, the Council accepted a 50% reduction for three years (1969, 1970, and 1971).<sup>73</sup> This offer was ultimately rejected by the Spanish government who officialised its withdrawal on 30<sup>th</sup> October 1968.<sup>74</sup> Rather than leaving CERN with immediate effect, the Spanish government hoped that an alternative arrangement may be found over the course of the following year that would allow it to either stay in the organisation after all, or somehow maintain cooperation between CERN and Spanish nuclear scientists. By the time of the Council session in June 1969, no such agreement had been found yet, and Spain officially withdrew with retroactive effect from 31.12.1968.<sup>75</sup>

### CERN and Europeanisation

In the introduction, I presented the notion of Europeanisation as a process, following the conceptualisation offered by von Hirschhausen and Patel. One of their main theses

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<sup>68</sup> Correspondence between Lloret and Gregory reveals that the support of the French CEA was deemed important for convincing the Spanish government to accelerate the development of the Madrid group. See CERN, DG-Files, Box C0637, Folder 419, Lloret to Gregory, 27.04.1966.

<sup>69</sup> CERN, DG-Files, Box C0637, Folder 419, Letter CERN/12.001, Gregory to Otero, 01.12.1967.

<sup>70</sup> CERN, Council, CERN/0482, 'Draft Co-operation Between CERN and Member States', 1963, <https://cds.cern.ch/record/19177>.

<sup>71</sup> CERN, DG-Files, Box C0637, Folder 419, Pérez-Hernandez to Gregory, 08.08.1968.

<sup>72</sup> The first and second extension were granted at the 33<sup>rd</sup> and 36<sup>th</sup> session of the Council. For the former, see CERN, Council, 'Draft Minutes', CERN/0695/Draft, 02.03.1967, <https://cds.cern.ch/record/20951>. For the latter, see CERN, Council, CERN/0776/Draft, 'Draft Minutes', 05.03.1968, <https://cds.cern.ch/record/21624>.

<sup>73</sup> CERN, Council, CERN/0834/Draft, 'Draft Minutes', 1968, <https://cds.cern.ch/record/21466>.

<sup>74</sup> CERN, DG-Files, Box C0637, Folder 419, Pérez-Hernandez to Gregory, 30.10.1968.

<sup>75</sup> CERN, Council, CERN/0888/Draft, 'Draft Minutes', 20.08.1969, <https://cds.cern.ch/record/22465>.

concerning Europeanisation is that it “is not a uniform, unidirectional and teleological process.”<sup>76</sup> Insofar as this constitutes an historical thesis to be tested, the case studies presented here provide corroborating evidence for it. The withdrawals, first of Yugoslavia in 1961, and of Spain in 1968, put a halt to the expansion of CERN. Even though “[c]ountries normally partake in collaborations not as an activity separated from national science policy agendas,” we might say that in both cases withdrawal occurred precisely because the national science policy agendas were not in line enough with the research priorities of CERN.<sup>77</sup> Neither Spain nor Yugoslavia had much use for, nor capabilities in high energy physics, which prevented their benefitting from the cooperation that CERN offered. Notwithstanding their eventual withdrawal, their memberships, as well as as that of Greece, again remind us that Europeanisation through science “can be seen as one strategy among others for furthering national interests.”<sup>78</sup>

As was also remarked in the introduction, CERN’s Europeanising effect also has a scientific dimension. This Europeanisation of the high-energy physics field was shaped in part, at least, through CERN’s relations with its periphery, and certainly in response to the national interests of Greece, Spain, and Yugoslavia. The result of this negotiation process was the adoption by the CERN Council of the resolution CERN/0482 described in the previous section. Interestingly, we see that a certain standardisation or Europeanisation of the high-energy physics field is seen as pre-condition for the pursuit of national interests through collaborative means. The guidelines for cooperation set out in the resolution gave CERN a more central place in the development of the field across the membership of the organisation.

Throughout the negotiation processes between CERN and its member states, I have pointed out a certain tension on the part of the organisation to fully embrace its ethos of cooperation on the one hand, i.e. its institutional identity, and to ensure its smooth functioning as an organisation on the other, i.e. its organisational unity. I therefore venture to say that the organisation, or the people running it, had an ambivalent relationship with CERN’s potential to Europeanise. This is particularly evident in the case of the discussions surrounding Portugal’s membership application in the early 1970s. Somewhat ironically, the same guidelines for cooperation with member states that solidified the Europeanising effect of CERN just a few years prior can here be viewed as the basis for the concerns about Portugal’s application. At the 97<sup>th</sup> session of the Committee of Council in June 1971, the members of the Committee “were unanimous in expressing the opinion that a request to join by Portugal would be considered favourably” if it considered participating in the three CERN programmes (300GeV, ISR, and basic programmes), pay an entrance fee calculated on the same basis as that of Spain and Austria, and, importantly, commit to paying its full contribution.<sup>79</sup> This optimistic stance toward a Portuguese application was balanced by fears

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<sup>76</sup> U. v. HIRSCHHAUSEN, K.K. PATEL, *Europeanization in history: An introduction*, op. cit., p.3.

<sup>77</sup> O. HALLONSTEN, *The politics of European collaboration in Big Science*, in: M. MAYER et al. (eds.), *The Global Politics of Science and Technology – Vol.2*, Springer, Berlin, 2014, pp.31-46, here p.35.

<sup>78</sup> J. KRIGE, *The politics of European scientific collaboration*, op. cit., p.904.

<sup>79</sup> CERN, Council, CERN/CC/1029/Draft, ‘Draft Minutes’, 13.08.1971, <https://cds.cern.ch/record/23644>, p.6. CERN handled a distinction between basic and supplementary programmes. The basic programme involved any type of work related to the building, running and performing experiments on the Synchrocyclotron, and the Proton-Synchrotron (i.e. the machines whose construction was specified in the original CERN convention). Any infrastructure built subsequently would constitute a supplementary programme. Participation in the basic

that Portugal may undergo the same fate as Greece, Yugoslavia, and Spain previously. Indeed, Portugal was also economically strained and had only just started to build up its capacity in the domain of high-energy physics. Director-General, John Adams, gave voice to these concerns in a letter to the Committee of Council stating that “[i]t is not unreasonable to suppose, therefore, that adding more smaller members will increase the instabilities in the membership and lead to difficulties in the management. It is to nobody’s advantage that a new Member State, whatever its reasons for joining CERN, discovers after a few years that its contribution is out of balance with its science budgets and its nuclear physics effort insufficient to make a satisfactory use of the facilities at CERN.”<sup>80</sup>

Adams was by no means the only one having doubts about a Portuguese application. His concerns were echoed among others by the Greek delegate, Theodoros Kouyoumzelis, who wrote to Willibald Jentschke, the other Director-General, that a trial period may be considered in which a bilateral agreement between CERN and a Portuguese laboratory could be worked out.<sup>81</sup> This would be “wise for CERN and Portugal, in order to avoid disappointments similar to the older cases of Yugoslavia and Spain”.<sup>82</sup>

Concerns about the Portuguese application grew over the course of that year, even as the Portuguese government tried to make its commitment to the organisation clear. The matter was brought up again at the Committee of Council session on 29<sup>th</sup> September, where a heated debate took place on the recommendations of the Science Policy Committee (SPC) into the question.<sup>83</sup> The SPC had concluded that there were two ways for Portugal to build up both its national capabilities and participate in international cooperation. It could either first develop at the domestic level and join CERN once its capabilities were good enough or it could do both at the same time. The latter option was generally considered more costly and more difficult, had previously resulted in the withdrawal of two members, and “[t]he scientific effect in each case both on the national physicists and on CERN activities had been adverse.”<sup>84</sup> Even though a number of delegates had considered the positive stance taken by the Committee of Council at the June session as final and were very reluctant to reopen the discussion, the overall agreement settled on reconsidering the matter in detail.

The matter was taken up again in January 1972, at the meeting of the Science Policy Committee.<sup>85</sup> Again, we find a number of delegates, notably the French and Italian delegates, adopting a generally welcoming attitude towards a Portuguese application. These stood in contrast with the German attitude, which was greatly in favour of Portugal first

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programme was mandatory for all members, while every country was free to choose whether or not to participate in the supplementary programmes. A brief description of the ISR and 300Gev is given in footnote 61.

<sup>80</sup> CERN, DG-Files, Box C0857, Folder 593, Adams to Committee of Council, 02.09.1971.

<sup>81</sup> There was a period in the 1970s, as CERN was expanding, in which the organisation had two director-generals, one for the CERN I, and another for the CERN II laboratory, respectively.

<sup>82</sup> CERN, DG-Files, Box C0857, Folder 593, Kouyoumzelis to Jentschke, 11.06.1971.

<sup>83</sup> CERN, Council, CERN/CC/1032/Draft/Add., ‘Summary of the Discussions of the Closed Session’, 01.12.1971, <https://cds.cern.ch/record/23792>.

<sup>84</sup> Ibid, p.3.

<sup>85</sup> CERN, DG-Files, Box C0857, Folder 593, CERN/SPC/0315, ‘Record of the closed session’, 04.01.1972.

developing its national scientific capabilities and pursuing a trial period arrangement along the lines suggested by Kouyoumzelis.<sup>86</sup>

Although, the exact details of CERN's negotiations with Portugal in the early 1970s still await analysis, the application process was ultimately halted. The most likely reason for this was the concerns that had been brought up by John Adams in the spring of 1971 and led to a re-examination of the Portuguese application. Portugal was eventually able to join in 1986, more than a decade after this initial contact. The Portuguese case is, I think, another example of the balancing act between living up to its idealistic aspiration of uniting Europe through science and ensuring its organisational unity. The role of CERN in the Europeanisation of high energy physics in the first twenty years of its existence was therefore ambivalent at best, at times encouraging a faster integration and at others opposing it.

### Conclusion

With this paper, I hope to have shown two things. First, at the scientific level, CERN's Europeanising role was strongly shaped by the unstable memberships of a small number of CERN's peripheral members, notably those whose commitment to the organisation was neither obvious nor unwavering. This emphasis decentres the often Western-European-centric narratives of both the history of CERN as well as that of Europeanisation. The troubled memberships of Greece, Yugoslavia, and Spain in the 1950s and 1960s investigated above had a number of effects on CERN. Overall, we saw that the organisation, by which I mean the Council and the Directorate, gradually came to better understand and navigate the complexity of an intergovernmental scientific endeavour and the demands this placed on the various member countries. The initial reluctance of the Council to grant reduced contributions to Greece and Yugoslavia in the 1950s, slowly gave way to a more understanding position that recognised the financial difficulties that some countries were facing, as well as the unequal distribution of scientific capability within the membership of the organisation. The 1960 investigation into the Yugoslav claims of financial difficulty marks a turning point in this development that made it easier for the Council to reduce the contributions of those countries that faced similar difficulties. The 1963 resolution on "Cooperation Between CERN and Member States" marks another turning point. With this CERN started taking steps towards developing high-energy physics capabilities in those countries that were slow to build or did not have them yet. Together with the general guideline that any member should also invest into the development of its domestic high-energy physics capabilities, this ensured that the cooperation with CERN became more interesting and profitable for all members.

Second, CERN can be seen as a laboratory of Europeanisation, more broadly conceived. The political dimension of the organisation was evident to both the governments of the member states and to the people running the organisation. This was clearly visible in the debates surrounding the accessions of Greece, Yugoslavia, and Spain but also in the discussions on Yugoslavia's withdrawal. To these countries, membership in CERN meant more than mere scientific cooperation, it was also a vehicle of integrating an inherently European

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<sup>86</sup> CERN, DG-Files, Box C0857, Folder 593, Lehr to Jentschke, 21.03.1972.

organisation. At the same time, their membership in CERN was also important to the organisation itself, because it embodied a certain idea of Europe. Coming back to Cramer's notion of the "other Europe", one could deem CERN to be the very prototype of a scientific Europe that developed in parallel to the EEC.

At the practical level, the interplay between the scientific and political dimension that derived from the very nature and aim of the organisation was visible in the continual concern of the Council and the Directorate with the institutional identity and organisational unity of CERN. CERN was a place for international scientific cooperation, and as such, the withdrawal of any member could be deemed a failure of this type of cooperation. At the same time, this idealistic aspiration had to be balanced against the demands of running the organisation itself. The guidelines for "Cooperation between CERN and Member States" are the result of this balancing act. When considered in the context of CERN's place in the European scientific landscape, they can be seen as an important step towards defining the boundary conditions under which high-energy physics could best be organised at the European level. The development of high-energy physics in the various member states stood central in this endeavour. While the exact extent to which the guidelines for cooperation were applied at the various national levels would have to be established in a case-by-case fashion that goes beyond the scope of the present article, we saw that they found application in both the Greek and the Spanish cases.

This study offers a glimpse of the central role that CERN and similar organisations have played in the development of the European physics and scientific landscapes more broadly. Indeed, as previously mentioned, CERN served as a model for other similar intergovernmental arrangements in European science, such as ESO, ESRO, and EMBL. Similarly to CERN, they were established and evolved outside of the formal boundaries of the EU, yet they all helped shape the relation in which different European states and groups of states cooperate with each other on a scientific level. Today, the increasing presence of the EC in matters of research policy has reduced the influence of these organisations somewhat, yet their historical significance for the development of a European science and as agents of European integration remains underappreciated.

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