

MIKLÓS ZRÍNYI NATIONAL DEFENCE UNIVERSITY

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- Research on history and functions of the Institute of Military Technology from 1920 till
1990 -

(PhD) thesis

Author's review and official reflections

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DESCRIPTION OF THE SCIENTIFIC PROBLEM

The importance of research and development should not be asserted too much nowadays. This is justified by the fact that in most countries the task is coordinated at governmental level – although at several grades of this level. In Hungary it is the ministerial level where harmonization of research and development establishments, the national budget financing their activities and actions of the industry using the results is dealt with. Military technological research and development (having many special features) forms part of research and development activities of the country. Since the change of political system the organization of domestic military technological research and development has permanently been looking for its way. In 1990 the Institute of Military Technology executed its tasks with its 250-strong personnel, while nowadays, being the 54-strong Technology Directorate of the Mod Development and Logistics Agency tries to meet the former requirements in a broadening system of functions. Less and less knowledge remains about achievements and failures of the past, owing to the continuous re-organization. In my opinion, research on involvement, development and characteristics of Hungarian military technological research and development, and definition of principles of all these could assist the science organizers of today in functioning a military technological research and development which is effective in the frame of NATO too.

The history of institutionalized and organized Hungarian military technological research and development closely interweaves with the history of the Institute of Military Technology (hereafter IMT). Before its foundation, from 1869, the Hungarian Kingdom possessed one third of properties owned by several imperial and royal institutes carrying out military research and development. In consequence of the Treaty of Trianon, from 1920 till officially declared foundation of the IMT, the institute performed its R&D activities under the aegis of a cover organization for ten years. From 1947 it has been functioning continuously. In tempest of history the institute was re-established twice, without an acknowledged predecessor in title – this fact proves the principles of existence and necessity of domestic military technological research and development.

For the subject-matter there are publications concerning many subfields. Common characteristic of them, that they examine the R&D activities of the IMT in a short period of historical time, basically from some points of view. For the time being, there is no study either covering the whole story of military research and development performed and led by

the IMT or scrutinizing and comparing characteristics of the research and development in certain significant eras of history. Defining principles of activity can be made on the basis of comparisons.

Although there were ominous indications when I started my research, elimination of the MoD Technology Agency did not emerge. At that time, focusing on a relevant date my intention was to write the history of the Institute of Military Technology and the Technology Agency, and did not consider this date as a closing one. But, from the point of view of the research I consider the date and reason of finishing historical research indifferent. On the contrary, it is a little bit easier to examine a thoroughgoing period. However, examination of operation under these circumstances became even more relevant since the MoD Technology Agency – now as one of the directorates of a new organization, the MoD Development and Logistics Agency – intends to continue the whole scope of its former activities. That requires knowledge on operational frames of former organizational elements, synthesis and analysis of them.

The subject of military technological research and development is always and everywhere a strictly protected secret in military, technical and economical sense as well. There is almost no opportunity to publish recent researches, with the exception of reports and official documents. Technical achievements, stories of researchers-developers and manufacturers can only be released after a long period of time elapsed. These works, however, can rely mainly on research of sources. It is not a small challenge since during decades the biggest harm was caused less by devastations of wars, but largely by negligence or inefficiency of making archives of own research and development activities. For posterity we are obliged to carry out research and publication of many decades in the field of examination, elaboration and presentation of the past of the military engineering.

Research of the story of the IMT is a long-run mission which has not been finished at all with writing the thesis or publishing the book about the history of the IMT. There are small studied pieces from the period of time after 1960s, but many years are required to continue these research. I used possibilities provided by directed interview to make up the shortage in data necessary for the thesis. Research of written sources after 1960s has not been finished yet, so this thesis does not contain the results of this research.

RESEARCH OBJECTIVES

- **On the basis of research on institute history, biographies of developers and research and development topics to write historical description of the Institute of Military Technology, the most detailed one so far; and to prove the continuance of its activity showing the similarities of organizational structures and, persons and topics arching over eras.**
- **To examine necessity and methodology of a directed interview and to draw up its general requirements, as well as to prove its applicability in this scope of science.**
- **To work out a system of aspects and a series of questions to it, by the use of which the series of directed interviews can be carried out.**
- **To write a comprehensive analysis of operational experience, organization, personnel, relationships and financing of the Hungarian military technological research and development.**

RESEARCH METHODS

- Gathering information on history and function of the Hungarian military technological research and development that could occur in Hungarian-related institutional frame, as well as from the field of branches of science related to my research.
- Interviewing the prominent and determinant characters of the military technological research and development (using analysis, observation and historical method).
- Systematization, selection and classification of factual knowledge obtained and then summarizing results of research (using abstraction, synthesis and hypotheses).
- Drawing conclusions on function and principles of the military technological research and development (using method of induction-deduction, analogy and generalization).

BRIEF DESCRIPTION OF THE RESEARCH PERFORMED

My thesis resulted from my scientific research consists of three chapters.

In Chapter 1 I take a “summary “of pieces of my work on history of military technological research and development, highlighting my own research results. For the relationship of history and function I demonstrate antecedents of evolution of the domestic military technological research and development. On the basis of sources elaborated so far, I write the IMT’s history till 1960. With writing abridged history of domestic military technological research and development, I show and prove continuance of history of military technological research and development. On the basis of my own research results, in this chapter I introduce a few developers, outstanding ones or known not for military technological development achievements; furthermore I describe the story of some development projects not elaborated so far.

In Chapter 2 I prove that the available written sources are insufficient to pursue either historical or operation-related analyses. I prove necessity and applicability of directed interview as primer research, in this field. I define general requirements on conducting directed interview; work out a system of aspects of a particular directed interview; and choose the subjects of importance. I set the group of possible persons to be interviewed, choose the concrete ones and explain my choice.

In Chapter 3 I elaborate and demonstrate components of works and commander reports which are corresponding to the course of my research. I highlight data suitable for comparing them with answers to questions of the directed interview. Questions by questions and also in sum, I analyse the text of interviews and evaluate subjects of those corner points having determining character with respect to function and operation of military technological research and development.

SUMMARIZED CONCLUSIONS

My conclusions from experience of the military technological research and development gained so far.

As concerning organization:

Directions of the military technological research and development must basically be settled by demands of the Hungarian Defence Forces. However, the personnel of the Hungarian Defence Forces cannot be tasked to have up-to-date information about achievements of all the branches of science and cannot be tasked to examine their military technological applicability. Managing military technological issues is an independent field and it can be carried out by specifically prepared personnel only. Without proper knowledge on military technology, independent development, managing developments, preparing decision-making on acquisition of equipment and acceptance of equipment – in sum, provision of advanced materiel for the Hungarian Defence Forces – cannot be imagined.

Military technological research and development and introduction of armaments into inventory of the Hungarian Defence Forces have to be carried out according to comprehensive rules. They must comprise several levels of competence including levels of decision/decision preparation on military technology. Political influence has to remain at settlement of strategic goals. At levels of decision/decision preparation only specifically prepared experts have to work who gained their knowledge during many decades.

It is not appropriate to divide managing of issues of military technology into too many parts. All decisions, be it development, acquisition or acceptance, can only result in success if the decision-making/decision preparation mechanism is directed by a unitary methodology.

Holding up capacities of the domestic defence industry depends on political decision. Volume and quality of domestic provision is an issue of security policy. Experience shows however, that neither military technological development nor political, military, scientific cooperation can exist without own capabilities.

As concerning financing:

There are two main parts of financing of the military technological research and development. One of them is operation costs, and the second one is cost of R&D projects. R&D topics can be financed from an annual fund or programme funds, or else jointly both. In financing research projects the defrayer has big degree of freedom, since after a budget cut research projects can be re-launched with a small loss. However, conditions of professional activity are getting worse in case of cut in operation costs. Organizational components, test laboratories, specialists, relations etc. are lost and this loss can only be made up during decades, It is not a true idea that knowledge on military technology can be purchased from abroad, as Hungarian soldier cannot be purchased from abroad either. In an organization working well, with a good professional community the budget of R&D projects can never be sufficient. In a higher level, the extent of allocation of budgetary money has to be defined taking into account needs and opportunities.

As concerning financing R&D personnel:

For the personnel of military technological research and development there is no an independent training system. The aim of establishment of a faculty of engineer officers was to solve the heavy problem of shortfall in personnel, but for a small army a continuous education cannot be “economical”. The right places for meeting the demands on engineers i.e. education of engineers (fully qualified engineer is not equal with an engineer graduated at a college) has to be civil technical universities. The process of becoming engineer officer must be promoted by special courses, and work with elder and more experienced colleagues in the organization. As the time passes and the science evolves, further education of engineers has to be carried out continuously and organically. Engineer officers have to participate in postgraduate courses in accordance with their specialities. Demands on courses and suitability of institutions have to be weighed up and judged by a person supervising research and development. Substitution of persons left needs decades rather than years.

As concerning research and development topics:

In respect of Institute of Military Technology and its predecessors, projects were launched in almost every branches of engineering. Before World War I, from the tank designed by Pál Lipták to the first tethered helicopter Hungarian activity was noticed in all branches of engineering. However, history of military technology is a lesser-worked up field in Hungary, even within the PhD Institute in Military Technology of Miklós Zrínyi National Defense University. Research on projects of IMT is a research on history of military technology at the same time. Launch of a development project has to be precluded by an accurate research on sources. For this, engineers-specialists have to have knowledge on recent results of science. The work needs an active observing system which is in contact with domestic research institutions and watching international trade press and literature. To this, there have to be available the Military Technological Reference Library the only one in Hungary, which has a unique scope of collection. Engineers-specialists have to examine and analyse domestic military technology in whole life cycle. Without knowing their opinion nothing can be introduced into and withdrawn from the system. This principle has to prevail in case of equipment purchased from abroad.

As concerning interconnections of military technological research and development:

For obvious reasons, relations with research institutes inside/outside an alliance system are motivated politically. We may have full assurance that any successful international cooperation comes into being on the basis of mutuality only, if both sides derive benefit from the cooperation. If in Hungary domestic military technological researchers-developers can not produce own achievement with which they could cooperate, and then holding intercourse is limited to mutual gathering of information. It has to be worked out who do we intend to cooperate with and in which topics, and what can we offer during the cooperation. Inside our country, military technological research and development or the independent institution itself takes a particular and central place. The Hungarian Defence Forces is concerned in it, since demands of applier define the course of activity. The industry is an other player, since the industry produces, materializes equipment. One of the participants is academia, since the latest scientific results emerge in there, there are the workshops of basic research there, and the universities train specialists. The IMT linked with all tree collaborators organically, and military technological research and development exists here even nowadays.

NEW SCIENTIFIC RESULTS

- 1. Having examined institute history, biographies and research and development topics I have written historical description of the Institute of Military Technology, the most detailed one so far; and on the basis of which I proved the continuance of function of the institution of military technological research and development from the Austro-Hungarian Monarchy till 1990.**
- 2. I have drawn up the general requirements of the directed interview as a primer research method, and I proved its applicability in this scope of science also.**
- 3. I have worked out a system of aspects representing the most important characteristics of function of military technological research and development; this system proved its suitability in questions of series of directed interviews.**
- 4. I have written a comprehensive analysis of operational experience, organization, personnel, relationships and financing of the Hungarian military technological research and development.**

PROPOSALS

On the basis of the written my proposals are as follows:

- The history of military technological research and development which met the needs of the Hungarian People's Army and got considerable technical results calls for further research. It is true, in particular, as far as the successful development projects, effort and biography of outstanding researchers-developers, and the story of manufacturers of defence industry are concern. During my research many data emerged on the basis of which a new research has to be launched.
- Development and acquisition of military technology cannot be accomplished without skilled engineers. A new system has to be established and operated so as to keep professional capacities and make up the shortage, train and retrain engineers.
- It is necessary to reconsider the conditions of how military technology is introduced into the system of the Hungarian Defence Forces. For this, the research and development methodology worked well before has to be the starting point.

- Minimum operation cost of research and development has to be planned many years in advance. Demands on research and development and budgetary frames available can define research and development projects.
- Research and development has to be characterized by a remarkably wide domestic and international system of relations. In relations, professional interests have to be promoted. It does not mean in every case the interest of the defence portfolio only.
- One of the most important sources of information, the Military Technological Reference Library has to be maintained and enriched. Press-watching system has to be reorganized for the vocation.
- It is necessary to impede doom of mass of documents of IMT unachieved for more than 50 years. After elaboration the collection has to be handed over to the Military History Records.

I recommend material of my thesis

- To those specialists of the Ministry of Defence and the Hungarian Defence Forces who deal with planning, organization and implementation of military technological research and development.
- To the Miklós Zrínyi National Defence University, as teaching background material.
- To those specialists of civil research and development who are involved in cooperation with military technological research and development.
- To those specialists who can use it as an initial or source material to launch new researches on Hungarian military technological research and development or on history of Hungarian military technology.

LIST OF THE AUTHOR'S PUBLICATIONS

Publications concerning the thesis

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16. Ráth Tamás, Hajdú Ferenc: A new cooperative opportunity for the Hungarian defence industry, Haditechnika 2005/4 61-64. oldal

AUTHOR'S BIOGRAPHY

He was born on 23 February 1965 in Budapest. In 1983 he passed the school-leaving examination at the Arany János Grammar School, in Nagykőrös. After graduation at the Máté Zalka Military Technical College, radar technology branch, he was commissioned as a lieutenant in 1987. Between 1997 and 1999 he was a student of the Miklós Zrínyi National Defence University and he had a university degree, after an 11-month English language course in between. In 2002 he graduated from Bálint György Academy of Journalists.

His first officer assignment was the company deputy commander of the battalion 4 of the radio engineering brigade, after two years he became the company commander. After graduation from the Miklós Zrínyi National Defence University he, as an operations officer, served at the Air Force Operations Division, Operations Chief Directorate of the Honved General Staff. From 2001 he is the editor in chief of the HADITECHNIKA, the technical, scientific and educational journal of the Ministry of Defence.

Beyond his official duty he holds positions in several scientific organizations – secretary-general of the Club of Hungarian Science Journalists; secretary of the Military Technology Section, Hungarian Military Science Association; organizer-secretary of the Society of Military Technology History, and secretary of the AFCEA Hungary.

His publication activity is multi-faceted. As a co-author and the editor he took an active part in producing four books. He is the author or a co-author of five studies and ten specialist articles. He produced a bilingual reference film on development of military equipment. For several domestic and foreign military technology exhibitions he prepared presentations in Hungarian and English, designed posters and gave lectures. He edited more than 20 prospectuses of military equipment and devices. In popular scientific programmes he was interviewed on four occasions on military technology topics. Due to his scope of duties he edited hundreds of specialist and popular scientific articles.

His command of languages: English – medium level, Russian – basic level.

He began his study at Military Technical Doctoral School in 2002. He passed all the examinations with distinction. He got absolutory in 2006.