

**MATERIALS TESTING LABORATORY OF THE PUBLIC WORKS MINISTRY OF BUENOS
AIRES PROVINCE, NATIONAL PIONEER IN THE MANAGEMENT OF SCIENCE AND
TECHNOLOGY**

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ABSTRACT

First of its kind in Argentina, promptly recognized all over the Latin American sphere, the Materials Testing Laboratory of the Ministry of Public Works of Buenos Aires Province (LEMOP) was opened in 1942 under the motto Science and research at the service of Technique and Industry, commitment that it tried to deepen two years later being reformulated as Materials Testing Laboratory and Technological Research (LEMIT), when the Second World War imposed to the national productive sector a new scenario for its consolidation. Having reached the zenith of its development under Colonel Mercante's government (1946-1952), since 1955 it faced numerous difficulties that would end in its dissolution and reformulation by the military dictatorship in 1979, being its constituent parts incorporated to the Commission of Scientific Research of Buenos Aires Province. The purpose of this work is to describe some aspects of this special institution, whose mission and organizational scheme emulated successful models in the United States of America and Brazil, providing absolutely innovative characteristics for the Argentinean environment, either by its efforts for contacting the productive world, the management of economic-financial resources or the choice/training of its staff, all this looking towards the professionalization of the pure and applied research.

KEYWORDS: Scientific and Technological Research; Industry; Public Policies; Economic-Financial Resources; Human Resources.

INTRODUCTION

The project that would lead to the emergence of LEMOP began to take shape in 1933, when a group of professionals from the Department of Highways of the Ministry of Public Works expressed the need to count with a Division of Materials that have the "responsible of testing, analysis and control of materials, as well as the study of the construction methods and the use of natural prime elements" [Department of Highways, 1944, p. 95]⁽¹⁾. A first ad hoc laboratory was organized the following year, so the plans had an unexpected change to request the Executive (PE) the construction of the building barely begun by the government of Manuel A. Fresco, in February 1936. The amount of the work provided by the new administration raised the advisability of centralizing in a single agency all necessary tests and the purchase of materials to be used by the State, deciding instead to create a much more ambitious mission and objectives than originally imagined. It became a key part of state machinery involved in the execution of public works of hitherto unprecedented proportions in the province, then called LEMOP it was officially born on August 27, 1936 with the enactment of the Public Works Act No. 4406, in which "it was included as a construction materials testing area for the use of technical departments of the Ministry of Public Works and General Administration" [Buenos Aires, 1938, p. 48]⁽²⁾.

Immediately there was appointed a Commission to study everything related to design, construction, equipment and installation, in early October it saw the specification of the magnificent building to be built in the Paseo del Bosque de La Plata, contemplating laboratories for physic-mechanical and physic-chemistry tests with the proper management and library. However, the degree of definition achieved, and so that was in tune with modern conceptions, in December 1938 the Government commissioned engineer Adolfo P. Grisi to study in the United States similar institutions, saying at the time, that there they had "multiplied by thousands, with tens of thousands of scholars, devoted to research, and whose work, among other factors, was due to the huge boost to the industrial Northern Republic" [Department of Highways, 1944, p. 23]⁽³⁾. It was a profitable tour, as the chronicler called it years after the inauguration, along with which the future director was sending "the obtained publications, and especially the comments collected on the construction details of materials testing laboratories that would be of interest" [Department of Highways, 1942, p. 13]⁽⁴⁾.

With the building and facilities completed in October 1940 and a plan for the organization and operation prepared by the Commission, the lack of resources delayed its functioning for two years, the founding promulgated by Decrees on March 5th, 1942 and officially inaugurated next 5th of October in commemoration of the Highway Day. By then, the

impact of the Second World War had defined a new context for thinking about its mission and goals: boosting decreased Highway work by fuel shortages and the decline in vehicle imports, while a growing installed consensus on the contribution that scientific and technological research could make to support the national industry, the LEMOP further expanded its horizon of potential realizations, coining the slogan Science and Research at the service of Technical and Industrial matters.

After just two years, the course would deepen even further. As expressed by Dr. Celestino Ruiz, one of its Technical Advisors:

"It was clear that one of the missions of the laboratory, was to advise private industry, which was becoming heavier and that the state should focus these similar activities that tended to the knowledge of the quality, the better use of our raw materials, the progress of the techniques and process of manufacture and correct use of manufactures. It was necessary to link the Lab with more industry and evolve into a high wayer field in technological activities 'slowly but surely'" [Ruiz, C. L., 1961, p. 12]⁽⁵⁾

The Executive appealed again to what we would call a real organizational benchmarking operation, this time sending the same Mr. Grisi and Dr. Ruiz to Brazil to study the Technological Research Institute of São Paulo (I.P.T.) and the National Institute Technology of Rio de Janeiro (I.N.T.), particularly regarding the ideas that guided "the operation of the laboratories, and how to address the problems, both in terms of their organization and in the purely technical matters" [Grisi, AP and Ruiz, C.L., w/d, p. 5]⁽⁶⁾. In keeping with its suggestions, the LEMOP was transformed into LEMIT on March 23rd, 1944, incorporating into its structure a Cooperative Council with Government, University and Industry and Professional Associations. Subsequently Endowed later with a Permanent Fund it sought to streamline its development, reach its highest level of achievement in the early 1950's, coinciding with the national framework beneficial to the pro-industrialist of the first Peronist governments and the impulse to give it back the important provincial public works (in this case, developed under the Three-Year Plan for the Mercante governorship).

Once this favorable scenario had disappeared, it entered a period of difficulties of various kinds that would worsen after 1955, in a country marked by institutional instability and erratic policies for the industrial sector (except for the brief interregnum of the Frondizi development, after which it would progressively be dismantled by the dictatorship of 1976). Even during this fateful period, it gave permanent exhibitions of its innate ability to reinvent itself by creating new sections, consolidating those longest running and fighting tirelessly for a co-public-private financing that would allow it to alleviate the limitations imposed by the state bureaucracy. Surrounded by a hostile environment, despite the important work that

highlighted it among the most recognized national institutions (equal to the National Scientific and Technical Research (CONICET), the National Atomic Energy Commission (CNEA, the National Institute of Industrial Technology (INTI) and the Argentine Institute of Rationalization of Materials (IRAM)), it was dissolved in 1979 by the military regime and its components transferred to the Commission for Scientific Research in Buenos Aires Province (CIC) in 1980.

So we have briefly presented our object of study, the first section discusses organizational aspects, then the engineering especially provided, it sought economic-financial resources required, thirdly, the efforts for the recruitment and training of specialized human resources, central facet worthy of being note. Finally, in conclusion, will outline briefly some of the many contributing factors that eroded its performance and led to its demise.

DEVELOPMENT

1. Mission and organizational design

The first of the decrees issued in March 1942 states that the creation of LEMOP responded to the urgent need for a provincial agency to concentrate all activities on tests, experiments and research imposed by the control of public works, including modern facilities, in which a body of technicians and specialists could work only with the greatest efficiency. Then it lists, although no claim to completeness, the tasks to be fulfilled: (i) study the specifications and characteristics required of materials, equipment, machinery and equipment purchased or used by the State, (ii) sampling of materials in quarries, works and reservoirs, and work samples to guarantee the true correlation between tested results and the actual conditions of the materials or structures, (iii) testing and measurements on materials, structures, machines and equipment for monitoring and inspection, (iv) installation and maintenance of auxiliary works laboratories, factories and production facilities. Also, are included two complementary tasks that originally thought of amplifying: verification, contrast and preservation of instruments and appliances for measuring, public and private, and the centralization of relations with the Institute of Rationalization of Materials (IRAM), trying to coordinate the representations of the Province to its various committees to better defend the interests of the State.

However, of particular importance are the considerations to conduct research, highlighting some aspects that even today amaze by the clarity of conception: among others,

concerns about the applicability of their results (adapting foreign solutions to local conditions), the necessity of interdisciplinary work, the creation of a body of advisors to define and monitor the work plan, concern for human form creating a school of research and awareness of the contribution that their results would have on the development of the industry. Finally, the Decree concludes that:

"(...) the achievement of these ends, justifies any investment for it is available, as clearly evidenced, from a purely practical standpoint, the installation of laboratories and research centers which is always parallel to the developed countries, a major construction since the initiation of large industries and from a scientific point of view, the need for the province to initiate and consolidate a type of activity in today's highly necessary activity and which the country is slow do as it should, the sort of activity which little by little, gradually becomes imperative for the proper performance of any industry, whatever its product "[Department of Highways, 1944, p. 46]⁽⁷⁾

In keeping with this, Mr. Grisi raised its proposed organization in June 1942, complementing the ideas of the Ad Hoc Committee with recommendations from their North American tour:

"He has had this experience on this issue could be obtained in the country and abroad, the undersigned having taken the extensive information gathered personally in the United States (...). From that point of view projected overall organization is framed between similar bodies installed in the Departments of Civil Americans and the Bureau of Standards of the same country, closer to the former, and require it under the current needs of the administration, although is considered desirable to impart a trend accentuated the Bureau in support of government policy, to promote our industries and rational use of materials" [Department of Highways, 1944, p. 50]⁽⁸⁾

At a first glance, the resulting chart is particularly simple: one direction, with the direct cooperation of a Technical Council, which depend on the Administration and four departments, subdivided into different sections according to the specificity of their work (Table I).

Table N°1: LEMOP Departments and Sections h. 1942

Department I. Physical Testing and Research: Section (1) Metals, (2), Wood, (3) Hydraulic Cements and Mortars, (4) Concrete and aggregates, (5) Rocks and Coating Materials, (6) Building ceramics, (7) Pipes and Vessels, Contrast of Gas and Water Meters, (8) Acoustic and Thermal Insulation; (9) Electrical materials, Contrast Meters; (10) Contrast and Conservation Surveying Instruments.

Department II. Physical Testing and Chemical Research (1) Metals, (2) Asphalt, (3) Lubricants, (4) fuels, (5) Paints, Inks and Coatings, (6) Textiles, Paper and Leather, (7) Natural Plastics and Synthetic; (8) Microscopy, (9) Geology, (10) Water for Industrial Use; (11) Waterproofing and Hydraulic Binders; (12) Drugs and Reagents.

Department III. Testing and Research on Structural Engineering: (1) Soil Profiles, Analysis and Testing, Foundations, (2) Highways: Land and Structure Mixtures with Inert Structures with Bituminous Materials, Hydraulic Structures with Materials and other products, on Field Experimentation, (3) Hydraulics: Studies on Models,

Department IV. Documentation and Outreach: (1) library, (2) Reports and Publications, (3) Statistics, (4) Specifications and Standards, (5) Samples and Conservation Exhibition, (6) Drawing and reproductions; (7) Conferences.

Administration: Secretary, Sorting Office, Typists, File, Stewardship, Conservation Facilities, Mechanical, Glass and Carpentry, samples input; Deposit.

Source: Department of Highways (1943). LEMOP Materials Testing Laboratory . March 5th to December 31st, 1942, p. 23

However, in the very heart of the Council chaired by the Head of the Laboratory and composed by the Heads of Departments and Sections, an entirely innovative figure was introduced for the national average of the moment: The Technical Advisor. Described it in the 1942 Institutional Memory:

"The technical advisor (...) is in our scientific environment a novelty, which represents a breakthrough in scientific cooperation system established in this Institute, which not only facilitates and helps to form the body of researchers, but also promotes the establishment of an undoubtedly research school which shall provide short term results. Of course it is necessary to have items of recognized ability, and in that sense it requires background and activities that are guarantee of reliability and efficiency" [Department of Highways, w/d, p. 41]⁽⁹⁾

And then:

"There is no set for daily attendance and schedule in the laboratory, but it requires ongoing scientific performance and quality. This solves an economic difficult, as it is to obtain complete and professional continuing valuable contribution that are scattered in the country, delivered to various activities which would be difficult to take and to devote exclusively to the Laboratory, as this would mean an extraordinary investment which for now would not be justified" [Department of Highways, w/d, p. 41]⁽¹⁰⁾

In terms of their functions, they are described as follows:

"Study and advice on vital problems that arise in LEMOP. Study and preparation of research plans and advice during its execution. Interpretation and application of the results obtained. Preparation of technical staff through conferences and workshops on special topics, extended to other technicians of the administration. Cooperation in organizing the Laboratory" [LEMOP, w/d, p. 50]⁽¹¹⁾

As we anticipated, the second major organizational change came just two years later, resulting from visits to the Technological Research Institute of São Paulo (I.P.T.) and the National Institute of Rio de Janeiro Technology (I.N.T.). In the report submitted, Grisi and Ruiz rescued more than obvious similarity lab with its similar River Plate one, (by origin and dependence on the state administration), but without precluding comparison with the Brazilian example: indeed, suggestions that short and medium term had little effect on the itinerary of the institution emerged from that institution.

"The advice to the industry, which already performs the LEMOP, can be expanded with the creation of an Advisory Board, similar to that of IPT with Government, University and Industry and Professional Associations. This would serve as liaison between the laboratory environment and industry and through which could be considered the way forward to give more character gradually towards LEMOP technology, avoiding the improvisations that nearly always ruins the best ideas "[Grisi, A. P. and Ruiz, C. L., w/d, p. 14]⁽¹²⁾

Mindful of these observations, in March 1944 it was transformed into the LEMOP Materials Testing Laboratory and Technological Research Council which incorporated the suggested Cooperative, under the Directorate, with the mission of directing research towards the needs of both government and private industry, and advise on all matters relating to the implementation and financing. Only with its agreement for consideration by the Executive Branch any proposed (re)organization, funding or guidance indicates that practical experience, the Annual Report of activities and work plan for the following period. Based on the study in San Paulo, it was made up of six members representing equally public and private interests, appointed by the Parliament at the proposal of the following institutions: one from the University of La Plata, two by industrial associations (one of them linked to the construction), one for the private sector, professional associations related to the industry, one representative of the Board of Highways and Public Works Council. The Government directly appoints its own representatives, and may reject proposals or University Associations and request new ones. With duration of two years in office, they do not receive a salary for their work considered relevant to public service.

Given the extreme adaptive capacity that LEMIT responded to opportunities and threats in the environment, as well as fluctuations arising from its internal situation, the original organization recorded so many variants over its nearly four decades of life, whose review escape the scope of this paper. There are, however, two examples of this continuous

renewal that seems interesting to note.

The first, in times of Mercante, it corresponded to the creation and installation of Highway Laboratory and two experimental plants to optimize the capacity of scientific and technological advice to the industry. The Laboratory sought advice on technical and economic aspects of Highways and airports (based on studies on soil characteristics and available materials) and to provide the comptroller required during execution of works. Routine Laboratory of Leather Technology or Tannery (commissioned by the previous administration), offered advice to improve the quality of our leathers, getting products manufactured according to requirements of foreign markets and export beyond mere quebracho (leather tanning) extract and raw hides by incorporating local added value. The Plant of Chemical Technology (created at the initiative of the Laboratory), was to conduct research and trials in semi-industrial scale of various extractive and manufacturing processes: (i) manufacture of cement; (ii) development of domestic raw material limes; (iii) structural ceramics, including bricks, tiles, refractories, etc.; (iv) drying of wood and clay; (v) wood tar distillation; (vi) obtaining bromine; (vii) preparation of pigments and paints; (viii) secondary smelting of iron; (ix) adhesion improvers for asphaltic materials; (x) preparation of bituminous emulsions; (xi) use of plants and their residues; (xii) fishery related industries.

The second initiative corresponded to the 1960's and 1970's, with the appearance of new sections and consolidation of those of greater experience partnering with other institutions of national science and technology. Thus, based on leather Section that had become so important to the plant mentioned, in 1962 it joined the National Institute of Industrial Technology (INTI) to create the Research Center of Leather Technology (CITEC) and promote the development of the tanning industry and related technology transfer by developed or adapted in the center, training and human resource development, technical and economic advice to the private sector and government departments, industry and extension oriented especially to SMEs tanneries and manufacturers. Then, in 1973, by agreement with the National Research Council (CONICET) and the Scientific Research Commission of the Province of Buenos Aires (CIC) there was founded the Center for Research and Paints Development Technology (CIDEPINT): based on the old LEMOP section, it sought to develop products and technologies of interest to the country through scientific research, technical tasks and preparation / execution of ad hoc programs (in charge or by agreement with other institutions). Finally, in 1977, it went a step further by creating two new institutes: (i) Optical Research Center (CIOP), co-funded by the National University of La Plata (UNLP) and

CONICET, dedicated to scientific and technological research and developments in optics, lasers, photonics, light technologies and related issues; (ii) Technology Center of Mineral Resources and Ceramics (CETMIC), associated with the UNLP and CIC, which converged primal Pottery Section LEMOP now dedicated to study and develop techniques and processes for the use of mineral raw materials in general and ceramics in particular. Additionally, on its own initiative, in 1969 it opened the section devoted to the field of acoustics, again resulting from the visit and study to more advanced European institutes and later became Acoustics and Lighting Laboratory (LAL).

Arriving to mid-1970, the LEMIT is advertised as a non-profit institution with the following functions: (i) monitor the quality and suitability of materials, structures, equipment, machinery and instruments, used or consumed in public works and utilities, public or private; (ii) to conduct systematic experimental characteristics and properties of raw materials, materials, structures, etc., for better preparation of Tender Specifications and quality standards for the state utility, industry and trade; (iii) research operations and technological processes aimed at industrial development, production improvement and utilization of machines, materials and domestic production; (iv) verification and test measuring instruments of technical, developing metrology applications; (v) promote the training of personnel scientific, technical and skilled worker, for themselves or for others, complementing the work done by the university and technical schools; (vi) to advise the provincial government in the prosecution of the quality and suitability of materials, machines and structures, prepare technical standards, structures preserved against spoilage actions and rationally utilize raw materials and products; (vii) conducting geological-economic study of Buenos Aires area, evaluating the possibilities of its use; (viii) publish the results of its experimental work and studies of general interest.

In terms of organizational structure it did not differ from that original one led by the Directorate (now assisted by a Deputy Executive Director), which depended on the Technical, Scientific Documentation Divisions and Promotion and five departments with related sections coordinated by the Head respective (18 in total): (i) Administrative and Accounting Department (Administration, Accounting, Treasury); (ii) Department of Materials Analysis and Testing (Analytical Chemistry and Corrosion, paint and other protective treatments, petroleum products); (iii) Applied Technology Department - Experimental Plant (Operations and chemical processes, high temperature technology, organic fibrous materials); (iv) Department of Civil Engineering and Construction Technology (Concrete, cement and

building materials, soil mechanics and soil science, asphalt mixes, Geology and Mineralogy); (v) Electrical Engineering Department, Mechanical and Hydraulics (Mechanical, Hydraulics and Thermodynamics, Electricity).

2. The management of economic and financial resources

The issue of funding of the Laboratory in its own right also occupies a prominent place to review its most innovative, especially by the underlying belief about the state's role in the progress of science and technology (as it was called then) and benefits accrued social, particularly for industrial advancement.

From the beginning profuse different sources led to a complex administrative and accounting to ensure its operation for at least three ways: (i) the ½% to be 6% of the amount of any public work, to cover Personnel and general; (ii) the annual contribution of all provincial Distributions benefit from their services; (iii) the fees for testing and third party studies, partly compulsory insured to accompany all tender samples or Private with a copy of the laboratory analysis (if it were fuel, lubricants, yarn, fabric, paper, textiles, leather, soles and other articles intended for buildings and clothing in all official offices).

However, the adverse effects of the global war on public works (particularly on highway ventures which were mainstay vials during the beginning), coupled with the reluctance of the other agencies to contribute to its upkeep, soon complicated obtaining the resources provided. The first attempt came in 1947 reformulation, the separating it from Highways and elevating it to status of Directorate, redefining its common revenues to the referred half percent to one percent of the amount of all purchases of materials, plus what could be perceived by tariffs of services provided. Locked in its operation by the bureaucratic complexities involved, finally it moved towards its greatest achievement in this field: the creation of a Permanent Research Fund established by law in October 1948. Regulated the following year, it allowed to open a special account to track one's income/expenses and exhaustively detailed the contributions it would constitute: (i) the amounts allocated by the Government; (ii) perceived by agreements with other governmental or private institutions; (iii) 50% of fees collected; (iv) the proceeds on account of 0.5% of the amount of all public works and 1% of the amount of materials procured it had to control; (v) the amounts transferred or licenses to use patents obtained; (vi) the amount of donations, legacies, grants or scholarships, whatever their origin; (vii) the balance account that the promulgation of the Law, Special Account will cast 50% of the proceeds of LEMIT.

While the Act was never fully applied, it helped save unexpected commitments, expand the work and services to the provincial government, meeting the demands of other private or state establishments, create fellowships for staff and, in dark times, supplement their remuneration. Unfortunately, much effort would face a final onslaught which already failed to recover: Law No. 7248, enacted by the dictatorship in 1966, abolishing the Special Accounts and with them, the Fund itself. A note presumed dated in 1975, indicates to what extent this limited their actions to force it to meet special situations or individuals with their own resources, then restricted to the so-called Third Party has allowed the management of funds collected by agreement but not fees earned on routine work. Hence, the address would battle to the end for its reinstatement, along with an adaptation of the structure to operate as a private company: this time, however, and not only to fight against indifference or incomprehension of what weighed on the bureaucratic framework but with political-economic context that was substantially different from removing any possibility of fulfilling their desires in either way.

3. Training and human resource hierarchy

Another aspect of particular importance in the design of the Laboratory was the emphasis given to the recruitment, training and retention of staff, recalling as it had a chance to complete required technical studies harmony between computer and human factor, and if for first available quickly enough the necessary funds, personnel training and experience technician task was slower than it should be facing slowly but relentlessly, based on the graduate of the Universities and Industrial Schools.

This overlapped with epochal climate of increasing conscience about the strategic value of promoting scientific studies and research oriented prudently local problems for a strong technical progress and industry in our country. From there the support to create more labs, more funds to meet arbitrate schools and to ensure that men with skills and inclination to these activities do not miscarry, encouraging many young people eager to follow more definitely engineering studies but fearful of economic difficulties which such activity entailed. In this line, the LEMOP took over as major challenge to overcome staff shortages specialized in technical merit and suitability sufficient to complete an institution of its kind, attributed to the low attractiveness of the opportunities offered. The north of the action taken is clear from the words of Dr. Ruiz, recalling the genuine concern to recruit and train scientists through research school incorporating promising young professionals and students from universities

and industrial schools, with conditions of Work-study:

"For the progress of the building needed LEMOP, equipment and men, the first two can be bought only with money and for it had the official support. Men have to choose them, train them and keep them, remembering that without men the most perfect laboratory is just an ivory tower, beautiful and perfect on the outside, inside in which there is a set of equipment stored in cabinets or used in trials that translate into impressive returns but is uncertain what and why they are made and what is its purpose "[Ruiz, C.L., 1961, p. 8]⁽¹³⁾

The main matter was the idea that there should be created a favorable internal environment, with salaries 30% higher than those of the same administrative hierarchy, so that they could work full-time and with maximum efficiency. This unprecedented and anticipated staff ranking figure in the Research Career which other institutions would achieve years later and which the Laboratory itself tried to establish in 1977 similarity to that which existed in the Scientific Commission and CONICET. Regarding the program training, it was based on the specialization of the candidate in an assigned topic to be researched further theoretically and practically, with the support of the Technical Advisory, summarizing the literature and elaborated and supervised the work plans. This first stage included the opportunity to go to other laboratories in the country, government or private industries, where increasing their wealth of experience and knowledge, and finally, if the personal circumstances warranted it, the last period of preparation expected to be sent to studies centers outside the country.

Another remarkable aspect was the extreme degree of precision in defining the distribution of staff and the eligibility requirements necessary to fill each of the positions and ranks projected that sought to ensure uniformity of degrees and diplomas between those performing the same work in the different departments (mainly the requirement of the doctoral degree, only recently requested in all disciplines to enter in the Argentine scientist system.) Careful selection was not limited only to senior positions or researchers, extending to the rest of campus by competition merit provision even for relatively minor posts.

Already during LEMIT times, the development of new and better human resources for innovative features was also in amplitude driven disciplinary fields (such as optics and optical engineering, sending a fellow at the Ecole Superieure d'Optique in Paris), cooperation with the private sector (defraying the experiments and studies of interest by laboratory technicians) or concern for awakening vocations among young people (e.g. through grants aimed at graduates or final year undergraduates in Engineering and Chemistry, National Industrial School graduates in any discipline or Technical School and Crafts and internships

for students of the Industrial School of La Plata during the holiday season).

To this host to be the seat of numerous postgraduate students and professionals sent by other institutions in the country and even from other countries for internships or receive instructions, organization of conferences and workshops to train its own staff or other agents of the provincial administration and the invitation leading to local and international visitors as well as numerous study groups comprised of college students and High School students. Similarly it promoted technical visits by their own members to other laboratories, industrial and public and private works and accounted for more than 120 only in 1949.

Unfortunately, financial constraints resulted in dramatic reduction of personnel, whose number fell from 247 in 1952 to 213 in 1954 and only 190 in 1956, with more than 40 vacancies. The gradual exodus, mainly due to the decline in wages, sought alleviation with over-allocation scheme based on the rating or greater time commitment: apparently positive results since 1975 available data describe a campus comprised of 271 people (53 university professionals, 144 technicians, 26 administrative, 34 workers and 14 affected services).

CONCLUSION

Let's imagine the perplexity of the reader, who finding a successful and pioneering institution for the Argentine scene of his day knew also its traumatic end seemingly inexplicable in light of the many important achievements in the early 1950's. For the sake of brevity, it is beyond our possibilities to analyze the various factors that came together to seal its fate, although we anticipate that it entered into a difficult period and in 1955, it just transited its heyday. The first blatant review about their situation is provided by the aforementioned Dr. Ruiz, in 1961. "At present, the LEMIT is in a period of crisis and capitalization", he says bluntly [Ruiz, C. L., 1961, p. 14]⁽¹⁴⁾. Having expressed his conviction that the country must inevitably change its economic structure towards industrialization, the trial becomes even terser:

"Since this is an urgent need today and the near future, it is a contradiction that a laboratory as LEMIT, which can and must help to meet that need in the largest scale possible, it goes through the adverse situation that keeps one stagnant and doubtful of the future "[Ruiz, C. L., 1961, p.16]⁽¹⁵⁾

Recalling proposals to provide the laboratory with a wide functional autarky, under a state-private joint representation college, career centers, industry and economy, Ruiz up grades the bets by proposing to go even further, with a tendency to LEMIT privatization:

"(...) I understand that the best solution is to give the LEMIT organization corresponding to a private entity, something like a cooperative society a non-profit mixed. Form that company the province, the industrial sectors interested in using and contributing to its financing, either individually or through chambers that group, and the nation through the National Scientific and Technical Research and the local university "[Ruiz, C. L., 1961, p. 17]⁽¹⁶⁾

From the arguments put forward to justify it, it is possible to infer some of the difficulties that were closing in on the institution (perhaps also determinants such as the failed Cooperative Council experience introduced in 1944): (i) bureaucratic pressure, as the classic formal administrative proceedings drowning the speed, flexibility and responsibility necessary in a laboratory of its kind; (ii) difficulties in shaping the research campus, which was necessary to attract temporarily or permanently bypassing echelons, professional work regimes or other systems; (iii) the interference of politics, whose vagaries conspired against the creation and sustenance of a tradition; (iv) economic and financial hardship which not only complicated to select, train and retain staff preserving it from economic concerns but also, to keep its equipment in line with the evolution of science and technology.

Whether for these reasons and more complementary, the deterioration seems to have precipitated in its later years because, at the time of its untimely and thoughtless transfer the Scientific Research Commission of the Province of Buenos Aires in 1979, it claims to have received:

"A departmental structure with a small number of professionals who should occupy most of their time in carrying out tests and checks, sometimes of dubious effectiveness and the vestiges of a golden age and which so far that were not attractive to recruit and train the new generations of technologists that the Province required "[Committee for Scientific Research, w/d, p. 30]⁽¹⁷⁾

The unworthy end does not darken, in our view, the trajectory of the Laboratory or entirely innovative contributions to the Argentine media that justly should reserve a place among the pioneering institutions of national complex science and technology. In fact, it has a current material and symbolic heritage. On one side, the beautiful building in the La Plata Forest (which was its headquarters) and the current CIC Technology Campus in the town of Manuel B. Gonnet, on expropriated land in times of Mercante technological plants for experimental and the other matters, centers, laboratories or institutes which had in it, today its parent foundation and to continue with their work in the context of the Commission: CIOp, CIDEPINT, CETMIC, CITEC, LAL and obviously the new LEMIT (Multidisciplinary Training Laboratory Technology Research where the old sections were relocated Concrete, Paving,

fracture mechanics and Welding and Metallurgical Processes).

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