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Cold War, French-Russian connections and the unexpected meeting of post-Stalinist physiology of higher nervous activity with Western electroencephalography and clinical neurophysiology

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Introduction

London, July 1947. In the height of the Cold War, a community of Western scientists sets up an international committee, transformed two years later into the *International Federation of Societies for Electroencephalography and Clinical Neurophysiology* (IFSECN)¹. At that time, the *US Navy* is already funding some of these researchers², when its “Chatter program” on unethical human experimentation on psychoactive drugs is started in the autumn of 1947³. The program represents the Cold War American reaction against the rumours of soviet military scientific research on a “truth serum” used by secret services during interrogation procedures.

This whole research domain was indeed also very active in the USSR and it developed within the framework of the physiological school of Ivan Petrovich Pavlov (1849-1936) based on the famous theory of the conditional reflex. Scientific exchanges between Russian and

¹ « Proceedings of the international federation of EEG societies: Paris, September 1-4, 1949. » *Electroencephalography and Clinical Neurophysiology*, 1 (1949), p. 508.

² M.A.B. Brazier. « Impressions of the second international electroencephalographic congress: Paris, France, September 1-4, 1949. » *Electroencephalography and Clinical Neurophysiology*, 1 (1949), p. 509-512. Brazier writes “the preparation of this manuscript was aided by a grant from the US Navy Department O.N.R. N5. ORI-76 Project 8.” The funding of the project N°5 ORI-76 from the Office of National Research concerned at least in part psychophysical investigations on human subjects, some of them with mental illness.

³ Cf. *Project MKULTRA, the CIA's program of research in behavioral modification. Joint hearing before the select committee on intelligence and the subcommittee on health and scientific research of the committee on human resources, United States Senate, Ninety-Fifth Congress, August, 1977*, printed for the use of the Select Committee on Intelligence and the Committee on Human Resources, p. 67. « Project CHATTER was a Navy program that began in the fall of 1947. Responding to reports of “amazing results” achieved by the Soviets in using “truth drugs,” the program focused on the identification and testing of such drugs for use in interrogations and in the recruitment of agents. The research included laboratory experiments on animals and handicapped subjects involving *Anabasis aphylla*, scopolamine, and rhescaline in order to determine their speech-inducing qualities. Overseas experiments were conducted as part of the project. The project expanded substantially during the Korean War, and ended shortly after the war, in 1953. »

Western scientists on this topic, beginning at the turn of the 20th century, have progressively opened the Pavlovian doctrine to the new scientific achievements of international neurophysiology. Conversely, Western scientists showed regained interest, although from different and heterogeneous points of view, for the Pavlovian concept of conditioning during the same period⁴.

However, the Stalinian regime discontinued such collaborations, in particular by the organization of the so-called “Pavlovian Session”, a politically biased meeting ending with the removal, from the Moscow and the world scientific scene, of those Soviet scientists previously inclined to establish connections between the Russian physiology of reflexes and Western neurophysiology⁵.

As soon as 1952 however, Stalin was developing his concept of “peaceful coexistence”, where controlled scientific exchanges were promoted between the East and the West. During the same period, the French government elaborated the concept of *détente* which favoured international scientific exchanges with the East⁶.

In the fifties, the Western and the Soviet communities of neurophysiologists met and opened discussions on the progressively unifying theme of the neurophysiological study of Pavlovian conditioning.

Our goal here is to summarise briefly some of the stages of these new scientific connections, by stressing mainly the scientific rationale, the setting of international research programs and the role of French-Soviet relations.

These contacts did not only give birth to the important international organization of the Cold War period, the “International Brain Research Organization” (IBRO)⁷. They were perhaps more importantly pivotal in the development of the new research field which, among others, made up the movement of the *neuroscience* in the early 1960s: the neurophysiological study of learning.

This case study may help understand how a new science, associated with real but often obscure strategic issues, emerged at the international level in the context of the Cold War. Also, it may show how a new science could create new modes of knowledge production by the cultural hybridization of ideas from initially distinct scientific schools.

The official Soviet views on Pavlovian studies (1950-1955)

Some Soviet scientists, often members of the Communist Party, established scientific contacts with the West in the post-war years during official missions or visits to international scientific congresses⁸. Their objectives were to present the most advanced Soviet researches in the area

⁴ See for example, S. Sarkisov. « Some new developments in the morphophysiology of the cerebral cortex », *British Medical Journal*, July 14, 1945; E. Adrian, “Centenary of Pavlov’s birth”, *British Medical Journal*, September 10, 1949.

⁵ Academy of Sciences of the USSR, Academy of Medical Sciences of the USSR, *Scientific session on the physiological teachings of Academician I.P. Pavlov, June 28-July 4, 1950. Inaugural address, reports, resolution*. (Moscow : Foreign Languages Publishing House, 1951).

⁶ M.-P. Rey, *La tentation du rapprochement. France et URSS à l’heure de la détente (1964-1974)* (Paris : Publications de la Sorbonne, 1991).

⁷ P. Buser, J.G. Barbara, B. Lichterman, F. Clarac. « The International Brain Research Organization from its conception to adulthood », in J.G. Barbara, I. Sirotkina, J.C. Dupont, eds., *Franco-Russian relations in the Neurosciences* (Paris : Hermann, 2011).

⁸ For example Semen Aleksandrovich Sarkisov (1895-1971). Sarkisov was a Russian morphologist who studied in Berlin in the laboratory of Oscar Vogt. He was also an early electroencephalographer in the USSR and he had numerous contacts with Great Britain, William Grey-Walter for example. He was an active member of the Soviet Communist Party and a Soviet Red Cross representative in the UK during the Second World War. This position enabled him to promote Soviet propaganda in his own scientific domain. See S.A. Sarkisov, 1945, *ibid*.

of brain physiology and morphology. Scientific presentations became however more ideologically radical in tone, after the “Pavlovian Session”. Although sometimes alluding to the materialist Marxist doctrine, they referred exclusively to the ideas of the Russian physiological schools of Sechenov, Bekhterev, Vvedensky and Pavlov, when strictly scientific questions were concerned.

For example, French neurophysiologist, Michel Jouvet, recalls the scientific exchanges, in 1951, between his university in Lyons and those of Moscow and Leningrad during which he personally met two students of Pavlov, “the ultramarxist and sinister Bykov, decorated with Soviet medals from shoulders to trousers, and the smiling and friendly Asratyan.”⁹

Konstantin Mikhailovich Bykov (1886-1959) became a member of the permanent IUPS committee on behalf of Leon Abgarovich Orbeli (1882-1958) ousted by the Stalinian regime after the Pavlovian Session¹⁰.

Bykov chaired Soviet delegations in the ensuing congresses, a particularly important one at the 19th International Physiological Congress in Montreal in 1953, with D.A. Biryukov, P.S. Kupalov, L.G. Voronine, V.S. Rusinov and G.D. Smirnov. A session was organised on the “physiological theory of knowledge” stressing the neurophysiological aspects¹¹.

In Montreal, Bykov attended the nationalistic presentation of his fellow citizens and colleagues Vladimir Sergeevich Rusinov (1903-1995) et Georgiy D. Smirnov (1914-1973) who gave an account of the Soviet research programs in electroencephalography and neurophysiology to the Western community, in line with the Pavlovian Session resolution. The orthodox Pavlovian views of V.S. Rusinov were clear at the Pavlovian Session when he vigorously challenged the ideas of Ivan Solomonovich Beritashvili (1885-1974) on spontaneous brain rhythms. Rusinov explained these rhythms were supported by a minimal inflow of sensory stimuli, by different types of neuronal connexions, and by a dynamical equilibrium between excitation and inhibition. In his later presentations, Rusinov showed that the demonstration of spontaneous nervous activities dated back to the work of Russian schools, with that of Sechenov in the first place. Moreover, Rusinov criticized a somewhat idealistic Western view of spontaneous brain activities, in favour of the autonomy of the mind, while opposing his materialistic Marxist view¹².

Between 1952 and 1958, the Soviet delegations in Western countries were still under strict control by the official orthodox physiological doxa, established during the Pavlovian Session. However, Soviet delegates abandoned the style adopted by Bykov at the 1950 physiological congress in Copenhagen, when he criticized the mass of American scientists

⁹ M. Jouvet. Interview of Michel Jouvet by S. Mouchet, J.-F. Picard, October 31, 2007, La Colombière, Sainte Croix, 01120, Montluel, France, <http://www.vjf.cnrs.fr/histrecmed>. See also, M. Jouvet, « Comment le sommeil fut dissocié en deux états, télencéphalique et rhombencéphalique », in C. Debru, J.G. Barbara, C. Cheric, eds., *L'Essor des neurosciences, France 1945-1975* (Paris : Hermann, 2009).

¹⁰ IUPS, International Union of Physiological Sciences.

¹¹ The topic was “*la théorie physiologique de la connaissance*”, Piéron. Chronique. *L'année psychologique*, 53 (1953), p. 727-738.

¹² V.S. Rusinov, G.D. Smirnov. « Quelques données sur l'étude électroencéphalographique de l'activité nerveuse supérieure », in M.M. Fishgold, H. Gastaut, eds., *Conditionnement et réactivité en électroencéphalographie, Electroencephalography and Clinical Neurophysiology*, Supplement 6 (1957), p. 9-23.

presenting low level research and behaving like joyful tourists¹³. This attitude was replaced by the friendly and nice character of V. Rusinov towards his Western colleagues¹⁴.

The federating topic of Pavlovian conditioning between the East and the West (1955)

A second meeting was organized in 1955 by French neurophysiologist and epileptologist Henri Gastaut (1915-1995) in Marseilles, where he managed to bring together Western scientists and their orthodox Soviet counterparts, V.S. Rusinov and G.D. Smirnov.

Gastaut was in Montreal in 1953, and he may have had contacts with them at the physiological congress, since he attended the very elitist satellite symposium, organised a few days earlier, in collaboration with UNESCO and CIOMS¹⁵ on the “brain stem activity in relation with electroencephalogram and conscious states”¹⁶.

At that time, Gastaut was a key figure in many respects in these international relations between world neurophysiologists. He was an early promoter of IFSECN¹⁷ and, as its General Secretary¹⁸, he had contacts with CIOMS and UNESCO. Besides, Gastaut had also organised international meetings in Marseilles since 1950. In Marseilles 1955, his goal was to bring together scientists to discuss the “electrical activity of the brain in relation with psychological phenomena”¹⁹.

To his great surprise, most of the discussions dealt with the neurophysiological aspects of Pavlovian conditioning. Rusinov and Smirnov presented the essential role played by Russian schools in these studies, within the general framework of the Pavlovian theory of reflexes. More surprisingly, Rusinov expressed reservations in regard to the exclusive use of electroencephalography in the study of the higher nervous activity, probably because he acknowledged the strong temptation of some Western scientists to correlate electrophysiological measurements with mental states, somewhat considered by them, according to Rusinov, as autonomous, in an idealistic and poorly rigorous perspective²⁰.

On the Western side, many scientists followed independent but parallel research paths, leading to similar electrophysiological approaches, in order to find physiological correlates of mental states in freely moving animals using Pavlovian conditioning as a tool²¹.

Such convergence of interests between Western and Eastern research communities, long separated by the Iron Curtain, and more importantly by language barriers,²² can be

¹³ "Whereas all countries, among them some good-sized ones, sent delegates numbering, as was ours, in tens of participants, there were 400 Americans! One bumped into American « tourists » literally at every turn", *Science* 112, (1950), p. 768, quoted in W. Horsely Gantt, « Russian physiology and pathology », in *Soviet Science* (Washington D.C.: American Association for the Advancement of Science, 1952), p. 29.

¹⁴ D. Albe-Fessard. Autobiography, in L.R. Squire, ed., *The History of Neuroscience in Autobiography*, v.1 (Washington : Society for Neuroscience, 1996), p. 2-48.

¹⁵ Council for International Organizations of Medical Sciences.

¹⁶ « *Activité du tronc cérébral en relation avec l'électroencéphalogramme et les états de conscience* ». This is the famous symposium published under the title *Brain mechanisms and consciousness*, Adrian, E.A., Bremer, F., Jasper H.H., eds. (Oxford: Blackwell, 1954)

¹⁷ International Federation of Societies for Electroencephalography and Clinical Neurophysiology.

¹⁸ Gastaut was then the international secretary of the *Société Française d'EEG*, the president of which was Alphonse Baudoin (1876-1957).

¹⁹ “*L'activité électrique du cerveau en relation avec les phénomènes psychologiques*”, H. Piéron. *Chronique. L'année psychologique*, 56 (1956), p. 641-651.

²⁰ V.S. Rusinov, G.D. Smirnov, 1957, *ibid*.

²¹ Herbert Jasper, Michel Jouvett, Raúl Hernández-Peón, Pierre Buser. These scientists had reciprocal influence upon one another in the choice of their methods in the neurophysiological investigation of conscious animals. For example, Jouvett decided to enter such a scientific area when he attended a conference by Herbert Jasper on habituation on conscious apes in the laboratory of Horace Winchell Magoun.

obviously explained by the inevitable confrontation of Pavlovian conditioning and modern neurophysiology which had been going on since the 1940s. Since neurophysiological techniques and methods provided then measurements of brain electrical activities on conscious human subjects and on conscious freely moving animals, a new neurophysiology of learning and more broadly of behaviour was becoming possible.

Collaborative research at an international scale (1956-1958)

In the foreword of the Proceedings of the Marseilles meeting, British neurophysiologist William Grey-Walter (1910-1977) observed that a good measure of its success was the desire of participants to perform new experiments and the international research network that emerged for the study of the neurophysiology of Pavlovian conditioning.

In the course of the meeting, Gastaut gave an account of his general ideas concerning this topic which met with a lively interest among participants. The discussions transcribed highlight the vigorous debates relating in particular to terminological difficulties and some questionable interpretation, often on the table when a new research field is established.

For three years, 1956-1958, Gastaut collaborated with scientists from different countries on the neurophysiology of conditioning in order to improve his models of the formation of temporary connections of the brain based on cortical and sub-cortical physiological mechanisms.

Although Gastaut mostly worked with scientists from Western Europe, Poland, South America, Canada and Japan, he published papers in the USSR. Some Russian scientists, ousted after the Pavlovian Session, like Pyotr Kuzmich Anokhin (1898–1974), decided to work on this project, in particular relating to the involvement of a sub-cortical structure most studied at that time, the “reticular formation”.

These Russian scientists seemed to work against the still vivid traditional Pavlovian views held at the meeting when other Soviet scientists attacked Gastaut's model in 1958 and favoured cortical mechanisms exclusively. However, these former Russian innovative researchers observed that Pavlov himself did not, at the end of his scientific career, rule out the possible physiological role of deep brain structures during conditioning.

A great deal of reorganisation in the researches devoted to the neurophysiology of conditioning occurred worldwide in the 1956-1958 period. This trend can be in part explained by the official rehabilitation of the scientists condemned at the Pavlovian Session²³. Previously, as early as in 1949, Nobel Prize winner Sir Edgar Adrian underlined it was becoming evident that a constructive criticism could be confronted with Pavlovian ideas, not only in the West, but also, from 1955 on, on the other side of the Iron Curtain, in order to fight the orthodox Pavlovism supported by the Stalinian regime.

This great international research activity was supported and funded in the midst of the Cold War by the political institution, UNESCO, under the auspices of which the new international organisation, IBRO, was created and given the mission to manage the new scientific relations between the East and the West in the domain of the physiological enquiry

²² Much energy and funding are deployed at that time to provide Western scientists with translations of articles and lists of article titles. Documentation services develop bibliographical procedures to advertise foreign articles, some of them being translated. Conversely, a similar policy is developed in the USSR especially concerning communications by Soviet scientists at international meetings.

²³ At the Congress of Physiologists, Biochemists and Pharmacologists, Kiev, 1955.

of the mind. IBRO was officially created at the Moscow colloquium in 1958 mainly at the initiative of Gastaut and Rusinov with the most influential official supports²⁴.

The creation of a scientific community between the East and the West during the Cold War (1958)

The research field of the neurophysiological investigation of the higher nervous activity became an increasingly and highly strategic scientific area during the Cold War. The “Chatter program” of the US Navy stopped in 1953, but it was expanded into other projects relating to the general problem of “mind control”, under the common label MKULTRA²⁵.

The community of scientists under investigation here represents the group of international leading experts of the 1950s and later, in the scientific study of psychical activities, the investigation of their biophysical properties and sensitivity to psychoactive agents, some of them discovered during the same years.

This field of research of the 1950s, which appears as strategic as that of astronomy at the same period, although on different levels and scales, promoted a new political interest and the consequent support of international scientific relations, in order to ensure peace to some extent, or at least “peaceful coexistence”, when minimal communication was maintained on sensitive issues.

In this context, Ivane Beritashvili organized six conferences in Gagra (Georgia), between 1948 and 1972, under the auspices of the Georgian Academy of Sciences on neurobehavioral sciences with participants from USSR. Especially important was the third Gagra symposium held in 1958, which focussed on the highlight topic of that period on the formation of temporary nervous connections in conditioned reflexes²⁶.

A few months later, with great solemnity, Gastaut and Rusinov managed to organise, with H. Jasper and I. Beritashvili, the grand Moscow meeting, from October 6 to October 11 1958, which served as a creative catalyst of East-West scientific relations for the upcoming years. In many respects, and for the first time, Russian Pavlovism truly confronted Western neurophysiology in the discussions of the meeting.

Such discussions were now possible, although Anokhin, the former dissident of orthodox Pavlovism, condemned Russian neurophysiologists as lagging behind Western advances, which the former orthodox Pavlovian, Rusinov, acknowledged²⁷. The attack of Anokhin pointed out the fact that the Pavlovian Session massively slowed down the opening of the field of modern neurophysiology of the higher nervous activity, which used to be an area of excellence of Russian physiology in the 1930s and the 1940s.

Lively and constructive discussions took place with many Russian physiologists somehow sceptical with regard to the neurophysiological model of Gastaut. Asratyan rejected the model, Konorski showed little interest, Sarkisov dealt with terminological issues, Beritashvili expressed serious doubts, whereas Golikov pointed out the fact that Gastaut did not use the ideas of Russian physiologist Oukhtomsky properly. However, the model was also criticised by Gastaut’s Canadian colleague, Herbert Jasper, who suggested some degree of modification in accord with some neglected neurophysiological data.

²⁴ B.L. Lichterman, “The Moscow Colloquium on Electroencephalography of Higher Nervous Activity and Its Impact on International Brain Research”, *J Hist Neurosci*, 19, (2010), p. 313-332.

²⁵ *Project MKULTRA, the CIA’s program of research*, 1977, *ibid*.

²⁶ M.G. Tsagareli, “Ivane Beritashvili: Founder of Physiology and Neuroscience in Georgia”. *J Hist Neurosci*, 16, (2007), p. 288-306.

²⁷ B.L. Lichterman, 2010, *op. cit*.

What really mattered however was the possibility of such discussions, besides some persisting terminological difficulties. As Wilder Penfield remarked in 1955, Soviet scientists were well-informed about the novel international researches which they understood in detail and quoted with ease²⁸. The strict Pavlovian terminology *stricto sensu* was becoming less attractive, mostly among younger Russian generations, although it persisted during the immediate following years and appeared, to Western scientists, to truly hinder scientific progress. The field of the neurophysiology of conditioning generated much research on both sides of the Iron Curtain with an increasing capacity to engage in dialogue, although the ways of asking questions and the methods still differed²⁹.

One of the characteristics of these exchanges was the *chassés-croisés* between the West and the Soviet World³⁰. Soviet scientists initially gave an account of Pavlovian conditioning as a *phénoménotechnique* inherent to the Pavlovian theory of reflexes, as most Western scientists appreciated it in the early 1950s. But the findings of the 1930s and 1940s by Pavlov's students, who did not conform to the orthodox Pavlovism of the 1950s, altered the Pavlovian theory on the basis of substantially different experimental protocols of conditioning (Anokhin, Konorski). Yet, in the 1950s, Western scientists finally concluded that Pavlovism was substantially only a method, the underlying theory of which was to be rectified, while stressing the pioneering studies of Anokhin and Konorski. For other research topics as well, for instance regarding to what Pavlov termed the "unconditional centre", Western scientists ended up with the idea that new neurophysiological findings were in agreement with the novel theoretical perspectives of the students of Pavlov in the 1930s³¹. It became also possible to reformulate these ideas with contemporary concepts taken from cybernetics, a field previously banished and disqualified by Stalin as a Western and *bourgeois* science.

From the neurophysiology of conditioning to the neuroscience of learning and memory

From the 1930s to the 1970s, the neurophysiology of conditioning became a central research topic with different lines of research at the level of synapses, neurones and the whole brain. During this period, some Russian scientists, among them Anokhin and Asratyan, developed active international careers and their works and ideas dominated this field of research world wide. Other sub-fields expanded in the USSR, such as the Pavlovian olfactory conditioning of

²⁸ W. Penfield, « A glimpse of neurophysiology in the Soviet Union », *Canad MAJ*, 73 (1955), p. 891-899.

²⁹ H. Jasper. Discussion, Part II, p. 970, in F.N. Furnes, éd., *Pavlovian Conference on Higher Nervous Activity* (New York : New York Academy of Sciences, 1961) « It is apparent [...] that much has been accomplished during the past two years, both in Soviet and American laboratories, working on essentially the same problems from different approaches and with somewhat different methods. It is interesting, as well, to see that our approaches in methods are not as different as they used to be. Monographs such as this [the Pavlovian Conference, New York, 1961] serve to increase the areas of understanding and agreement in this difficult field of research. They also bring out important differences and serve to sharpen our points of view so that we may think more clearly about complicated problems. The perfection of electrophysiological techniques capable of recording the electrical activity of local areas of the brain, and even the discharge patterns of single cells in the brain, throughout the conditioning process, is making it possible to test some of the hypotheses that have been proposed, by Pavlov and others, to explain brain mechanisms underlying complex behavior and learning. »

³⁰ See in a more general perspective J.G. Barbara, « French neurophysiology between East and West: polemics on Pavlovian heritage and reception of Cybernetics » in J.G. Barbara, I. Sirotkina, J.C. Dupont, eds., *Franco-Russian relations in the Neurosciences* (Paris : Hermann, 2011).

³¹ P. Buser, A. Roger, « Interprétation du conditionnement sur la base des données électroencéphalographiques », in *Premier Congrès International des Sciences Neurologiques, IV^e Congrès International d'Électro-encéphalographie et de Neurophysiologie clinique, VIII^e Réunion de la Ligue Internationale contre l'Épilepsie, Réunions plénières, rapports, discussions et documentation* (Bruxelles, Acta Medica Belgia, 1957), p. 417-444.

honey bee which progressively became a modern neuroscientific domain of regained interest in recent years³².

The studies of single neuronal activities and of the forms of synaptic plasticity have gradually extended the list of the known cellular mechanisms explaining the formation of temporary connections during conditioning. Neurophysiological correlates of the neuronal mechanisms imagined in the 1940s by psychologist Donald Hebb, or those of the early 1950s described by Nobel Prize winner, John Eccles, could explain the reinforcement of synapses during memory and learning mechanisms.

In the 1960s, the scientific movement of neuroscience emerged after the first *Neuroscience Research Program* launched by Francis O. Schmitt. During this meeting, “behavioural states” and “correlates of learning” were discussed in the framework of the Pavlovian theory of learning, with the dominant themes of reinforcement, arousal states, orientation reactions, forms of memory, brain rhythms or habituation. Numerous quotations of Russian scientists are indicative of the common ideas and works of the 1950s, where Eastern and Western neurophysiological traditions came closer to one another.

The main problem was no more to decide what proper physiological measurement should serve as a correlate to the Pavlovian concepts, in the line of past discussions on the objectification of Pavlovian *excitation* by the desynchronization of the alpha rhythm observed with electroencephalography. Now, the focus was on the understanding of the neurophysiological cellular mechanisms at stake in conscious and behavioural states.

Epilogue

Following the 1958 Moscow colloquium, several smaller meetings took place worldwide, some of them organized by American and Russian scientists: the Macy conferences and the so called “Pavlovian Conference” in 1961, organised jointly by the American and Soviet Academy of Sciences.

However, it is necessary to stress the important part that France played in the initiatives of bringing the East and the West closer, with the consequent development of such scientific subjects as learning and the determinism of behaviour, when neuroscience was emerging.

In order to understand this role better, it is necessary to come back to the important leader of the French school of neurophysiology, namely Alfred Fessard (1900-1982). Fessard was a student of Henri Piéron (1881-1964), but also of the physiologist of labour Henri Laugier (1888-1973), first director in 1939 of the CNRS (*Centre National de la Recherche Nationale*), and then Assistant Secretary-General of the United Nations in charge of social affairs at the United Nations Economic and Social Council (ECOSOC) from 1946 to 1951.

In 1946, Fessard was sent on mission to the United States to visit the most prestigious laboratories together with Louis Bugnard, with the medical research committee of OSRD³³. In 1952, Fessard had attempted to resurrect the idea of an “International Brain Institute” previously put forward by French neuropsychiatrist Roger Pluvinage. This idea was based on the early 20th century “Interacademic Brain Institute” label given by the Central Commission for Brain Research (1903) to a few excellent institutes.

The project of Fessard was given priority support by UNESCO and discussions with ECOSOC followed. However, it was not until the 1958 Moscow colloquium that Fessard’s

³² In France, Martin Giurfa from the *Centre de recherches sur la cognition animale*, CNRS, université Paul Sabatier, Toulouse, received the 2006 Silver medal of CNRS on this research topic.

³³ Office of Scientific Research and Development. See Jean-François Picard, *La Fondation Rockefeller et la recherche médicale* (Paris : PUF, 1999).

idea took the form of an organization entirely dedicated to the study of the brain, while the previous view of an international institute was abandoned.

Beyond these political and institutional aspects where France was prominent, our goal here was more generally to show that science can manage to expand truly at the international level in order to create new regimes of knowledge production in a way supported by relations between fundamental scientific domains, relatively autonomous from social contexts, but nevertheless very dependent on them for their effective achievement. This seems clear concerning the emergence of the neuroscientific study of learning and behaviour in the context of the Cold War which unquestionably served its scientific and institutional development.

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