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FOR HISTORY OF FORMATION OF THE GEORGIAN MATHEMATICAL,
TECHNICAL AND NATURAL SCIENCES TERMINOLOGY

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*Dedicated to 100th birth anniversary of Academician
Giorgi Chogoshvili (1914-1998)*

Abstract. The present paper offers brief history of formation of Georgian mathematical, technical and natural science terms, starting from XI century till present.

Successful terminology activity was led in Georgia by Giorgi Mtatsmindeli (1009-1065), Efrem Mtsire (second half of 11th century) and Ioane Petritsi (or Ioane Chimchimeli 11th - 12th cc). The terms created by them in English are expressed as follows: Giorgi Mtatsmindeli created the term - judge; Efrem Mtsire created the terms: essence and science; Ioane Petritsi created the terms: point, preferable, ignorance, future, identity, straight line, proof, angle, value, smooth, image and others.

Such successful terminology activity was hindered for a long period, by enemies of Georgian mind, who's vile goal was not only occupation-destruction of Georgian territories, but also the worst - annihilation of Georgian soul.

Irrespective of such merciless and long fights, periodically insistent protectors of motherland and faith were born in Georgian nation and it is namely thanks to those persons that in the second half of the 18th century it became possible to liquidate heavy historical results in the sphere of culture and namely, in education, which was the object of concern of Erekle the Second (1720-1798) - king of Kartli and Kakheti.

Catholicos Anton the First, in civil life Teimuraz Bagrationi (1720-1788) was the organizer and director of the sphere of education. It was at his initiative that in 1755 Tbilisi Seminary was opened in the yard of Anchiskhati Church (at the palace of the Catholicos). Grammar, rhetoric, logics, metaphysics, psychology and philosophy were taught there.

In 1758 Erekle the Second opened a school in Telavi, the main designation of which was training of personnel for churches. On the base of this school in 1782 Telavi Seminary was created, where grammar, rhetoric, philosophy, mathematics, theology were delivered and students were enrolled without class status distinction. The first rector of this seminary was the initiator of its founding, Gaioz the Rector (1746-1821), Baratashvili, or Vagoghshvili, who in 1789 wrote grammar of Georgian language.

Tbilisi seminary functioned till 1795, till the moment when Aga-Mohamed-Khan (1742 - 1797) occupied Tbilisi. Then the function of the seminary was carried out by Telavi seminary, till Georgia joined Russia (1801), and then it too stopped existence.

In 1817-1917 was in Tbilisi the theological seminary, whose first Georgian rector was since 1916 Korneli Kekelidze (1879-1962).

With the view of terminology activity, the first half of the 19th century was passive. The work in this direction was revived in the second half of the 19th century, but it was

one-directional. The thing is that the main vein of the life was not Georgian: Georgia had neither science nor technology, nor school of its own and hence there was no need to have terminology. Tsarist Russification policy wouldn't allow such activity. If there were some persons, enthusiasts of this sphere, who still lead educational activity, tsarist government tried to block their activity. The best example of it is watching-oppression of Jacob Gogebashvili (1840-1912). In his handbooks for children it was prohibited even to use a term referring to geographical reality - Georgia!

Irrespective of it, there were persons among Georgians who cared for Georgian language. The first among those was a perfect master of Georgian word and its solicitor Ilia Chavchavadze (1837-1907) who created terms such as: direction/trend, view/aspect, contents, structure, reality, value/virtue, inspiration, abstractness and many others.

Theoretical ideas of progressive Georgian intelligentsia were summed up by Ilia Chavchavadze and he formed the following conception for term-formation: 1) necessity to distinguish scientific term from common word; 2) observance of term accuracy; 3) moment of accustoming to assimilation of a new word.

The issue of formation of Georgian glossary was rather ripe for the 80s of the 19th century and active work was commenced for its realization, Work on science terminology was started in 1882, initially on mathematical and physics terms, and in November-December of that year three conferences were held, which were chaired by Rafiel Eristavi (1824-1901). At those conferences (together with the chairman) Ilia Chavchavadze, Akaki Tsereteli (1840-1915), Zakaria Chichinadze (1854-1931) and others took active part in the work of the conferences, in all up to 20 persons. They worked on translation of Russian terms into Georgian trying to give to those terms Georgian form. The results were published in press.

The significant place in diverse and extremely interesting writer's and social activity of Rafiel Eristavi was occupied by lexicographic work and namely:

1) in 1873, the "Heralds of the Caucasus Economic Society" printed his 100 page original work "Brief Latin-Russian-Georgian Botanical Glossary". This book offers Russian and Latin names of 400 plants and names of 700 other plants are listed in Georgian; Russian and Latin names of those plants don't exist or the author was unable to find them. The author offers concerned persons to try to explain those words.

2) Rafiel Eristavi's 167 page "Brief Georgian-Russian-Latin Dictionary - From Plants. Animals and Metal Worlds", Tbilisi, 1884;

3) Editorship of "Georgian Dictionary ("Sitkvis kona") by Sul Khan-Saba Orbeliani (1658-1725), printed version of 1884 (after 160 years from the author's death); in this connection he wrote more than 2000 pages, personally;

We have to mention here the very interesting "Russian-Georgian Dictionary of Astronomy, Zoology, Mineralogy and other Terms and Technical Words", Tbilisi, 1896, issued by Konstantine Kipiani (1849-1921), one of the founders of Georgian realistic artistic school, translator and lexicography;

In 1915 a paper "About Dictionary" was printed in the newspaper "Sakhalkho Purtseli" ("Public Paper") (#305), that was signed by 9 scientists and public men already well known by that time: Ivane Javakhishvili (1876-1940), Korneli Kekelidze (1879-1962), Justine Abuladze (1874-1962), Ioseb Kipshidze (1882-1919), Sergo Gor-

gadze (1876-1929), Vakhtang Ghambashidze (1872-1951), Vukol Beridze (1883-1963), Pavle Ingorokva (1893-1983) and Akaki Shanidze (1887-1987).

The purpose of form of appeal of this letter was a desire to return to the Georgian language the place in science and statehood significance.

With this in view the first successful work was implemented by Ioseb Avalishvili (1886-1979). In 1917 he published in Tbilisi "Georgian-Russian and Russian-Georgian Mathematical Terminology" consisting of 62 pages. It was a result of intense work. Having studied at about 16 mathematical manuscripts and books he published the accumulated material in 4 newspaper articles in 1916, and offered Georgian translation/interpretation of 319 Russian terms.

Shortly after declaration of independence by Georgia, technical society started to think about formation of technical terminology and in 1918 a multi-subject terminology section was formed at the endeavors of Vasil Kakabadze (1888-1968). But many members of the committee couldn't bear heavy work connected with terminology and only four members remained in the commission. These were Vasil Kakabadze (chairman of terminology commission), Giorgi Gedevanishvili (1883-1957), chairman of technical society, D. Berikashvili and Ir. Mchedlishvili. Soon Rusudan Nikoladze (maiden name Polievktova) (1884-1981), Giorgi Nikoladze (1888-1931), Ivane Beridze and Mikheil Shalamberidze (1885-1958) joined the group.

The work was hard and the members of the commission worked without rest, even at home; when necessary, Ivane Javakhishvili, Andria Benashvili (1868-1941), Andria Razmadze (1889-1929) were cooperating with the group. This hard, intense and very interesting work gave its result and in 1920 a book consisting of 280 pages was published in Tbilisi: "Russian-Georgian Technical Dictionary (Glossary) with Gymnastic Terminology for "Shevardeni" ("Falcon" - gymnastic movement of that period) and in 1921 the revised and filed in version consisting of 196 pages was published. After intense work, in 1926 the Georgian-Russian and Russian-Georgian Engineering Dictionary, in 1926 Russian-Georgian and in 1927 Georgian-Russian Roadway Technical Dictionary were issued.

In 1928 Russian-Georgian and Georgian-Russian Physical and Electro-technical Terminology Dictionaries were issued. In 1921 the state scientific council was created which was headed by Ivane Javakhishvili. It united specialists of various branches of science. Its main goal was treatment of Georgian terminology.

As the activity was widened, terminology section was isolated from the scientific council and the central science terminology committee was formed. As a result of joint activity, in 1925, the Russian-Georgian and Georgian Russian Mathematical Terminology Dictionary was issued covering 244 pages, headed by Ivane Javakhishvili. It was compiled by participation of Andria Razmadze, Niko Muskhelishvili (1891-1976), Giorgi Nikoladze, Archil Kharadze (1895-1976), Giorgi Akhvlediani (1887-1973), Dimitri Uznadze (1886-1950). In the very 1925, a brief dictionary: "Mathematical Terms" was published consisting only of 60 pages.

All dictionaries listed above were "accused" of excess Georgian character, which was considered inadmissible by the powers of the big country. At the same time, too many new terms were accumulated in mathematics. Therefore, in 1944, Russian-Georgian part of "Mathematical Terminology, covering 117 pages was published. Its editor in

chief was Vukol Beridze.

Besides the cited technical character dictionaries we should state "Technical Terminology", third corrected edition, that was published in 1989, covering 521 pages.

From the second half of the 20th century many branches of mathematics developed significantly and many new terms cropped up in foreign languages, which conditioned the necessity of creation of corresponding Georgian terms. Works in this direction were started in 1963 at the leadership of Giorgi Choghoshvili (1914-1998), on the base of Andria Razmadze Institute of Mathematics of Georgian Academy of Sciences. Relevant resolution was made by the government of Georgia which aimed to create commissions for terminology in mathematics and economy.

Commission for mathematics consisting of more than 30 members implemented its work by stages. A member of the commission was obliged to "cover special literature/references" in his branch and prepare corresponding cards, to be sent to groups of specialists of various institutes-laboratories. Considered cards were gathered in the commission and then, six-language cards were prepared. The main work of the commission was consideration-screening of cards, and as the work was too hard many members of the commission left it soon.

Chairman of the commission periodically delivered his reports to Congresses of Mathematicians of Georgia.

When the work on terminology was completed (1996) the whole material was submitted to the department of scientific terminology of the Institute in Linguistics of Georgian Academy of Sciences. After definite time, 4-5 members of the commission participated in consideration of the material that lasted for months, and not always without disputes. By the beginning of 80s of the last century six members were left in the commission: head Giorgi Choghoshvili and members Givi Tevzadze (1919-1985), Guram Sulkhaniashvili (1933-1986), Ramaz Abdulaev (1936-2004, Omar Dzagnidze, Ada Michitashvili.

In 2010, by the authorship of those six members¹ the "Russian-Georgian Mathematical Dictionary" was issued, covering 459 pages and 40000 terms. It was sponsored by Mr. Shota Makharadze and the Commission acknowledges with many thanks his contribution to this deed. Earlier in 1997 Giorgi Choghoshvili issued a brief six-lingual "Mathematical Multilingual Dictionary", covering 2500 terms.

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¹Long before completion of works on dictionary the members of the commission were aware of the position of Giorgi Choghoshvili: person who missed more than 10% of conferences could not be among the authors of the dictionary.