The Tale of Two Peripheries: The Creation of the International Centre for Theoretical Physics in Trieste

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Alexis De Greiff*

Abstract: This paper can be seen in the intersection between history of 20th-century physics, diplomatic history and international relations of science. In this work I analyze the dynamics of the negotiations to create the International Centre for Theoretical Physics, which took place between 1960 and 1963 at the International Atomic Energy Agency. In contrast to previous studies on the creation of international scientific institutions, I pay special attention to the active role played by scientists, politicians and intellectuals from the host-city, Trieste (Italy). Further, I spell out the historical circumstances that allowed this group of local actors to become key figures in the establishment of the Centre. I discuss in detail their interests as well as the political and scientific environment that eventually catalysed the diplomatic efforts of the Trieste elite. The present paper is also concerned with the strategies adopted by the advocates of the idea to confront the hostility of delegations from several industrialized countries, the Soviet Union and India.

A frontier is a strip which divides and links, a sour gash like a wound which heals with difficulty, a no-man's land, a mixed territory, whose inhabitants often feel that they do not belong to any clearly-defined country, or at least they do not belong to any country with that obvious certainty with which one usually identifies with ones native land.

Ara and Magris[1]

In the second half of the twentieth century, the International Centre for Theoretical Physics (ICTP) at Trieste was the most important and active institution devoted to scientific co-operation between Third World and industrialised countries. Although there are no detailed studies about its actual impact, the Centre is a reference point to virtually all physicists and a significant portion of the scientific community in the Third World. This is not surprising considering the unprecedented

* Observatorio Astronómico Nacional, Universidad Nacional de Colombia, Apartado Aéreo 2584 Santafé de Bogotá D.C., Colombia (alegreif@ciencias.unal.edu). The author wishes to thank for their comments and suggestions: David Edgerton, Stefania Gallini, Rebekah Higgitt, Jeff Hughes, David Kaiser, John Krige, Dominique Pestre, Eduardo Ortiz, Lucretia Steward and Andy Warwick. The following abbreviations are used: ADP, Archivi del Dipartimento di Fisica, Physics Department, University of Trieste; ASP, Abdus Salam Papers, "Abdus Salam" International Centre for Theretical Physics, Trieste; IRP, EAP, Edoardo Amaldi Papers, Physics Dipartment, University of Rome, *La Sapienza*; FFA, Ford Foundation Archives, New York; Isidor Rabi Papers, Library of Congress; JRO, Julius R. Oppenheimer Papers, Library of Congress; NARA, National Archives and Records Adminstration, College Park.

[1] Angelo Ara, and Claudio Magris, *Trieste. Un'identita di frontiera* (Torino, 1987), 192; translated by Lucretia Steward. The rest of translations in the text are all mine.

number of Third World scientists who visited a single institution like the ICTP either to attend courses or carry out research in theoretical physics and mathematics; between 1964 and 1980, more than 6.000 scientists from the so-called developing countries (and nearly the same number from industrialised world) used the Centre's facilities. This impressive figure for Third World scientific standards is consistent with the ICTP's estimates that at least one physicist of every Third World physics institute has visited the Centre (at least) once.[2] The ICTP was, in addition, the first United Nations institution entirely devoted to scientific training and research, and provided the model for several institutions that now play an important role in science, technology and development policies in the Third World.[3] Therefore, if we wish to learn about science in the Third World, we must to look carefully at the ICTP case.

In spite of its centrality in the history of the part of the scientific community that represents 4/5 of the world population, little is known about the origins and early years of the ICTP. Furthermore, nonetheless post-World War Two science developed in large, international and collaborative institutional settings, we still need to know more about the way these international institutional frameworks, and the wider political contexts influenced the content of physics;[4] the balance of power among the different groups that constitute the ill-defined notion of "international scientific community;" and the attitudes and strategies adopted by scientific diplomats and policymakers involved in the negotiations to create new international scientific spaces. This lack of analyses is probably due to the fact that the literature on "Big Science" is overtly United States-centric or, at best, Euro-centric if we consider the studies on CERN and the European Space Agency. Much less attention has been paid to institutions not directly dominated either by Americans or Europeans. The present work intends to show that marginal communities are equally important if we wish to have a more complete and balanced picture of the relationship between Twentieth-century physics and politics.

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[2] Alexis De Greiff, "The International Centre for Theoretical Physics, 1960-1979: Ideology and Practice in a United Nations Institution for Scientific Co-operation and Third World Development" (PhD Dissertation, University of London, 2001), 290-292.

[3] For instance, the Centro Internacional de Física in Santafé de Bogotá (Colombia), and the Korean Advanced Institute of Science and Technology (elsewhere in this volume Dong-Won Kim discuses this institution). The ICTP was also instru

[4] On how enlarged institutional frameworks affected physics training and research, see David Kaiser's paper in this volume, although his study focuses in a national context, namely Cold War America.

The history and origins of the ICTP have been associated with the name of Abdus Salam (1926-1996), arguably the most reputed scientist from Pakistan. After finishing his PhD at Cambridge in 1951, Salam returned to Pakistan for a brief period, and in 1958 was appointed the first Professor of theoretical physics at Imperial College, London. In the 1950s and through the 1960s, Salam was considered one of the most brilliant theoretical physicists of his generation. In 1979, he shared the Nobel Prize for physics with Sheldom Glashow and Steven Weinberg, for their contribution to the "standard model" of particle physics.[5] From the late 1950s, his scientific career developed in parallel, or more precisely complementarily, to his rapid political climbing in Pakistan and abroad. As a member of the Pakistani delegation to the then new International Atomic Energy Agency (IAEA), Salam championed the idea that the Agency should actively participate in the building of the scientific elite in the Third World through the creation of an international scientific centre. Eventually, this idea turned into the ICTP, and Salam its director for nearly thirty years. Salam's leadership, enthusiasm, scientific credits, political sense and diplomatic skills produced a profound impact on the memory of his collaborators and colleagues. For most of his contemporaries, the ICTP was created by the most original Third World theoretical physicist, first Muslim to receive the Nobel Prize and the most influential scientific diplomat from Pakistan. Indeed, thirty years after its foundation, the Centre was renamed the "Abdus Salam" International Centre for Theoretical Physics to honour its founder and first director. Nevertheless, although in the early 1960s Salam was considered one of the young promises in high-energy physics, Salam's image as the leading figure in the creation of the ICTP confirms what has been said repeatedly in the sense that individual and collective memories tend to be bad history. In the case of institutions, collective memory leads to a "standard view of institutional histories."[6] This is a retrospective rational reconstruction that reduces the number of actors and crucial events to the minimum, in such a way that the story can be easily remembered and retold to outsiders and newcomers. In particular, when these views concern the creation of the institution, the stories are almost textbook examples of what anthropologists call myths of origin.

In this paper, I will show that, although Salam's initiative was obviously important, it is historically inaccurate to portray him as "the founder" of the ICTP.[7] Indeed, the standard and

[5] On Salam, there are several biographical accounts, most of them hagiographic and based on Salam's official biography: J. Singh, *Abdus Salam: A Biography* (Calcutta, 1992).

[6] See for instance John Krige, "Some methodological problems in writing the history of CERN," in *Physicists look back.Studies in the history of physics*, edited by John Roche, (Oxford, 1987), 66-77.

[7] See, for instance, the ICTP's official website http://www.ictp.trieste.it/ [Nov 2001]

widespread version of the origins of the Centre, contrast with the relative invisibility of Salam during the early phase. The creation of the ICTP was a result of a complex negotiations process involving physicists, diplomats and science administrators from Europe, the United States, and some Third World countries. Similar actors have already been identified as central in the "pre-history" of the other institutions such as the CERN. Dominique Pestre points out that the creation of CERN was possible due to the attitudes among of the actors, an effective network of relations, and a positive atmosphere in the scientific circles.[8] The ICTP shares most of these characteristics. However, in contrast to Pestre and Krige's study, the pre-history of the ICTP involved an additional set of crucial actors, apparently absent in the CERN negotiations: the local political and intellectual elite. This suggests that neither the literature on the United States model of "Big Science," nor the studies on CERN provide adequate examples to investigate the history of institutions such as the ICTP. In addition to those "new" local actors, we have another set of *global actors*, also novel in the history of "Big Science," namely the Third World scientific communities. Moreover, the different images of the Third World and its "basic needs," and the role ascribed to science and technology in Third World development was a central and original variable in the history of international physics institutions.

The question about how the Centre came to fruition encompasses at least two aspects. On the one hand, one should try to understand the process that led the IAEA to support the creation of the ICTP. Salam's idea, in fact, produced heated controversy from 1960 to 1963, and, even after setting up the Centre, its existence was subjected to multiple questions on behalf of some delegations. Thus, I should introduce the distinct views of the idea, the possible motivations of these views and some of the alternatives presented. The other question one must ask is why the Centre was established *in Trieste*, which as we will see was not the most obvious choice for an international institution. In fact, both questions are intimately connected. The ICTP would have not been possible without the determination with which the Italians, especially the University professors and politicians from Trieste, acted. Indeed, I shall argue that the two question are linked by the geopolitics of Trieste. It is worth noting that this is a new element in the history of international scientific institutions, where historians tend to take for granted the interests of the host-city without spelling out its historical background, political interests and active role during the negotiations.

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[8] Dominique Pestre, "The first suggestions: 1949-June 1950," in *History of CERN,* edited by A. Hermann, J. Krige, U. Mersits and D. Pestre, (Amsterdam, 1987), 63-96, on 64.

Therefore, the creation of the ICTP in Trieste occurred in a sort of circus with three arenas: the local, the national and the international. I shall argue that the atmosphere in the circus is a common factor and can be summarised as the central role ascribed to nuclear physics, and particularly to physics in the development discourse.[9] Of particular importance was Italy's interest in joining the nuclear energy club. This was an effort that had been going on since the 1950s, through the negotiations with the United States Atomic Energy Commission. It was also the time of national planning and science policy debates and in the early 1960s the ruling Christian Democratic Party launched an aggressive campaign to demonstrate its commitment to a "new scientific renaissance" for Italy.

This paper is organised as follows: I begin by presenting Trieste's historical background. This disquisition about the contemporary history of Trieste gives me the opportunity to introduce some of the key people involved in the ICTP negotiations. It also provides important elements in understanding *how* and *why* the Centre was established in Trieste. Then I describe how the negotiations unfolded, stressing the definitive role played by the Italians. Finally, I provide an explanation about the different interests that favoured the creation of the ICTP.

1. TRIESTE: INTERNATIONALIST DREAMS OF AN ORPHAN CITY

In order to understand Trieste's geopolitical conditions under which the creation of the ICTP took place, I need to recall the dramatic changes Trieste suffered following its emergence as a modern city. With the transformation of the Austro-Hungarian Empire into a modern state in the late eighteenth century, Trieste became the strategic port of the Empire.[10] Mercantile activities and the

[9] The development ideology was not limited to poor nations, although at an international level there was an almost explicit classification of countries according to their "degree of development." In fact, the Enlarged Programme of Technical Assistance (EPTA) of the United Nations Development Programme (UNDP), considered practically all countries except the United States, the Soviet Union and those in the Western Europe as "developing countries." As Rist points out, in the 1950s and 1960s, in Europe at least, it was considered that "every country in the world was developing" (Gilbert Rist, *The history of development. From Western origins to global faith*, translated by Patrick Camiller (London, New York, Cape Town, 1999), 107 see footnote 52).

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[10] In this section, I follow three texts connected to the political, economic and cultural histories of Trieste. They are: Ara and Magris (Ref. 1); and the following essays in Elio Apih, *Trieste* (Roma, Bari, 1988): Apih, "La storia politica e sociale;" Giulio Sapelli, "Il Profilo del 'Destino Economico'," and Elio Guagnini, "La Cultura. Una fisionomia difficile." For a bibliography on the history of Trieste see that volume. Interesting views of Trieste through the eyes of travellers are Nicola Powell, *Travellers to Trieste. The History of a city* (London, 1977) and Jan Morris, *Trieste and the meaning of nowhere* (London, 2001).

insurance business dominated the local capital. Trieste was an "international" city populated by an entrepreneurial mercantile and financial bourgeoisie with a strong sense of its cosmopolitan character. Throughout the nineteenth century, the city was the economic lung of the Empire and therefore a central part of Austrian economy.[11] No other Italian city had its future so dramatically determined by its geopolitical situation. With the end of the Great War, the end of the Austrian Empire, and the "liberation" of Trieste, prosperity came to an end. In spite of its efforts to maintain its links with Central Europe after 1918 Trieste began to loose contact with its hinterland, entering into a slow and dramatic phase of political isolation, economic decline and identity crisis. Culturally, Trieste lost its function as an interface between Mitteleuropean German culture and Italy.[12] Psychologically, a sense of fracture prevailed between the memories of a glorious but irrecoverable past, and the reality of a peripheral Italian centre with an unpromising future. Socially, the previous dynamics of mutual isolation between the different ethnic groups, particularly the Italians and the Slavs, turned into an open confrontation modulated by the international tension with Yugoslavia. Such confrontation was exacerbated during the Second World War when the Fascist regime first, and the German later, imposed a total *Italianisation* of the Slovenian and Croatian populations.[13] The sense of crisis was never so apparent as at the end of the Second World War. For any other city, the armistice meant its re-incorporation or annexation to a national state. The city and the Istria peninsula in the post-war years was condemned by this state of uncertainty, its geographical position virtually on the Iron Curtain and the complex international politics involving Tito's Yugoslavia. After several attempts to ease the relation on the border, the so-called "London Memorandum" was signed in 1954, putting an end to the occupation of the Allied troops.[14]

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[11] One of the most insightful works on nineteenth-century Trieste continues being Angelo Vivante, *Irredentismo Adriatico. Contributo alla discussione sui rapporti austro-italiani*, Vol. First (Florence: La Voce, 1912).

[12] Ara and Magris (Ref. 1), 109-113. Notwithstanding the link with the German culture weakened after the Great War, for part of the intellectual elite Germany and Austria continued being central reference points. For many years, German was the language of the educated castes. Two obvious cases of this double identity that come to mind are the writers Italo Svevo (artistic name of Ettore Schmitz) and Claudio Magris. Magris' multiple works on Central European literature are tokens of this important tradition.

[13]In order to illustrate the sense of crisis, it is worth mentioning that allusions to it began to appear as early as 1919 in Giani Stuparich, "La crisi di Trieste," *Rivista di Milano*, 20 Nov, 1919 (cited by Ara and Magris (Ref. 1), 115; more generally, on this sense of crisis see 114-132). On the World War Two years in Trieste and the German occupation, see Apih (Ref. 10), "La storia politica e sociale," Chapter V, and the bibliography therein. The *Italianisation* implied, for instance, the elimination of the Slavic names. For example, the name Budinich became Budini.

[14] See G. Cox, *La corsa per Trieste* (Gorizia, 1985). For a testimony the political tension in the city, see for instance Diego De Castro, *Memorie di un novantenne. Trieste e Istria* (Trieste, 1999), 162-190. On the negotiations see G. Cox,

Two crucial points must be underlined here. First, during the intense period of negotiations the Triestini were actively involved, although marginally. The city's elite realised that the future of the city depended heavily on their diplomatic actions. Second, the negotiations unfolded in a manner that produced mixed feelings among the people of Trieste, including these diplomats. The "London Memorandum" was prepared in hermetic secrecy. The Trieste diplomats were excluded from the crucial decisions. This left a strong sense of distrust of Rome. The loss of Istria was equally felt as treason. The sentiments of isolation and abandonment marked the way Trieste saw its relation with the central government. Trieste developed the sense of being an orphan city.[15]

The withdrawal of the Allies was received with mixed feelings in Trieste. By 1954, the economy of the city was in a catastrophic situation, and only worsening. All economic indicators fell, while unemployment grew.[16] Concomitant to this situation were the negative demographic indexes since the war years. While in 1951 Trieste occupied the eleventh place among the Italian cities, in 1961 it dropped to the twelfth.[17] Particularly, young professionals fled, causing serious concern in the local government. Trieste became an old city in every sense of the world. A very low birth rate was accompanied by a longer life expectancy. Psychologically, the effect was devastating especially for the new generation that, for one reason or another, had decided to remain. Besides the political, economic and cultural insularity, it was physically isolated. Since the 1920s, Trieste had been better connected with Austria and Central Europe than with Italy. The city was not connected to the highway system, and remained so throughout the 1950s and part of the 1960s. Trieste had no

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and H. Jacobson, eds. *The Anatomy of Influence* (New Haven: Yale University Press, 1973); Diego De Castro, *La Questione di Trieste: l'azione politica e diplomatica italiana dal 1943* (Trieste: Morcelliana, 1986); G. Valdevit, *La questione di Trieste 1941-1954: Politica internazionale e contesto locale* (Milan: Collana dell'Istituto Nazionale per la Storia del Movimento di Liberazione in Italia, 1986). For a succinct account but a very complete bibliography, see Luigi Vittorio Ferraris, *Manuale della politica estera italiana, 1947-1993* (Roma, Bari: Editori Laterza, 1996), 24-30.

[15] The historiography of the city reflects this strong sense of political isolation from Rome. Referring to this critical phase, Ara and Magris assert that: "Perhaps *only* De Gasperi, among those responsible of the Italian [foreign] policy, had – as De Castro says – a vivid sensitivity not just for the political aspect, but for the cultural one of the Giulian problem as well" (Ref. 1, 159; my italics). The title of a book by Trieste writer, Manlio Cecovini, is also telling in this respect: Manlio Cecovini, *Del patriotismo di Trieste. Discorso di un triestino agli Italiani nel cinquantenario della redenzione* (Milan, 1968) [*On Trieste's Patriotism. Discourse by a Triestino to the Italians…*] . The Osimo Treaty (1975) virtually ratified the points of the "London memorandum." It reopened a deep wound in Trieste's consciousness (Apih (Ref. 10), "La storia politica e sociale," 193).

[16] See Giovanni Palladini, "Il reddito prodotto nel Friuli-Venezia Giulia," *Trieste*, Jan-Febrary, 1963, 8-10. Apih (Ref. 10), "La storia politica e sociale," see 185 and 201.

[17] 1961 Census, cited by Sapelli (Ref. 10), 249.

airport with the exception of a small military base in Ronchi, 30 kilometres from the city. The modernisation of infrastructure was a new source of tension with Rome.[18] Finally, political polarisation was a central element that catalysed most the economic and political crisis. Trieste mirrored the complex political and social anxieties of the Balkans, Italian nationalism and, of course, the Cold War.[19] The strength of the ultra-right contrasted with the national more moderate national trend. [20]

There was one sector that escaped to the general decline: the insurance companies. They represented a special and different type of economy and boosted the internationalist ideology.[21] Following their example, Trieste's elite sought to project Trieste internationally in order to overcome the city's chronic recession and isolation. In their view, Trieste needed to reinvent itself as the Mittle-european, cosmopolitan, bourgeois city it had been.[22]

The most important group of internationalists clustered around a cultural review called *Umana*, created in 1918 by the socialist writer Silvio Benco. In 1951, after a long period of recession, it reappeared under the leadership of his daughter, Aurelia Gruber-Benco.[23] Umana was an exceptionally sophisticated review with significant participation from local, national and international authors reflecting about literature, visual arts, philosophy, music, cultural policy, and science and technology. One character close to Gruber-Benco was the Prince of Duino (a little town on the Western cost of Trieste), Raimondo della Torre e Tasso, who later championed the idea of

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[18] See Corrado Belci, *Trieste: Memorie di Trent'anni (1945-1975)* (Brescia: Giulio Einaudi Editore, 1989), 65-70; and Pierpaolo Luzzato Fegiz, *Lettere da Zadobaski. Ricordi di un Borghese Mitteleuropeo* (Trieste, 1984), on 388-394.

[19] Vidali, a veteran of the Spanish civil war and exiled in Mexico during the fascist years, was one of the central figures of the communist party in Italy and abroad. It was said that there were two main protagonists of the post-war Trieste: the Communist Vidali and the Archbishop Antonio Santin. The legend around Vidali says that he took part in the conspiracy to kill Leon Trostsky, an assertion difficult to document.

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[20] See Paul Ginsborg, *Storia d'Italia dal dopoguerra a oggi. Società e politica 1943-1988* (Turin, 1989), 345; Paolo Venier, "Le elezioni del novembre 1962," *Rivista Mensile Città di Trieste*, Jan, 1963, 3-6; and Guido Botteri, Giorgio Cesare, Fabio Marchetti, and Stelio Spadaro, *Trieste e la sua storia* (Trieste, 1986).

[21] Sapelli (Ref. 10), 230-232.

[22] Sapelli (Ref. 10), 243.

[23] Aurelia Gruber-Benco, ed. *Antologia di Umana. Rivista di politica e Cultura. 1951-1973* (Trieste, 1986), 4.

sponsoring cultural and scientific enterprises in Trieste, including the ICTP.[24] Besides the direct participation of university professors in *Umana*, the network extended to other figures in the university and the political spheres, including the rector of the University of Trieste.

2. PAOLO BUDINICH AND "THE FIRST ATTEMPT TO BUILD A UTOPIA"

The Budinich family arrived in Lussingrande from Budapest in the sixteenth century. They were sailors and, later, became boat builders and carpenters. Paolo's grandfather taught at the Naval Institute at Lussinpiccolo and wrote a book about the history of Lussino. His son, Paolo's father, taught history and geography at the Royal schools in Trieste. "Many of my ancestors," Paolo writes in his autobiography, "passed their life between the sea and books."[25]

Paolo Budinich was born in Lussingrande in 1916. During his life time, Lussino belonged to four different countries. In 1918, it passed from Austria to the Kingdom of Italy, in 1946 it was annexed to Yugoslavia, and by the end of the century it was Croatian. Paolo spent his infancy and adolescence between Trieste and Lussingrande. He studied, like the majority of Trieste's elite, in the *Liceo Dante Alighieri*, and graduated in 1934. With the ascent of the fascist regime in 1922, the family name changed to Budini.[26] His family could not afford to send him to the university. Therefore, he participated in a national fellowships competition to study at the Scuola Normale di Pisa, but failed. With the meagre monies his father could send from Trieste, he arranged to receive supervised training in Pisa from one of the examiners to take the exam the following year. He succeeded, and in 1939 he graduated from the Normale with a thesis on experimental spectroscopy.[27]

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[24] Gruber-Benco (Ref. 23), 6. The European University ended up in an institute founded in 1972 and located in Fiesole, near Florence. See also Luigi Stasi, "Il sogno triestino vissuto all'Università," in *L'Università di Trieste. Settant'anni di Storia (1924-1994)*, edited by Guido Botteri, (Trieste, 1997), 342-360.

[25] "I tried to be loyal to the family traditions," he adds; Paolo Budinich, *L'arcipielago delle meraviglie* (Rome, 2000), 10. For this section I have used that autobiography, Paolo Budinich, "All'inizio eravamo in quattro," in *La Ricerca in Fisica nell'Università di Trieste*, edited by Marco Budinich and Gianni Vannini, (Trieste, 1995), 131-140; and three interviews conducted by the author in June 1998.

[26] He readopted the Slavic form in the 1980s. In the present text, I use the "original" name Budinich, although in citing his works or letters I maintain the spelling as it appeared in the documents.

[27] Paolo Budini, "Sull'allargamento e spostamento delle righe spettroscopiche," *Nuovo Cimento* XVI, no. 86-107 (1939).

When the war broke, Budinich enlisted in the Italian Navy. He served first on board of a submarine and, later, as pilot of a reconnaissance aircraft in Greece. He was transferred to a base near Naples, where he had contact with young antifascists. During a mission, and under unclear circumstances, he was made prisoner by the English. He was sent to a prisoners camp in the United States. In 1945, Budinich returned to occupied Trieste. After a period of indecision about whether to pursue a scientific career at Trieste, or accept the invitation to work in *L'Unità* (the communist official newspaper), he returned to Trieste. Budinich never joined the Party, albeit he befriended several communists, specially in Trieste.

The Physics Institute at the University of Trieste had just been created that same year, July of 1945. The department was eminently experimental but the working conditions were precarious. In 1946, Nestore Cacciapuoti, from the University of Rome, was appointed but, a year later, he took a leave of absence to serve as consultant of UNESCO for scientific matters in Latin America. The Institute was practically under the directorship of experimentalist G. Poiani, with the assistance of physicists from Padua University, particularly Nicolò Dallaporta and Antonio Rostagni.[28] Budinich joined the university as F. Vercelli's assistant in the rational mechanics course. For a while, Budinich tried to do some instrumentation work, but after seven years of inactivity, he had lost practice and interest in experiments. He felt more attracted to theoretical physics.

Budinich knew that his knowledge of theoretical physics was outdated. He visited Edoardo Amaldi's institute in 1951, returning with a study plan prepared by Bruno Ferretti.[29] He was too old to do graduate studies in England or the United States. So, he went to Germany with a fellowship from the Italian Foreign Affairs Ministry, where he stayed with Heisenberg at the Max Plank Institute in Göttingen. It was a splendid occasion to update his physics. He started working on the meson component in cosmic rays, a research line he pursued for several years. It was also a crucial visit to establish contacts with Central European physicists. In particular he became acquainted with K. Lehman, K. Symanzik, R. Olhme, G. Ludens and W. Thirring. He also maintained correspondence with Amaldi and sent him internal reports from Göttingen concerning meson theories.[30]

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[28] "Cronistoria Dell'Istituto di Fisica Dell'Università di Trieste," undated [but probably 1963], ADP. Guido Botteri (Ref. 24), Chapter 4.

[29] Budini to Amaldi, 13 Mar 1951, Box 140, folder 1/2, EAP.

[30] Budini to Amaldi, 7 Mar 1952, Box 140, folder 1/2, EAP.

Back in Trieste, Budinich realised the importance of linking the Institute to European centres. He started to run a seminar on mathematical physics at the Physics Institute. He invited many of the physicists had met at the Max Planck as well as in Vienna, Graz, Praga, Ljubljana, Budapest and Zagreb. In 1954 he visited Germany again, and in 1954 he travelled to Zurich seeking contacts with Pauli and other Swiss physicists. This was virtually the first attempt to introduce advanced mathematical physics to the Physics Institute. Only when Budinich was appointed professor of theoretical physics in 1954 was the subject integrated into the Institute as a formal course. In 1955, he became director of the Institute but still theoretical physics was very weak.[31]

Possibly at Cacciapuoti's suggestion Budinich turned to UNESCO in order to bring the department out from periphery. In 1957, an international network of scientific institutes called the "European Network" was to be created. Each institute would specialised in a branch of science. Trieste was to be the co-ordinating centre. The project was jointly proposed by W. Thirring (in Vienna), G. Marx (in Budapest), I. Supek (Zagreb) and Osredkar (Lubiana). Budinich was authorised by the Foreign Affairs Ministry to carry out negotiations on behalf of Italy at UNESCO. The enterprise failed because of the tense relations between Western and Eastern Europe.[32] Neverthless, with the support of the Physics Department in Padua, and Amaldi in Rome, Budinich established a branch of the National Institute for Nuclear Physics (INFN), of which he was director for several years. He continued spending time in Lussingrande. It was a few years later, Budinich reminiscences in his autobiography, that "finally, in a completely unexpected way, the miracle arrived, and the utopia came into being."[33]

3. THE NEGOTIATIONS: THE TRIESTE-ROME-VIENNA TRIANGLE

Against this background negotiations for the creation of the ICTP developed. Such a geopolitical situation was far more important than the actions of any single player, including Salam or even

[31] "Memoranda sull'attività svolta dal direttore dell'Istituto di Fisica e dai suoi collaboratori", Archivi del Dipartmento di Fisica, Physics Department, University of Trieste.

[32] Budinich (Ref. 25), 43-47 This was not an isolated initiative, of course. Contemporaneously, a similar idea was suggested by the British, Communist mathematician Hyman Levy. Henri Laguier, a leftist and former head of the French National Science Council, argued that this network should be under the flag of the United Nations (Aant Elzinga, "Unesco and the politics of scientific internationalism," in *Internationalism and science*, edited by Aant Elzinga and Catharina Landström, 89-131 (London, 1996), 89-131, and 104)).

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[33] Budinich (Ref. 25), 47.

Budinich, whose participation was permanent and indeed active. At this point, we have to move to the international arena. I shall describe how the negotiations to bring the Centre to Trieste unfolded. Rather than being an isolated sphere, I shall argue that the events at the IAEA were strongly influenced by pressures from Rome and Trieste. I will proceed by showing the process in two steps. Firstly, concentrated on the position and strategies of Trieste and Rome, and secondly, I will focus on the positions of some actors at the IAEA whose intervention seems to have been crucial in the negotiations.

The first contacts and the idea of an international centre

The first encounter between Salam and Budinich was in 1960. Despite the discouraging experience at UNESCO, Budinich continued his activities to internationalise the Physics Institute. He and Claudio Villi, one the first students to graduate from the Institute, organised a symposium on elementary particle interactions held in June at the Miramare Castle, near Trieste. It was attended by about thirty physicists, including Giuseppe Furlan, Dallaporta, Jacques Prentki, Sergio Fubini, Daniele Amati, Bruno Vitale, Walter Thirring and Gordon Feldman and Abdus Salam. The letter of invitation made clear that "the atmosphere of the Symposium would be very informal." If the city lacked a scientific tradition, it still had the qualities of an Imperial port that, for more than a century, had learned the art of charming illustrious visitors. It was a success and the participants were enchanted by Trieste's hospitality. Feldman and Salam wrote a note in *Physics Today*, stressing the relaxing atmosphere and the beauty of the place. The invitees' impression was described as "pure delight." The authors added that they hoped "that all conferences and symposia could be so enchanting." As the note pointed out, "the intention [was] to make the Symposium an annual event."[34]

In August, Salam attended the 1960 Rochester Conference, held at Rochester University. Organised by Robert Marshak, it started by being a national gathering. In the second half of the 1950s the Conferences became the most important international high-energy physics meetings.[35] However, they were seriously disrupted by the Cold War. In particular, in 1960 several top Soviet

[34] Gordon Feldman, and Abdus Salam, "Elementary particle interactions," *Physics Today* 13, no. 11 (1960): 74.

[35] John Polkinghorne, *Rochester roundabout: the story of high energy physics* (Essex, 1989); Silvan Schweber, *QED and the men who made it: Dyson, Feynman, Schwinger and Tomonaga* (Princeton, 1994).

delegates did not attend.[36] The main speaker, John McCone, Chairman of the U.S. Atomic Energy Commission, tacitly referring to the incident, made a remark about the convenience of creating a "Joint International High Energy Physicist Institute" with both East and West participating equally. McCone had also pointed out that the United States would support high-energy physics as long as it was not too costly. Presumably, this was but another manifestation of political rhetoric. Nonetheless, Salam took it very seriously. That night, he discussed the idea with Marshak, Victor Weisskopf and Hans Bethe. They all agreed that it could start as an "International Theoretical Institute under IAEA."[37] At this point of the process, it is clear that Salam's role was crucial. He acted as the initiator of the idea and the first one to advance it in political, diplomatic and scientific milieus. His Third World origins would be certainly crucial to mobilise the Third World delegations at the IAEA, not just through official channels, but because he was a young Pakistani with a remarkable academic career at a British institution.

A month later, Salam was taking part in the IAEA's General Conference in Vienna and convinced the Pakistani delegation to present a resolution proposing the creation of the institute. In his address, he stressed the leading role of theoretical physics in the development of nuclear technology. "The basic notion that atomic energy can be released in the service of man was the brain child of two men: Bohr and Einstein," he told an audience primarily made up of politicians and diplomats. He contended that "the first nuclear reactor was assembled and actually constructed by a theoretical physicist – Enrico Fermi." He mentioned the East-West collaboration, but stressed the scientific backwardness of the developing countries. In his view, only the transfer of science, and in particular nuclear science, would open the possibility of the independent development of poorer nations; the triangle East-West-Under-developed countries should be the basis for any internationalist initiative.[38] These arguments led him to two conclusions: first, to present the linear

[36] The event was reported, incidentally, by another physicist who, a few years later would become deeply involved in problems of science in the Third World; Michael Moravcsik, "High Energy Physics. An informal report of the Rochester Conference," *Physics Today* 13, no. 12 (1960): 20-25.

[37] Salam to J.R. Oppenheimer, 21 Oct 1960, JRO, Box 40.

[38] The notion of "Third World" had a specific geopolitical meaning in the context of the Cold War. It entailed the right to have development independently from the two ideological poles represented by the USSR and the USA. Salam's claim was widely accepted for offering science as a means to achieve this independence. During these years, Italy was keen on establishing good relations with most of these countries. Some sectors in Italy saw the American hegemony as an obstacle for Italy's development and tried to advance a foreign policy to counterbalance it, specially in the Mediterranean and the Middle East. An important aspect of this policy regards scientific and technological endeavours

model of science, technology and economic performance; second, and by the same token, to argue that the Agency was in debt to the community of theoretical physicists. He criticised the Agency's fellowship programme as ineffective because the Members State had no information about the institute where the applicants were to go. His proposal was to centralise the programme in a single institute under the control of the United Nations, where "these physicists can come as a matter of right at intervals on leave from their countries." Anticipating the criticism that such a centre should need a laboratory attached to it, he drew a neat boundary between both activities. While laboratories such as CERN, Broookhaven, and so forth, "produce data," theoretical physics interprets this information and correlates it with existing theories to propose new ones. Interestingly enough, he presented such a naive model precisely when a new form of organisation involved in assembling in a single space theoreticians, experimentalists and engineers was emerging.[39] The resolution was jointly presented by Pakistan, Afghanistan, the Federal Republic of Germany, Thailand and Turkey. The rhetoric and histrionic qualities of this young Pakistani theoretical physicist produced great impact on the audience, especially among the delegates from developing countries. The resolution was unanimously approved, with eleven abstentions, including Canada and the United Kingdom (while the USSR, USA, Japan, France and India supported it). It was decided that the Director General should appoint a panel to study the question.[40]

In the meantime, Salam started moving the idea among the political elite of physics on both sides of the Atlantic. He asked Oppenheimer to write to McCone for "[y]our blessing may see this [sic] things through,"[41] and four days later, after the resolution was approved, to guide him about "the next steps to be taken."[42] Oppenheimer replied saying that he would be attentive to the "status of the 'study'." On 28 September, Salam wrote Amaldi asking for his support as president of the International Union of Pure and Applied Physics (IUPAP).[43] Amaldi said that he would certainly

led by Olivetti in computing science, Enrico Mattei in the energetic sector and several science administrators in nuclear technology. All of them were, of course, primarily concerned with Italy's own dependency on the United States.

[39] Peter Galison, and Bruce Hevly, eds. *Big Science. The growth of large-scale research* (Stanford, 1992); also, Peter Galison, *Image and logic. A material culture of microphysics* (Chicago, 1997).

[40] IAEA, CC(IV)/RES/76, 6 Oct 1960.

[41] Salam to J.R. Oppenheimer, 21 Oct 1960, JRO. Box 40.

[42] Salam to Oppenheimer, 28 September 1960, JRO, Box 40.

[43] Ibid.

support the initiative, but that unfortunately his mandate as President of IUPAP had ended on 10 June.[44]

Trieste's candidature

The letter to Amaldi had a much more important consequence than Salam might have imagined. Amaldi was the most powerful physicist in post-World War II Italy. He was president of the Istituto Nazionale di Fisica Nucleare (the highest authority in nuclear and particle physics) and his influence on the National Research Council (Consiglio Nazionale delle Ricerche , CNR) was overwhelming. Everything regarding physics in the peninsula passed through his desk. He strongly believed in international collaboration as the only way for Italy to reconstruct its scientific community. He had been one of the architects in the creation of CERN and his name carried great authority in European circles.[45]

When Amaldi received the letter from Salam, Budinich was in Rome. Budinich immediately realised that this was an ideal opportunity: "for us the banner of the United Nations would have been a blessing we did not even dare to dream of," he wrote later.[46] At his return to Trieste, he wrote to Salam offering accommodation in Trieste for the institute. On 14 December 1960, Salam replied with two letters, the first a personal letter thanking Budinich and the other for official purposes. In the official letter he stated that he wanted to "express [his] deepest interest in seeing the Institute located in such a delightful place as Trieste."[47] Budinich forwarded the letter immediately to the rector, Agostino Origone, who gave Budinich the green light to go ahead with the paperwork and necessary contacts.

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[44] Amaldi to Salam, 12 Oct 1960, Box 246, folder 2/0, EAP.

[45] On the history of Italian twentieth scientific institutions see Rafaella Simili, ed. *Ricerca e istituzioni in Italia* (Roma, 1998), Gianni Battimelli, ed. *L'Istituto Nazionale di Fisica Nucleare - Storia di una comunità di ricerca* (Roma, 2001). See also Edoardo Amaldi, *Da Via Panisperna all'America* (Roma, 1997); Idem, *20th Century Physics: essays and recollections, a selection of historical writings by Edoardo Amaldi*, Edited by Giovanni Battimelli and Giovanni Paoloni (Singapore, London, 1995).

[46] Paolo Budinich, "ICTP: Thirty years after," in *From a vision to a system. The International Centre for Theoretical Physics of Trieste (1964-1994)*, edited by A.M. Hamende, (Trieste, 1996), 26-37, on 28.

[47] A. Salam to Budini, 14 Dec 1960, Reproduced in Budinich, "ICTP: Thirty years after," Annex I.

Budinich realised that the first thing needed was to have a financial base to support the candidature. The *Cassa di Risparmio di Trieste* is a bank with strong links to the public sector.[48] The majority of the public works and initiatives, including the university, used to be financed by loans from the *Cassa*. Budinich called his friend and the professor of statistics Pierpaolo Luzzato Fegiz,[49] who arranged for an appointment with the President of the *Cassa*, Guido Sardar. Sardar was sceptical, but Budinich tried to dissuade him with Salam's letter and the prestige of having a United Nations institute in the city. He continued being reluctant. Nonetheless, by national regulations, banks had to spend on "social works." If the Centre was to be set up in Trieste, it would be necessary to invest in infrastructure, and the *Cassa* would become the main loaning bank. After a few days, Sardar decided to invest in the idea donating 100,000,000 lire (an enormous figure) for the candidature.[50] Financially, Budinich was set to start promoting Trieste in Rome and Vienna. The problem was now a political one of convincing and mobilising the authorities in Trieste and Rome.

It was not difficult to convince the local authorities. The idea of having a United Nations institute sounded like a good step in bringing Trieste back to an international prestigious position. The Demo-Christian Mayor, Mario Franzil, presided over an *ad hoc* committee where he presented the candidature to Rome. Among its members there was the President of the Province, the rector of the University, Cesare Merzagora (then Counsellor of the *Assicurazione Generali*, and later Italian Senator), Prince Raimondo Torre e Tasso, a representative of the *Cassa di Risparmio*, and representatives of various local economic sectors. On 8 February 1961, the Mayor, the President of the Province and the rector of the University sent an official letter to the Minister of Foreign Affairs, Antonio Segni (a few years later elected President of the Republic) requesting the candidature.

The official candidature had to be presented in Vienna before the next Board of Governors meeting in June. Budinich approached Luzzato Fegiz and Manlio Udina, professor of international law and, in the 1930s, rector of the University, who had good contacts at the Ministry of Foreign Affairs and the at Council of Ministers. The three professors were received by Amintore Fanfani, the (Democratic-Christian) President of the Council, who gave his approval, and passed the order to

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[48] Sezione Sviluppo e Studi, *Trieste e la sua Cassa di Risparmio dal 1942 al 1967* (Trieste, 1967).

[49] Luzzato Fegiz was born in Trieste and in 1946 participated in the negotiations in New York, regarding Trieste. He was founder and director of the largest Italian polls firm, DOXA, which allowed him to have excellent contacts with local and national political personalities. See *Lettere da Zadobaski. Ricordi di un Borghese Mitteleuropeo* (Trieste, 1984).

[50] Budinich (Ref. 25), 59.

the Ministry to proceed with the Trieste candidature. Clearly, the diplomatic and political channels were well oiled; on 14 March 1961, less than six months after the Resolution had passed in Vienna, Rome officially presented the candidature as the seat for the new centre. This is an impressive record of efficiency given Italian heavy bureaucracy.

The 1961 Panel of Experts and the Fifth General Conference

Following the 1960-Resolution, a panel of experts convened in Vienna on the 21 and 22 March 1961, to make recommendations about the establishment of the Centre.[51] The physicist Carlo Salvetti, director of the IAEA's Division of Research and Laboratories, acted as chairman. All members of the panel were theoretical physicists, more or less close to Salam and/or Budinich: Guido Beck (Brazil), Aage Bohr (Denmark); S. Hayakawa (Japan); Leopold Infield (Poland); Nicolas Kemmer (UK); L.S. Kothari (India); M. Levy (France); Salam (Pakistan); Thirring (Austria), C. Møller (Nordita); Pretki (CERN); H. Roderick (UNESCO); S. Rozental (Nordita). Budinich was invited to participate as an observer. It must be noted that all of them, probably with the exception of Pretki and Kemmer (both collaborators of Salam), came from institutes that needed to foster their international contacts.

The panel unanimously supported the idea on scientific as much as political grounds. It stressed the necessity of fostering the "exchange of ideas" between the West and the East blocs, as well as the importance of promoting research in the developing countries. The panel recommended that the Centre "should also be open to non-Member States of the Agency, as, for example, the People's Republic of China. It should operate "on a truly international level without political polarization" in order to "serve also to some extent the lessening of international tension." In addition, the Centre would serve as a "pilot project" for future international research institutes. In contrast to other centres where scientists came to "*meet only,*" this institute was to be a place of "*common work*" in areas of common interest and benefit. In their view, the field to be covered was "theoretical physics related to nuclear physics." However, the list of proposed subjects was broad; it went from reactor theory to theoretical high-energy physics. The panel insisted that it should be "*strictly an advanced research institute for able physics*," implying that it was not to be a training centre. Lectures on special subjects were desirable, but only to "foster 'cross-fertilization' of ideas."[52]

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[51] IAEA, SAC/36, 6 Apr 1961.

[52] Idem.

The panel stated the following six conditions that the host-city should fulfil: (i) that it be a communication centre (that is, good access); (ii) that it be a pleasant place to live for the scientists and their families; (iii) that it have a university with a good physics department; (iv) that it be well connected to other strong theoretical and experimental centres; (v) that it had to have an experimental centre of good level; (vi) that it have easy access to computational facilities. Needless to say, Trieste was hardly in a position to fulfil most of these conditions. The panel also calculated the costs of the Centre. This is the less elaborated part of the report. After all the alleged advantages of a theoretical physics institute was its low cost, a sensitive point for a young Agency with a very tight budget. The figures were certainly conservative, although they said that the error did not exceed 20%. The budget only included the running costs, which were estimated at half a million dollars in the first two years and less than a million in the next two.

The recommendations were submitted to the Agency's Scientific Advisory Committee (SAC) and furthered to the Board of Governors, accompanied by SAC's own views. SAC suggested that the same could be better achieved by providing additional fellowships at a number of existing institutions and by arranging summer schools in various countries. The document urged the organisation of one or two summer schools in order to test the response from the scientific community.[53]

The Board of Governors gathered in June to prepare the fifth General Conference of the IAEA. After a difficult start in 1957, and an early period full of tensions and with very few effective actions,[54] the Agency had to prepare to elect its second Director-General. This item, occupied the attention of the delegates. This was certainly not a propitious moment to debate the expansion of the Agency. Nevertheless, with the support of Denmark, Austria, Italy, Sweden, Yugoslavia and a large number of developing countries, the Conference approved a resolution requesting that the director general circulate, among the Member States, a report on the panel's study and SAC's comments, and to enquire whether they would support and provide facilities for the Centre. An Italian offer of US$1.000.000 for the required infrastructure, plus a US$32.000 annual contribution towards the costs of running the Centre was included as an annex.[55]

Perhaps more importantly for the ICTP's future was the election of the Director General. After initial hostility by the Soviets, who urged the assembly to appoint someone from the Socialist

[53] IAEA, GOV/INF/51, Annexes, May 1960.

[54] See David Fischer, History of the International Atomic Energy Agency: The First Forty Years (Vienna, 1997), 71-95.

[55] IAEA, GC(V)/RES/107, 6 Oct 1961.

bloc, Swedish physicist Sigvard Eklund was elected. His appointment and the end of the Conference meant the beginning of a new era for the Agency; as the Chairman of the Conference wrote in retrospect, "after four years of mostly preparatory work, the organization was readying itself for action."[56] Eklund, who also carried the experience of the 1958 Geneva conference (where he and Salam collaborated), thought that it should emphasise its technical and scientific support, especially to the developing countries.

First inquiries about the proposal

In March 1962, Eklund circulated a questionnaire among the Member States. In the cover letter he announced that the Agency was making arrangements to help the Government of Italy hold a seminar on theoretical physics in Trieste from 16 July to 25 August, expecting that it would "give useful guidance regarding the further steps to be taken for the establishment of an international centre for theoretical physics on the lines envisaged by the General Conference."[57] The idea of the summer school was presented as a preliminary step towards the creation of the Centre, as the Trieste physicists wanted to show it, and not as an alternative, as SAC had suggested.

Very few countries replied to Eklund's circular. It was perceived that the creation of a centre under the banner of the IAEA would have political consequences for the future of the Agency and the balance of power within it. As the Centre's idea began to crystallise, the prudent stance of most delegates from both the Eastern and Western blocs turned into overt hostility. The United States said that it was "unable at this time to provide the information requested" but that it would be prepared to discuss the question at the Board of Governors. The Soviets made no declarations at all. The French government expressed its surprise to receive Eklund's letter "because we thought that the setting up of such a centre in the near future is not very likely since the American and Soviet members of the Scientific Committee did not feel that such an undertaking would be possible at the present time." Norway took a negative attitude too, though on different grounds: fundamental studies in theoretical physics did not lie within the scope of the IAEA. This, actually, was a debatable argument after the two resolutions passed in 1960 and 1961. At any rate, it was used on several occasions by different delegations opposing to the ICTP.[58]

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[56] Oscar A. Quihillalt, "The Fifth General Conference of the IAEA," in *The International Atomic Energy Agency: Personal Reflections*, edited by David Fischer, (Vienna, 1997), 53-61, on 56.

[57] S. Eklund to IAEA's Member States (SC/331), 21 Mar 1962, Box 28, Folder 3, IRP.

[58] S. Eklund to I. Rabi, 25 May 1962, Box 28, Folder 3, IRP.

Three countries were enthusiastic about the idea. Ironically, but perfectly expectable, they were the poorest and least scientifically advanced ones which offered to contribute. Greece said that it would send professors and share the running costs of the Centre, while Pakistan said that it would increase substantially its voluntary contribution to the Agency towards the establish of the Centre and nominate Pakistani scientists. A candid note was sent by the Guatemalan government "approving with pleasure the establishment of an International Centre for Theoretical Physics with the location in Trieste."[59]

Trieste continued pressing. Budinich decided to speak about the project to Guido Gerin, who had served as a top officer in the *consorzio diplomatico* the liason office between Trieste and Rome during the 1950s negotiations, asking him to see what he could do to intercede with Rome for Trieste's candidature. As a member of the Demo-Christian party, Gerin had excellent relations with top officers in Rome. He agreed to collaborate and began an intense campaign at the Council of Ministers. He reminisces that the most enthusiastic figure about the idea of the Centre was the then Ministry of the Defense, Giulio Andreotti.[60] The Council backed the project.

In 1961, Egidio Ortona returned from the Embassy in the United States when he was promoted to Director General of Economics at the Ministry of Foreign Affairs. During that same year, Luzzato Fegiz was appointed professor at the University of Rome.[61] While in Rome, he had more frequent contacts with political personalities, including Fanfani, himself professor of economic history at the same university. Through Luzzato Fegiz, Budinich had access to Ortona, who immediately became interested in bringing the Centre to Trieste. One can speculate on Ortona's enthusiasm regarding the project by examining some antecedents. It was not the first time Ortona worked with scientists and science administrators. In the frame of the "Atoms for Peace" programme back in the 1950s, he acted as an intermediary between a delegation of Italian physicists, which included Carlo Salvetti and Edoardo Amaldi, and the United States Atomic Energy Commission.[62] In addition, Ortona had taken part in the diplomatic negotiations for the acceptance of Italy as part of the United Nations. Ortona recalled in his memoirs that the strategy adopted to gain a seat in the UN, was in fact to present Italy's candidature to the UN Disarmament

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[59] Idem.

[60] Gerin, **¡Error!Marcador no definido.**.

[61] Luzzato Fegiz, *Lettere da Zadobaski*, 405-414.

[62] See Ortona, *Anni d'America: La diplomazia, 1953-1961*, (Bologna, 1986)135-140. At the Ministry in Rome, for instance, he supported the European Space Agency project (E. Ortona to Amaldi, 5 May 1963, Box 231, folder 2/0, EAP).

Mission, an issue that involved nuclear politics.[63] In 1958 Ortona was the Italian representative to the UN. Being an experienced diplomat, Ortona realised the central role that the new nations would play in future decisions taken by UN. Admitted in 1955, Italy was new in the system, just like the new nations. Ortona showed a especial interest for those clearly aligned with the West, particularly Pakistan and Iran. [64] My argument suggests that these elements explain his active interest in the ICTP idea. During his tenure at the Ministry he played a key role in the commitment of funds for the Centre. Indeed, in 1962 Italy replied to the IAEA's Director General letter confirming an offer of over US$ 1m for the new centre.

With part of the funds to promote the candidature, a deluxe booklet of photographs was printed featuring the city, lists of the active cultural life, diagrams of *future* motorways which would serve Trieste, maps of the airports "within easy reach of Trieste," the architectonic project of the Centre commissioned to two professors of the University, and maps of the four choices of sites offered to host the Centre. The first option was in "Le Ginestre," between Monfalcone and Trieste, which was offered by the Province; the second was closer to the city, in the Sea Drive Area; the third alternative was a site offered by Prince Torre e Tasso, near Duino. Finally, a site in the Miramare Park was proposed. It is difficult to say whether the first three options were seriously considered by the Trieste authorities. What is clear is the preference for the last option. The architectonic project was designed with the Miramare Park in mind. Moreover, the booklet has a photomontage of the scale model exactly in the position where it eventually was located in the Miramare Park. Interestingly, this was the only land that had to be acquired, whereas the others would be donated. One could speculate that the interest in locating the Centre in Miramare was related to some plans to develop the tourist industry, with the little port of Grignano, next to Miramare, as a strategic centre. As part of the internationalist dreams of Trieste, it had been argued that the importance of turning the city into an attractive tourist place. In 1957, the "Rogers Project" was presented, which was strongly supported by Luzzato Fegiz. One central point of the plan was to build a path along the seaside between Sistina and Miramare.[65] The Project was never accomplished, but the interest in opening Trieste to tourism continued. Perhaps some people thought that developing "scientific tourism" eventually would boost tourism in the area.

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[63] Ortona, Anni d'America: La diplomazia, 1953-1961, 142.

[64] Ortona, Anni d'America: La diplomazia, 1953-1961, 420.

[65] The model for Trieste's urban plans was the "*passeggiata*" between Bogliasco and Nervi, near Genova; see Luzzato Fegiz, *Lettere da Zadobaski*, 376-377.

By this time, however, Trieste was not the only candidate. A few days after the General Conference, Denmark expressed its interest in having the Centre in Copenhagen. In March, what was initially a general statement turned into a formal and detailed offer. Considering the firm tradition of Copenhagen in theoretical physics, the recent setting up of Risø's Research Establishment, the efficient scientific documentation service rendered by the University, and the electronic computer operating at the Danish Institute of Computing Machinery (and extensively used by the Bohr Institute), Copenhagen became a serious competitor. In addition, the Danish authorities, following the estimate made by the panel, offered US$800.000.[66]

Nevertheless, the Danish seemed unconvinced about the scale of the ICTP project. In their response to Eklund, they urged him to consider the new centre as a "modest" institute tightly connected to an existing one. This would render all the practicalities easier. However, that meant that the new centre would be an extension of a national research institution (the Copenhagen Institute for Theoretical Physics), contrasting with the spirit of the proposal, for the panel (including Salam) had insisted in the "*international*" and "*neutral*" character of the new centre. In addition, the Danish suggestion implicitly meant a compromise solution to the objections in the sense that, instead of a new international centre, it was preferable to re-enforce the international aspect of some *existing national institutions*.[67] Undeniably, and from a scientific viewpoint, the Centre would have been better located in Copenhagen but, again, the ICTP's pre-history was governed by the geopolitics of Trieste, rather than by the scientific considerations offered by alternative options.

Two additional offers were made, one from Turkey and another Pakistan. Salam's influence in the incipient Pakistan science and technology system suggests that he may have been behind this decision. However, neither of these countries could compete with the prestige and financial offer of the European counterparts. Furthermore, Salam thought that the Centre should be located, at least in its early years, in a "central" location, namely in Europe. It was better to be located in a peripheral city in the "metropolis" than in a metropolis in the "periphery." Thus, the Pakistani proposition can be interpreted as a move to raise the European offers, as in an auction.

Following SAC's recommendation, Eklund wrote to some of the major institutions enquiring about whether they could receive scientists from the Third World sponsored by the IAEA.

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[66] S. Eklund to I. Rabi, 25 May 1962, Box 28, Folder 3, IRP.

[67] Similarly, Norway held that, in case it was decided to create the Centre "it should be done by extending one of the established national or regional centre of theoretical physics, as for instance NORDITA in Copenhagen" (S. Eklund to I. Rabi, 25 May 1962, Box 28, Folder 3, IRP).

Whereas CERN responded that it "would hardly be able to contribute," Oppenheimer wrote from Princeton that: "we would be glad to receive nominations, recommendations, and information about any candidates who might reasonably come here."[68]

The Trieste Summer School and the Sixth General Conference

The Board of Governors again studied the question in June 1962. The Director General submitted the results of the questionnaire to the Member States, the report of the 1961 panel and the SAC's views. Fears arose concerning the possibility that the Centre might become a heavy financial burden for the Agency. It was recommended that the financial assistance had to come from the interested Member States, and not from the Agency's regular budget. Given Denmark's proposal of hosting but a small centre linked to a strong national existing institution, the idea of creating a new international centre under the banner of the IAEA was increasingly associated with Trieste.

Eklund, Salam and Budinich thought that the summer school should be used as an important antecedent towards the establishment of the Centre. This is a perfect example of political ability whereby the opponent's suggestions are adapted to suit the own plans. The SAC's proposal of holding summer Schools in Trieste and Czechoslovakia was to demonstrate that a new centre was unnecessary. In May, the IAEA' Deputy Director, John Hall visited Trieste. He reported to Isidor Rabi, a member of SAC, that "it is a very attractive location and the people whom I met were very enthusiastic about developing Trieste on a continuing basis as an international site." In what seems to be an attempt to ease Rabi's strong opposition, Hall added: "As you know, your friend Professor Cacciapuoti is Professor of Physics at the Physics Institute of Trieste."[69]

Budinich continued to receive the support of the Mayor and the Members City Council. He was able to convince the General Commissioner of the National Government (the representative of Rome in Trieste), whose relations with the local authorities were traditionally tense, to make the necessary provisions for the adaptation of the "Castelletto" in Miramare Park to host the meeting. On 16 July, the symposium was officially inaugurated. Three days later, Mayor Franzil, on behalf of the City of Trieste, conferred a medal on Eklund.[70]

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[68] Letter from CERN quoted in Sir William Penney's report "International Theoretical Physics Centre", Second Draft Undated [but probably Jan 1963], Box 28, Folder 4, IRP. Oppenheimer to Eklund, 27 Aug 1962, JRO, Box 40.

[69] J. Hall to I. Rabi, 18 May 1962, Box 28, Folder 3, IRP.

[70] "Attività del Consiglio Comunale nel mese di luglio 1962," *Rivista della Cittá di Trieste*, Aug-Oct, 1962, 17

The result of the school was what Salam and Budinich expected. It was attended by some the most prominent names in theoretical particle physics, including Eugene Wigner and Nobel Laureate Julian Schwinger. Argentinean J.J. Giambiagi, with whom Salam had developed a very good relationship since his visit to Buenos Aires in 1958, recalls that: "the dominant topic was actually the proposal of Abdus Salam and Paolo Budinich to create an international centre for the benefit of the developing countries. The seminar was in fact a kind of pilot experiment for testing the feasibility of a centre."[71]

At the end of the school, Budinich and Salam asked the participants to write a letter supporting the initiative of having a centre in Trieste and stating that, if such a centre was created, they would come on a regular basis. It is also likely that they asked the participants to write personal letters to the representatives of their governments.

Given the divided opinions at the Board of Governors, the advocates of the Centre thought that it would be better to wait until the General Conference in September (after the Trieste Seminar), trusting in the support from the developing countries (the new majority). In a joint paper, the Board of Governors and the Director General informed that the former was reviewing what could be done to implement most of the recommendations of the Scientific Advisory Committee.[72] During the Conference, Eklund circulated the letter of support from the participants of the Trieste Seminar, and copies of the replies from the institutions he had contacted in August.

It was impossible to predict the outcome of the Conference. On the one hand, SAC and many of the delegates at the Board meeting were against the establishment of the Centre. Besides the delegations that explicitly opposed, France and Norway, the most powerful ones (the Soviet Union, the United States and the United Kingdom) were unenthusiastic, even hostile. This undermined the political motivation for opening some space for dialogue between the Eastern and the Western blocs. On the other hand, with the exception of Princeton, none of the institutions that were consulted wanted to co-operate with new fellowship programmes for scientists from developing countries. In addition, the Trieste school had been ably used by Salam and Budinich as a platform to receive the backing of important physicists. It would be a real diplomatic and political battle.

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[71] J.J. Giambiagi, "Memories from ICTP," in *From a vision to a system. The International Centre for Theoretical Physics of Trieste (1964-1994)*, edited by André Hamende, (Trieste, 1996), 219-225 , on 220.

[72] IAEA, GC/(VI)/194, September, 1962.

Salam talked at the General Conference delivering one of the most powerful addresses by a scientist in that forum. In a ten minute speech he was able to align most of the developing countries' delegates to support a new resolution in favour of the Centre. In this masterpiece of rhetoric, Salam asked three simple questions: "(1) Does research in theoretical physics fall within the scope of the Agency's activities? [Norway's objection]; (2) Do physicists from the emerging countries really need and desire such Centre? (3) If the Centre is desirable, can it be created and can the Agency afford it?" Making reference to the first question he pointed out the supposed inherent relation between theoretical physics and nuclear technology: "I sometimes wonder what reply an Agency like ours may have given to a request of a young and unknown theoretical physicist, Albert Einstein, in 1904, if he had made an application for a Fellowship to follow his theoretical speculations on the nature of space and time," he said. He contended that theoretical physics did not need costly apparatus and hence was inexpensive. Finally, with admirable political sense, he referred to the *rights* of the young scientists from poor countries: "let us not forget that young scientists in the under-developed world feel the urge to meet the challenges of fundamental science as much as anyone else." In this context, the word "challenge" has a strong political meaning: denying the opportunity to do theoretical physics at the highest standards constituted an insult to and a waste of the intelligence of the underdeveloped nations. As for the second question, Salam showed the letter signed in Trieste by 53 of the participants. Regarding the question about whether the centre could be created, Salam produced further names of physicists who he knew that "from my personal impressions" (including Niels Bohr and Hideki Yukawa), they all were "strongly in favour of an International Centre." It was an authority argument; in Salam's view the project was feasible because it counted on the blessing of the physics elite.[73]

Salam had achieved his aim to polarise the audience by presenting the case as a confrontation between poor countries in need of science and technology and rich countries possesing of the key for development. He was acclaimed by the developing countries' delegations. He had touched their internationalist hopes. The rest of the delegations looked perplexed and felt uncomfortable at the enthusiasm generated by Salam's words. It was seen as a manifestation of Salam's populism and the developing countries' ignorance and naivety regarding science and technology. With similar arrogance, one year later, when the negotiations ended, an American

[73] The speech is reproduced in Salam, Abdus. *Ideals and Realities. Selected Essays of Abdus Salam*. Edited by C.H Lai and A. Kindwai. Third ed. (Singapore, 1989), 219-223.

delegate commented: "you wanted to have a centre for underdeveloped countries: it will be an underdeveloped centre."[74] In a letter to his friend Oppenheimer, the same delegate wrote:

> The great surprise in a way was the terrific head of steam which Salam was able to raise and the poorer nation for a scheme for a rather large center of theoretical physics. Delegations which had no idea what it was all about lined up passionately in favor and we had the encouraging spectacle of the Eastern bloc and the Western bloc being on the same side…about to be bowled over by the hepped up underdeveloped…The Trieste meeting must have been most extraordinary…

And he added:

> Salam's skilful leadership in mustering the strength of the have-nots was truly astonishing.
> I have never seen the most skilled professional gather in his votes more effectively. He is clearly a man who will go for [sic] in politics or in the politics of science. I am writing all this because I have such a feeling of inadequacy in presenting our case at home compared with the natural genius of a Salam.[75]

What Rabi probably ignored is that Salam was already working to keep Oppenheimer on his side. A few days later, Oppenheimer received a letter from Salam reporting the "strong demand from the smaller countries of South America and Asia," and the lack of interest shown by the USA, USSR and the UK. The letter closes with Salam's characteristic way of presenting his own proposal as a project of his interlocutor: "I do very much hope through your continued interest the Centre comes to existence as early as possible and justifies all the hopes which have been built up on the idea of truly international collaboration in our subject."[76]

Finally, a new resolution was approved recommending that the Board of Governors study "ways and means" of setting up the Centre. *If the study showed its feasibility* the Centre should be included in the Agency's programme as early as possible. It was a compromise solution. There was still the possibility this new study would conclude that the Centre was not convenient. However, it is fair to say that the unusual alliance between Italy and the Third World countries won a battle against the even more unusual coalition of the United States, most Western European countries and the Socialist Bloc.[77] A final decision would be made the following year.

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[74] Budinich (Ref. 46), 30; Budinich, interview (Ref. 25).

[75] Rabi to J.R. Oppenheimer, 25 September [1962], JRO, Box 59.

[76] Salam to J.R. Oppenheimer, 28 Sept 1962, JRO, Box 40.

[77] Resolution GC(VI)/RES/132, from 26 September 1962, was approved with 57 votes in favour and 4 abstensions.

Sir William Penney's Report

The IAEA's SAC discussed in depth the establishment of the ICTP in May 1961, June 1962, October 1962, and again in February 1963. Throughout this period, the unanimous hostility of the members remained unaltered. During the October meeting, for instance, they reported that: "In the view of the limited resources available to the Agency, every effort should be made to avoid duplication with national programmes."[78] Given that its views "had clearly not been accepted by the [1962] General Conference the Scientific Advisory Committee therefore decided that they would fully explain in writing their considerations about the advantages and disadvantages of the proposal."[79] The report was commissioned to Sir William Penney (who, in 1962, replaced Sir John Crockford as scientific advisor of the British Atomic Energy Authority[80]).

Although the Committee was said to be "impressed by the enthusiasm expressed at the conference," it contended that "for the present there were more effective and more economical methods by which the objectives may be achieved." I shall examine in turn the objections. The first objection may be summarised as follows: *Pure science is not relevant in improving the standard of living in poor countries*. It was clear that the Centre's scientific activities would concentrate on high-energy theoretical physics. The SAC pointed out that this field "has perhaps no immediate practical application in the direction of improving the living standards." Other areas such as fluid mechanics, solid state theories, gas theory, logical use of computers and so forth, would be "less distant from practical application" and, therefore, more useful in that part of the world. The debate between application-oriented and curiosity-oriented research was but a special case of the dilemma between technology and science for development. It did not mean, as has been simplistically said, that the developing countries should not carry out any research at all. It contended that these countries should do research bearing in mind the basic needs of their societies. The Committee stated that developments in theoretical physics and applied science could only come about by *national* scientific programmes on a wide and substantial basis. Therefore SAC proposed that the

[78] IAEA, SAC/OR.9, 28 Jan 1963, 8.

[79] Sir William Penney' paper on the International Atomic Energy Physics is enclosed in a letter from H. Seligman to I. Rabi, 16 Jan 1963, Box 28, Folder 4, IRP. All quotations in this section are taken from this report, unless indicated otherwise.

[80] UK Atomic Energy Authority, *Eighth Annual Report (1961-1962)* (London, 1962), paragraph 333.

IAEA should limit itself and "*encourage* the growth of theoretical physics on a wide basis *in* newly-developing countries."[81]

The second objection was that the presentation of the Trieste 1962 Summer School had been misleading. The Committee admitted that the school might be thought to demonstrate how successful the Centre would prove to be (as Budinich, Salam, and implicitly Eklund sought to show). This argument was "of doubtful validity," the report said. For scientists, especially leading scientists, will not leave their institutions for a year or more to work elsewhere. At best, this may happen in the early years, when some of them will be "sympathetic to encouraging research in the developing countries." As time passed, the quality of the institute would deteriorate due to the lack of interest of the scientists. It is worth noting the patronising character of this position. For the Committee, as for the advanced countries, the Centre would never be attractive because of its intellectual merits, but just a sort of charitable institution for poorer countries. It was thus asserted that the Centre would be "an artificial creation" because, in order to survive, it would need to "artificially" supply a constant flow of leading theoretical physicists. This objection reflected the Committee's scepticism towards an institution not closely tied to a national programme, and budget, which presumably would be a more "natural" undertaking. As a response to this objection, the SAC proposed to hold Summer Schools in different parts of the world. Scientists will not keep travelling to the same place each year not least because one of the attractions of the summer schools is "the opportunity of visiting different parts of the world."

Finally, the SAC objected because the Centre would be too *costly*. The Committee made a detailed estimate of the costs of the building, library and necessary equipment. This last item included a US$1 million dollar computer considered by the SAC to be "essential." Indeed, the majority of theoretical physics does not depended "just on pencil and paper." All the phenomenology coming out from theoretical models entailed long calculations where a computer seemed necessary. A physics centre without such a facility would not be competitive. This necessity became apparent in the early 1960s and, in fact, in the 1970s it meant a major change in the practice of physics.[82] SAC estimated that, in order to set up the Centre, costs would run between 2.1 and 2.25 million dollars, plus another US$800.000 per year for the general costs. This figure was considerably higher than the one estimated by the 1961 panel. Taking into account Italy's offer (US$1 million, plus US$250.000 per year), the IAEA had to pay for the remaining US$1.2 million, plus US$ 550.000 per year. Given its precarious financial situation, the Agency could not afford

[81] Penney (Ref. 79), italics added.

this. Therefore, the ICTP represented about 17% for the initial infrastructure, plus 8% of the IAEA's annual budget.[83] Considering that the Centre would host no more 80 theoreticians, the cost seemed disproportionate. The Committee suggested that, instead of creating a Centre, the Agency should intensify its fellowships programme made available to Third World students to study in the existing research centres. In this sense, the Committee stressed the "encouraging" answers from Dubna and Princeton to the Director-General's questionnaire. One should note that those replies were far from being clear offers to host researchers, and anyway, the period of time and number of posts available for IAEA's fellows, as stated in their letters, would be rather limited. They only stated their intention to welcome nominations.

In February 1963, the Committee gathered again and submitted the report practically without any modification to the Director General. The tone of the report was set in the first paragraph, where the Committee said that: "The Committee…unanimously feels on scientific grounds that the Agency should not take responsibility for, or encourage, the establishment of such an institute under the Agency."[84] In summary, the SAC insisted in that Summer Schools and more fellowships would be a more effective way to cover the demand from the developing countries. SAC was determined to stop the project. In the fall of 1962, just before the General Conference met, the Indian physicist Homi Bhabha, a member of SAC, suggested to bring the question to IUPAP, of which he was its President. In fact, a few months later the matter was discussed in Bombay by the Executive Committee.

The crucial year: 1963

The period from October 1962 to June 1963 was the most dramatic in the negotiations. The Italian lobby intensified so as to persuade at least those personalities politically influential in the Agency and contrary to the initiative. Meanwhile, a new panel had to be appointed. The task of this body was crucial as it had to deliberate the feasibility of the Centre.

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[82] Galison (Ref. 39), *Image and Logic*.

[83] United States Department of State, "Seventh General Conference International Atomic Energy Agency, Vienna, September 1963. Position Paper, Program and Budget for 1964," NARA, DoS Rec., Rg. 59, Box 4154, file AE-IACE (1963).

[84] IAEA, "Conclusions reached by the Scientific Advisory Committee at its Tenth Meeting on 8 and 9 Feb 1963 in Geneva," Box 28, Folder 8, IRP.

As soon as Carlo Salvetti – now Italian Governor at the IAEA's Board of Governors – learned about Bhabha's intention, he urged Amaldi to "move the idea of the Centre and in particular the candidature of Trieste when the item is presented in that organisation [IUPAP]."[85] During SAC's October 1962 meeting in Cannes, Salvetti had the opportunity to discuss the matter in private with several personalities. Salvetti briefed Amaldi about the various positions and the bad mood of the Members of the Committee with relation to the idea.[86]

At this point, the work of promoting the Centre was entirely carried out by the Italians, joined by Alexandre Sanielevici, who was a Romanian experimental physicist trained in Turin and Deputy Director of the IAEA's Division of Research and Laboratories.[87] Salam was still active moving his international contacts, but his correspondence with Budinich was sporadic. Budinich knew that Salam's presence in Trieste was essential to make the Centre scientifically attractive. On 28 January 1963, Budinich wrote to Salam saying that he expected Salam to accept the Directorship of the Centre. He reported that Sanielevici was visiting Trieste "in order to start the machine for the creation of the Centre, site, building and so on." And he added: "You should come to Trieste as soon as you can, you will be received as a Roman Emperor."[88] This letter is of central importance to realise to what extent the Trieste group was working independently from Salam. Indeed, the letter summarises Budinich fears that Salam would not come to Trieste after the Centre's foundation, and confirms the leading role of Trieste in the negotiations. This again reminds us that we must be careful in assessing the participation of each actor *in each particular phase of an institution*. Before 1964, it was not clear whether Salam would take over the directorship of the Centre.[89]

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[85] C. Salvetti to E. Amaldi, 16-Oct-62, Box 504, folder 2, EAP.

[86] Ibid.

[87] Luigi Stasi, who was a Trieste administrator working for the University and an active promoter of the ICTP idea, recalls that "it was [in the hospitable house of Alessandro Sanielevici] that the strategy in support of the candidature of Trieste as the seat for the future of the ICTP was planned. Paolo Budinich and the Italian diplomat Fausto Marinucci de Reguardi…took part in this 'conspiracy' meeting" (Stasi, (Ref. 24), 208).

[88] P. Budini to Abdus Salam, 28 Jan 1963, D.138, ASP.

[89] Even after the approval of the Centre in 1963, Salam's acceptance to direct the Centre was delayed to his own negotiations at Imperial College to arrange a double appointment (at University of London and at the ICTP). In Feb 1964, Sanielevici expressed his preoccupation and pessimism for what seemed to him Salam's indecision: "in spite of his promises, Salam did not send us back his written acceptance of the post of Director" (A. Sanielevici to P. Budini, 7 Feb 1964, D.138, ASP).

Amaldi's support for the project was crucial but he remained prudent in offering funding. He did not participate in the IUPAP meeting in Bombay and therefore could not defend the ICTP item there, but forwarded Budinich's counter-arguments to SAC's objections to all members of the Executive Committee. [90] Amaldi could do nothing and IUPAP's stance was similar to SAC's – the Centre was inconvenient. In contrast, in Italy he worked actively but also carefully in order to obtain the necessary political and economic support for the new centre. After all, the Centre was not competing with the budget for other research projects. The state, or more exactly, the Ministry of Foreign Affairs had to make a special provision for it. This meant more money from the state and destined for science. On the other hand, he was careful not to commit funds already approved for national programmes. In January 1963, he replied to Budinich's request of 150.000.000 lire from the INFN to the Centre, indicating that in 1961 the Institute had decided to make a contribution of 20.000.000 lire for scholarships, and that it did not intend to make any further provision.[91] At any rate, in the Spring of 1963, Italy confirmed the offer made a year earlier. In addition to financial support, the creation of two full professorial chairs and four assistant professorial chairs in theoretical physics at the University of Trieste was announced.

In February, the Board of Governors, now chaired by Salam's intimate collaborator, the Pakistan Governor I.H. Usmani, requested that the Director General convene a meeting of up to three advisers to study the offers of facilities, assistance and co-operation made to the Agency in connection with the establishment of the Centre.[92] We have no details of the criteria used to select the members. Nevertheless, the "three wise men," Robert Marshak, Jaime Tiomno and Leon Van Hove, were certainly not neutral arbiters. Robert Marshak was a champion of international exchange. Jaime Tiomno, badly needing international contact, had spent in 1961 some time as Salam's guest at Imperial College. Leon Van Hove was the director theoretical division of the largest international centre in the Europe (CERN).

The panel met in April and, despite SAC's considerations, "it came to see such great potentialities in the project of establishing an International Centre for Theoretical Physics that [they] feel this enterprise to deserve the greatest and most enthusiastic support." Implicitly referring to the Copenhagen spirit of the 1930s, they called for the creation of "an atmosphere of informality

[90] P. Budini to E. Amaldi, 10 Nov 1962, Box 504, folder 2, EAP.

[91] E. Amaldi to P. Budini, 10 Jan 1963, Box 286, folder 2/0, EAP.

[92] The draft resolution was submitted by Greece (IAEA, GOV/874, 21 Feb 1963). The United States made an amendment in order to weaken the eventual commitment of the Agency in an eventual creation of such a centre and transferring the responsibility to the individual Member States (IAEA, GOV/875, 22 Feb 1963).

and free discussion. As for the computer, it pointed out that it might be enough to count on computing needs amounting 20 to 30 hours per week, carrying a total cost of about $100.000 at the end of the fifth year, significantly lower than SAC's estimate. It finally expressed its optimism towards the financial problem arguing that the Director General could try to find additional support from philanthropic foundations on the basis of the scientific prestige of the staff. As for the seat, the panel suggested that a choice should be made between Copenhagen and Trieste; "Copenhagen would be a more favourable location than Trieste from the point of view of existing theoretical environment whereas Trieste would be favoured on the basis of the financial commitment," the report concluded.[93]

However important the Panel's backing, the project still had several enemies. I suggest that the opposition of at least some of the members of the Scientific Advisory Committee reflected the position of their national delegations (of which they were part). This research could not examine the position of every single delegation, and the same is true for the members of the SAC. Nevertheless, from the available material it is possible to draw some general conclusions.

Without doubt the most important in this respect is the Soviet Union, which did not even answer Eklund's questionnaire. The Soviet attitude might be due to the strong Soviet opposition to the election of Eklund a few months earlier. The arguments against Eklund had been championed by Vassily Emelyanov, another Member of the SAC. Therefore, one can infer that the Soviet opposition to the Centre was a result of their disinterest in sponsoring an institute located in Western Europe and backed by a Director General they considered aligned with the NATO countries.[94] Equally important is the fact that, like its counterpart, the USSR was not interested in having intermediaries to negotiate with the Americans.

The British and the French delegations also made clear their opposition from the beginning. Neither country really needed to re-enforce its international contacts in theoretical physics. From their point of view, there were no advantages to setting up such a centre, and the internationalist ideology played very little in their foreign policy. As Goldschmidt told Salvetti, a different thing would be if Italy paid for the bulk of the institution. After all, the French and British research institutes, financed by the national budgets, were constantly visited by eminent physicists. Hence Goldschmidt's and Sir William Penney's insistence in strengthening the existing centres.

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[93] IAEA, "The International Centre for Research in Theoretical Physics. Report to the Director General by Messrs. Marshak, Tiomno and Van Hove," Gov/INF/98, 21 May 1963.

[94] See Oscar Quihillalt (Ref. 56), 57-60.

Cambridge, Oxford and Imperial College, London, were prestigious and powerful centres. In the field of theoretical physics, France had the Summer School of Les Hauches, also sponsored by NATO, precisely to put the French students in contact with leading theoreticians from the rest of the industrialised world. In contrast to the defeated countries of the Second World War, Italy, Japan and the Federal Republic of Germany, which embraced the ICTP idea from the beginning, France and Britain could offer nuclear capabilities such as advisory services and equipment to several countries. For these countries the bilateral collaboration was politically and economically more attractive. The links with the developing world did not pass through the United Nations system, but through their own post-colonial networks co-ordinated through national institutions.

India was the only Third World country that opposed the ICTP idea. Fearing that the Americans would support the enterprise, the Indian delegation elaborated an extensive memo, written by Surjit Mansigh, who was a notorious exponent of the realist school of international relations in Indian diplomacy. The Indian delegation was determined to stop a project of this calibre proposed by the Pakistani delegation. The fact that the memo was elaborated by a Third World delegation, in fact the one with the largest scientific community in the developing world, gave special weight to its arguments. The memo put it bluntly from the beginning: "an institute of this nature would not be of benefit to the developing countries." It provided four reasons which were identical to SAC's objections. The "alternative methods" also copied SAC's (summer schools and fellowships). It pointed out the expressed opposition by the members of SAC and IUPAP (including Bhabha, a member of both). The memo concludes urging strong opposition to the initiative: "The Government of India, therefore, hopes that the Government of the United States of America will give careful consideration to the views of these scientific bodies [SAC and IUPAP] and support their recommendations."[95]

After a heated discussion, on 14 June 1963, the Board of Governors, decided to approve, *on a provisional basis*, an International Centre for Theoretical Physics at Trieste. The Director General was requested to submit a draft of the agreement to be voted on during the next General Conference.[96] It was the most important battle for the Centre. Budinich, Salam, Usmani, Salvetti and Marinucci (the Italian Ambassador to Vienna) and Eklund had won. It meant that Italy and the Agency were committed to the creation of the Centre. Now their respective contributions to the undertaking had to be decided. It was a political and a diplomatic triumph for Trieste. Budinich

[95] "Aide Memoire, delivered to D. Schneider by Miss Surjit Mansingh of Indian Embassy on June 12 1963," NARA, DoS Rec., Rg. 59, Box 4156, AE-IACE (1963).

[96] IAEA, GOV/DEC/31(VI), decision number (63), 14 June 1963.

immediately sent a telegram to Amaldi and to the *ad hoc* city committee, thanking them their support and underlining the crucial role of the national government diplomats Marinucci and Salvetti.[97]

The following day, Budinich was received at the train station by his colleagues, his father and the local press. The same day, Mayor Franzil congratulated him and informed the City Council. Budinich had departed from Vienna at 5 p.m., landed in "Marco Polo" airport at 6.35, left the Venice train station at 7.45, and finally arrived in Trieste at 9.30. After a Vienna-Trieste trip of four and half hours, he declared to the press: " It is necessary to provide immediately for the indispensable works for the Centre's functioning: the Ronchi airport, the Venice-Udine highway and a double track railway system between Trieste and Venice. This is a commitment we will need to face in the quickest and most rational way."[98]

Limiting the IAEA's participation

Now the final decision about the future of the Centre was in the hands of the General Assembly. The text of the agreement needed to establish the participation of the Agency in the enterprise. In this respect, the United States' opposition was central in establishing the operating conditions of the Centre.

The "three wise men" report balanced the power relations between the advocates and the opponents. The panel's conclusion served to neutralise SAC's opposition. Now each side had the backing of an authoritative, "*scientific*" body of experts. The question had to be defined democratically at the General Conference. This left to the opposition forces two options: either put strict constraints on the participation of the Agency in the undertaking or stop the whole project by gathering enough votes at the General Conference. The former was the United States stance, whereas the latter was the position adopted by India.

The 1962 resolution had been a compromise solution that practically transferred the decision to a new panel of experts. The United States realised that the "three wise men" report left little margin for opposing the creation of the Centre. In a confidential document, the State Department gave instructions to its delegation in Vienna in the sense that the United States

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[97] P. Budini to E. Amaldi, 14 June 1963, Box 504, folder 2, EAP.

[98] Anon., "Il Centro reclama aeroporto e autostrada," *Il Piccolo*, 15 June 1963, 4. About the Mayor's declarations, see in the same page "Fattivo contributo della città nell'azione del comitato promotore."

> [did] not plan to match special contributions such as those for the Theoretical Physics Center or the Oceanographic Research Project [in Monaco], since the United States matching formula is intended to encourage contributions for the support of the regular operational program, whereas special contributions are made for special projects which are of particular interest to the donor country and are outside the target supported by all other voluntary contributions.[99]

One measure taken by Eklund when he was in office was to study how to implement a long range planning in the Agency. A panel had been convened for that purpose. Since the ICTP was in a study phase, it was not included in the planning. By defining them as "special projects," the United States argued that they were not of interest to the Agency, but to the donor country. This justified its unwillingness to collaborate as well as a reason to limit the Agency's participation. This position remained unaltered even after the creation of the Centre. The United States systematically opposed any attempt of including the ICTP in the IAEA's regular budget. Consequently, and throughout its history, the future of the Centre depended on the periodic renewal of a special agreement between the Agency and the Italian government.

Item number 13 of the 1963 General Conference concerned "the establishment under the auspices of the Agency of an International Centre for research in Theoretical Physics." As in the previous year, the pressure of the new majority representing the recently independent countries forced both the United States and its allies, as well as the USSR and the Socialist bloc, to accept the creation of the Centre. Instead of overtly opposing the resolution, most industrialised countries decided to abstain. Hence there was no *formal* opposition. However, the United States campaigned to limit IAEA's contribution to an amount "no exceeding US $55.000" in the form of fellowships, and, during the first four years, a total amount of US$110.000. The United States' position is clearly stated in a State Department confidential report in which one reads: "The Board… approved the establishment of the Centre, on a provisional basis and subject to some fairly stringent restrictions regarding the Agency's financial commitments. *The U.S. was a principal architect of this decision, and as the principal contributor to the Agency's voluntary budget, our objective was clearly to limit the Agency's financial commitment.*"[100]

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[99] United States Department of State, "Seventh General Conference International Atomic Energy Agency, Vienna, September 1963. Position Paper, Program and Budget for 1964," NARA, DoS Rec., Rg. 59, Box 4154, AE-IACE (1963).

[100] John Trevithick [?] to Herman Pollock, Memorandum 30 Jul 1965, Attached to H. Pollock to J. Slater, 9 Aug 1965, in grant-file 67-40, FFA; my italics.

4. EFFECTIVE NETWORKS AND PROPITIOUS ENVIRONMENTS

> I must say that very rarely were so many difficulties sorted out so quickly…Once again science has survived, has surpassed politics to show the direction that conduces to the progress and fraternity among men.
>
> Carlo Arnaudi[101]

In the last part, I shall try to summarise why the Centre was created. I believe that when one realises that the geopolitical situation of Trieste constitutes the chief historical framework in which the main actors moved (the Italians), it is not difficult to understand why Salam seems to have been in the shadow during this phase of the ICTP. He certainly was essential in mobilising the Third World delegates both by lobbying and through his splendid rhetoric on the stage, but it would be naive to believe that the Centre would have come to fruition without the financial and political support of an industrialised country. Given the actual distrust of international endeavours, even a relatively inexpensive project of this kind needed the commitment of a national state willing to pay. No Third World country would have been in the position to support such a proposal, as the utilitarian view of science was shared by the governments of the United States and most developing countries alike. The ICTP was possible due to Italy's offer which, in turn, resulted from the mobilisation of financial, political and diplomatic resources in Trieste. Therefore, while Arnaudi's rhetoric is a typical example of the rhetoric of the scientific internationalism ideology, the creation of the ICTP does *not* represent the victory of science over politics, but, rather, the efficiency of an intimate collaboration between physicists and politicians in a propitious political environment. Despite having different motivations and interests, the political circumstances provided the conditions for the crystallisation of their common effort. The local, national and international political and scientific networks to which Salam and Budinich had access were a crucial force in advancing the idea against the hostility of the Scientific Advisory Committee and the American and Soviet delegations. This network included the Trieste authorities and intellectual elite, the Italian and Pakistani diplomatic services, and some influential members of the scientific elite in the United States and Europe.

I shall examine in turn the motivations and the environment in the different arenas where the negotiations unfolded – Trieste, Italy and the IAEA.

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[101] Carlo Arnaudi, Minister for Scientific and Technological Research, Address on the occasion of the inauguration of the ICTP in Trieste (Istituto di Fisica Teorica dell'Università degli Studi di Trieste, *Il Centro Internazionale di Fisica Teorica*, booklet, undated [but 1964].

Trieste

From the historical background provided earlier, the motivations should be clear for the reader. First, it was another attempt to bring Trieste out from its isolation. As we saw, this was another example of a series of efforts that included the *Umana* group, Cacciapuoti's involvement with UNESCO, the "European Network" in which Budinich forcefully collaborated, and later the European University. In the minds of some promoters, the new facilities necessary for the ICTP would convert Trieste into an Italian Geneva. When the Centre was approved, Budinich and Arrigo Cavalieri (then director of the Italian-American Association in Trieste) founded a school for the children of the scientists (a condition placed by the Agency). The model used was the existing International School in Geneva. As part of the documentation used to justify the creation of the School, a text was included pointing out that the new school could attract "American and other firms which had decided to establish branches in Europe…based on their choice of Geneva as their European headquarters on the presence of the International School."[102]

Second, many envisaged the Centre as a means of neutralising the political polarisation in Trieste. The local intelligentsia, clearly represented in the *Umana* group, firmly believed that the cultural exchange with the Socialist countries could ease the acute political tension. This was favoured by the new climate in the relations between the United and the Soviet Union after Stalin's death. For the first time, a Soviet leader visited the Pope. In 1962, Italy elected a centre-left government and the socialists took over some key ministries.[103] Meanwhile Trieste continued living a polarised life. Therefore, not only the intellectuals, but also moderate politicians believed that the effect of being the host-city of a centre with an active scientific collaboration between the two blocs would mean the gradual isolation of the most extremist factions. In principle, the Centre would serve as an example that holding a dialogue between members of antagonistic ideologies and systems was possible, and mutually beneficial. They hoped that the United States and the Soviet Union were honestly interested in fostering this kind of scientific internationalism.

Third, the creation of the ICTP was a way to force Rome to adopt certain compromises with Trieste. The advantage of this strategy was that, if Rome signed an agreement with the IAEA to set

[102] "Relazione sull'Attività del Comitato Cittadino Ristretto, Dal 26 Giugno 1963 al 12 Ottobre 1965, Annex F," D.147, ASP.

[103] The "turn to the left" of the Demo-Christian party was, however, a political manoeuvre to isolate the Communist party; see Ginsborg (Ref. **¡Error!Marcador no definido.**), Chapter 8. On the Centre-left years in Trieste see Botteri et al. (Ref. 20).

up an international centre in Trieste, the commitment of the central government to provide the necessary infrastructure, particularly in terms of communications, was guarantied by an *international* obligation. The economic benefit for the local building companies, as well as for the commercial sector, and the popular demand for those services, would have paid significant political dividends to the local authorities. It is difficult to assess the actual weight of the existence of the ICTP in the decision to build a new highway linking Trieste, Miramare and Monfalcone, the duplication of the Trieste-Venice railway track, and the transformation of Ronchi into a commercial airport. However, the Centre frequently was invoked to justify these works, which eventually were done. The investments made were investments in the city, involving local industries and local services. Furthermore, the seat in Miramare belongs to the University, which rents it for a symbolic price to the United Nations. Even if the ICTP had failed, the infrastructure would have been useful to the city.

I demonstrated that the Trieste scientists, most notably Budinich, were remarkably efficient. What circumstances allowed them to act so quickly? First, the emergence of a special group of people with experience in diplomatic negotiations was essential. This was due to Trieste's peculiar geopolitical situation after its incorporation into Italy. Most of people who worked for the candidature of Trieste, particularly those lobbying in Rome, had been involved in negotiations defending the interests of Trieste during the hard post-World War II years. This group included a high proportion of professors from the University of Trieste. Budinch, Udina, Luzzato Fegiz, Gerin and others, all had had experience in the international arena and had excellent contacts with the Foreign Affairs Ministry. Second, a strategy adopted by Budinich and his allies in Trieste and Rome was to *avoid intermediaries*. This was a lesson they had learned from living in a highly bureaucratic system such as the Italian academia. Had Budinich followed the regular process, he would have had to pass through the dean of the Faculty, the Council of the Faculty, the Senate House, the City Council, the Rector and so on. This would have taken months, or perhaps years, multiplying the chances of failure.[104] Although the City Council knew about the initiative, it never debated the question in any detail. The decision of creating the Centre in Trieste was made by Budinich, "who was considered the expert,"[105] with the approval of the executive, the assistance of an *ad hoc*

[104] Budinich, interview (Ref. 25).

[105] Gerin, **¡Error!Marcador no definido.**.

committee and the complacency of the City Council.[106] They all agreed that the Centre was an *unquestionably* good thing. In June 1963, the Council was informed about the decision taken in Vienna.

Italy

In the national arena, at least three reasons prompted the Government and the Demo-Christian Party to advance Trieste's candidature. First, Italy showed an open interest in pursuing a nuclear policy at least for industrial reasons. Some of these contacts between Italian science administrators and nuclear powers in the West, particularly the United States, started at least in the mid-1950s. The idea of entering the nuclear club was an aspiration of many scientists and politicians during the 1960s, and later. The 1964-68 events, known as the "Ippolito affair," which involved charges of corruption against a top science administrator from the INFN (Felice Ippolito) certainly affected these plans and cast a shadow upon the nuclear alternative. However, in the early 1960s, when the Centre was negotiated, the government, and the ruling Demo-Christian Party (now allied with the Socialists) believed in the feasibility of the project and thought that the internationalisation of Italian science was crucial. Moreover, during the negotiations, the ICTP was repeatedly presented by the Trieste newspapers as a "nuclear theoretical centre" and an "atomic centre," an ambiguous term that neither the physicists, nor the politicians tried to clarify.[107]

The second reason deals with Italy's interest in cultivating a good relationship with the Third World. Diplomats and politicians alike, such as Ortona and Attilio Piccioni (Minister of Foreign Affairs between 1962 and 1963), were aware of the importance of holding good relations with key regimes in the Third World, particularly North African and some Middle Eastern countries. These relations were crucial, not only in diplomatic terms (in multinational fora such as the United Nations), but most certainly economically and commercially. Italy wanted to become a "donor" country. The symbolical and psychological effect of this move is perhaps as important as

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[106] In the records of the City Hall from 1960 to 1964, I could not find any debate about the Trieste candidature, except from the brief reports by the Mayor about the actions taken by the *ad hoc* Committee; see *Rivista della Città di Trieste*. The verbal records between 1954 and 1964 are missing in the City Archives.

[107] Examples of the use/abuse of the term "nuclear theoretical physics" in the main local newspaper, *Il Piccolo*, are countless: see Anon., "Trieste è prevalsa nella scelta per il Centro di fisica nucleare," *Il Piccolo*, 15 June 1963, 5; Anon., "Il Centro di Fisica nucleare entra in fase di realizzazione," *Il Piccolo*, 29 June 1963, 5. In Anon., "Presto il Centro atomico senza attendere la sede," *Il Piccolo*, 28 June 1963, 4, Sanielevici observed that: "The Centre will be devoted to research in theoretical physics in connection to applied problems in peaceful uses of nuclear energy."

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the political and economic aspects. Offering technical and scientific aid, Italy would be identified in international circles as a member of the "developed" world. Metaphorically, moving to the side of the donors was an essential part of being part of the adult countries that were ready to help those "still behind." The idea was that Italy's power would improve alongside with the other industrialised countries and the "developing" nations.[108] However, the manoeuvre proved to be even more convenient for Italy than initially imagined. Many years later, when the Italian physicist Antonino Zichichi (referring to Budinich's and Salam's request) convinced the President of the Council of Ministers, Giulio Andreotti, to visit the ICTP, the senior Demo-Christian (Giulio Andreotti) explained to his Minister of Foreign Affairs why the ICTP was worth supporting:

> The ICTP of Trieste is a good investment for Italy. First because we are committing the Funds for Development which, by law, we have to spend anyway in the Third World. These funds are called multilateral, while, in fact, they are bilateral, because the beneficiary countries know that they come from Italy. Second because the scientific assistance is the kind of help these countries want. Third, because a great deal of the funds are invested in Trieste.[109]

These interests would have not been enough to create the Centre without the existence of favourable conditions in Italy regarding to science and technology. In the first place, Italian scientists and science administrators were convinced that Italian science badly needed international support to revive. After the disaster of physics in Italy during the fascists years, Amaldi and the few other physicists struggled to reconstruct the physics institutes and renew contacts with international circles. The critical phase of this process ended in 1954. In the words of Amaldi, "a new phase was beginning in Italy, nay in Europe, not only for the study of elementary, but for all branches of research."[110] Indeed, in the 1960s, with the emergence of the new physics and large laboratories,

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[108] Ortona wrote on several occasions insisting on the importance of embarking on a co-operation policy with the Third World; see Egidio Ortona, *L'Africa e le Nazione Unite (Lecture given on Dec 11, 1961, at the inivitation of the Centro Italia-Africa, and the Commerce Chamber of Milan)*, Cuaderno n. 5, *Centro Italia Africa*, 1962); also Idem, "Le 'tensioni' dei paesi sottosviluppati," *Moneta e Credito* 15, no. 58 (1962): 230-51. Italy's sense of inferiority regarding its international role was a constant element in the literature of those years. Italy's participation was almost invariantly presented in terms of a sort of international race among the most "advanced" countries. In 1962 it was reported that Italy "[was] in the fifth post, joined by the Netherlands. After them one finds Canada and Sweden, while Belgium to make its first steps" (Anon., "L'Italia e l'assistenza ai paesi in via di sviluppo," *Relazioni Internationali*, 21 Apr, 1962, 464-5). In 1962, Piccioni spoke before the Senate stressing the importance of the decolonisation process in Africa and the Middle East: "It is to this world that is waking up that Italy wants to approach according to its possibilities and qualities," he said (Anon., "La Politica Estera al Senato in Italia," *Relazioni Internationali*, 21 Jul, 1962, 846-52). That same year, the Parliament studied and approved a bill concerning international technical assistance (n. 1594, 26 Oct).

[109] Quoted by Budinich (Ref. 25), 85.

[110] Amaldi, Edoardo. "The Years of Reconstruction Part II." *Scientia* 114, no. 5-6-7-8 (1979): 439-451.

Italian physicists felt that Italy was, in many respects, "behind" its European partners. Not surprisingly, after the first years of CERN, when Amaldi played a central role, Italian physicists, and of course Amaldi among them, continued seeing the European laboratory as their most important point of reference and support. Some of them had the illusion that the ICTP would become a sort of theoretical CERN.

The type of relation that emerged during these years between science, technology, the political parties and the state, constitutes the most important national factor that favoured the creation the ICTP. In order to attract the scientific intellectuals, the Demo-Christian Party sponsored several initiatives that developed parallel to the negotiations for the creation of the ICTP. On 2 and 3 December 1961, the Central Office of Cultural Activities of the Christian Democratic Party held a national meeting concerned with "A Policy for Scientific Research" in Rome.[111] Attilio Piccioni, then Vice-President of the Council of Ministers and President of the National Council of the Demo-Christian Party, gave the opening speech in which he stressed that the Party must have "sensitive antennas to receive and transmit the requests, the criticisms, the proposals of enlightened minds, and sensitive to the progress of the country."[112] Piccioni also acknowledged the indifference the Party had showen in the past towards science policy, but insisted that this would certainly change. Most of the presentations focused on the structural and financial problems of science in Italy and its importance for Italy's economic growth. Indeed, as time went by, the Italian economy started to show signs that the indexes would begin to decline. The politicians sought to find reasons for this deceleration and manners to prevent the end the "Italian miracle."[113] The most common argument was precisely that Italy had failed to establish a serious science and technology policy able to integrate scientific research into the economic sector. In a sense, it was a similar diagnosis to Rostow's theory of development applied in many developing countries, as well as to the so-called British decline theory.[114] What seems remarkable is that this analysis did not seem to realise the kind of asymmetric explanation it provided. For a while it attributed the decline to the lack of scientific and technological innovation, but it could not explain why, under the same circumstances, the "miracle" had been possible. It may be that, like in other cases, rather than being a result of an

[111] *Una politica per la ricerca scientifica* (Roma, 1962).

[112] Attilio Piccioni, 'Discorso Introduttivo,' in Ibid, 4.

[113] This is the expression used to describe the flourishing of Italian economy between1958 and 1963. Italy had never grown so fast before or after this period; see Ginsborg (Ref. **¡Error!Marcador no definido.**), Chapter 7.

[114] David Edgerton, *Science, technology and British industrial "decline", 1870-1970* (Cambridge, 1996).

empirical analysis, there were political interests and ideological reasons to insist in science and technology as the "new" answer to the economic or societal problems.

In this context, the physicists tended to dominate Italian science policy. This seems to respond to the Demo-Christian Party's initiative to isolate the opposition parties (more notably the Communists) in the academic milieus. Whatever the reason was, the presence of exact scientists in the debates and decision making positions is significant. In the 1961 Meeting, almost 200 people, including university professors and top Demo-Christian officers, composed this so-called "study group." Over 80% the scholars were Professors either of physics, chemistry or mathematics; at least 41 of them (about 25%) were physicists or related to nuclear physics. A year later, the Party presented a bill to the Senate concerning the organisation and development of scientific research in Italy. It was approved on 2 March 1963 (Law N. 286).[115] It was a turning point for it meant the centralisation of decision making, co-ordination and control processes into one single organisation, the CNR (Consiglio Nazionale della Ricerca; National Research Council). It was also crucial because, for the first time, the Interdepartmental Committee of Reconstruction (of Italy) was enlarged for scientific matters, integrating for this purpose the Minister of Public Instruction, the Minister for the Co-ordination for Research, and the Minister of Defence (by then Mr. Andreotti). More importantly, perhaps for our discussion, is the composition of the CNR. The Party insisted on new legislation aimed at rationalising and democratising the system. However, the CNR was utterly dominated by natural scientists. According to the new law, the National Committees were to be composed by 140 members. Forty eight of them were to be elected from the pool of Professors of experimental sciences, mathematics and technical related fields. Another 16 were to be elected from the assistants to these Professors. Another 34 posts depended indirectly on the members. It is difficult not to agree with a critic's observation who, in 1964, pointed out: "An assembly in which 88 members out of 140 belong to a certain category, not to mention that they are the beneficiaries of their own decisions, is an assembly that will express the interests of that category."[116]

The United Nations Technical Agencies

One common element was shown by several delegations : their lack of interest in scientific internationalism, that is in international scientific collaboration. There was a marked interest in *national* (or regional) programmes and bilateral agreements, and a complete disinterest in

[115] "Scientific Policy in Italy." *Minerva* 2, no. 2 (1963): 210-224.

[116] Romolo Saccomani, "La nuova legislazione sulla ricerca scientifica," *Il Nuovo Osservatore*, Apr, 1964, 292-296; this was a special issue of the official review of the Demo-Christian Party, entirely devoted to science policy.

international programmes and multilateral agreements. Industrialised countries considered that the proliferation of international institutes under the UN banner was a heavy financial burden of little benefit to Third World countries and politically uninteresting to industrialised countries. This reflects a general trend in the second half of the twentieth century towards nationalisation of science. The members of the Scientific Advisory Committee was constituted by scientists who knew that elite institutions, both in the North and in the South, were tightly tied to national economic and military systems. A United Nations scientific centre would be, in their view, "unnatural" because of the lack of infrastructure that supported it.

Finally, we should see this case as an example of the fact the power of the new nations at multilateral fora resided in their concerted action. The explosion in number of new countries coming out from decolonisation and becoming members of the United Nations system produced crucial pressure in terms of the number of votes. Those countries were not part of the nuclear nations felt that the IAEA was not of any direct benefit. This is the fibre Salam touched in order to demonstrate that the ICTP would be one of the few things where the IAEA could be useful to the Third World. Despite the serious reservations expressed by most industrialised countries, especially the United States, as well as the Soviet Union, they did not want to be perceived as opposing the scientific aspirations of the Third World. Opposing the Centre would be opposing "development," an idea of paramount importance to recast a new dependency of the poor nations on the industrialised countries.

The pre-history of the ICTP must be understood in the context of the efforts of two communities striving to move away from their own sense of isolation and periphery. While Budinich and the Trieste elite thought that they could enhance Trieste's position in the national and the international arenas by being part of the "donors" in the international development game, the Third World nations and Salam saw in Trieste a peripheral city seeking a new function, and they were ready to provide it.