

# THE 1877 REGULATIONS FOR THE LEARNED SCHOOL IN ICELAND

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## ABSTRACT

In the 19<sup>th</sup> century, only one learned school existed in Iceland, where the population was 47,000 in 1801 and 72,000 in 1880. Considering the circumstances, the Learned School enjoyed excellent mathematics teaching in the period 1822–1862, when the school was served by Björn Gunnlaugsson, a gold medallist in mathematics from the University of Copenhagen.

In the 1860s, discussions about teaching modern languages intensified in Denmark and other Nordic countries. In 1871, Denmark's learned schools were divided into two streams, specializing in languages and history on one side and mathematics and natural sciences on the other side. Regulations were prepared for the sole Icelandic learned school in 1876, suggesting that the Icelandic school would continue as a one-stream school, while Hebrew would be eliminated and Greek reduced to make room for the modern languages, French and English. German and Danish had previously been taught during the first four years. Mathematics would continue throughout the school as previously.

Immediately after the proposals for the new regulation were introduced, the governor of Iceland sent them to the Minister of Iceland in Copenhagen along with a long letter, containing his own proposals, suggesting a clear language-history stream in the Icelandic school, as it would overload the pupils to study Latin and mathematics at the same time. He proposed that mathematics be reduced.

The Minister for Iceland forwarded the original proposals to King Christian IX, suggesting that Danish and exegetics replaced mathematics in the last two years of the school. This became the conclusion of the matter and the mathematics-science stream was first established in 1919.

Over the next couple of years the teachers of the school tried to influence this decision, while it seems that the headmaster, who was a philologist, had lobbied his way through the official system with his emphasis on languages. Letters from the governor, the minister and the teachers are preserved at the National Archives in Iceland. They reveal interesting arguments for and against mathematics education, all of which harmonise in one way or another with the Mogens Niss's analysis of fundamental reasons for mathematics education from historical and contemporary perspectives, published in the *International Handbook of Mathematics Education* (1996).

## 1 Introduction

Iceland remained a rural society well into the 20<sup>th</sup> century. It was settled from mainland Scandinavia in the 9<sup>th</sup> century, and from late 14<sup>th</sup> century it was a tributary of Denmark. The 18<sup>th</sup> century saw the dawn of modern times. Regulations issued in the 1740s were the basis for a unique educational system whereby homes were responsible for the education of children, under the supervision of parish priests. Until after the middle of the 19<sup>th</sup> century there was only one educational institution in the country, the Learned School. The population of Iceland numbered 47,000 in 1801 and 72,000 in 1880.

The aim of this study is to examine the arguments given in the 19<sup>th</sup> century for and against the teaching of mathematics in that sole learned school in Iceland. The history of mathematics education will be analysed in the light of the following statement by Mogens Niss:

Analyses of mathematics education from historical and contemporary perspectives show that in essence there are just a few types of fundamental reasons for mathematics education. They include the following:

- contributing to the *technological and socio-economic development* of society at large, either as such or in competition with other societies/countries;

- contributing to *society's political, ideological and cultural maintainance and development*, again either as such or in competition with other societies/countries;
- providing *individuals with prerequisites which may help them to cope with life* in various spheres in which they live: education or occupation; private life; social life; life as a citizen. (Niss, 1996, p. 13).

## 2 Earlier circumstances

Regulations for the learned-school level were introduced in 1743, on the required knowledge in the four basic skills in arithmetic. With the advent of the Enlightenment movement, the first mathematics textbooks in Iceland were published. However, no teacher was available to teach mathematics. While the University of Copenhagen introduced minimum requirements in mathematical knowledge in 1818, Icelandic students alone were exempt from these requirements until after 1822.

From 1822 to 1862 the Learned School, first located at Bessastaðir and later in Reykjavík, was fortunate enough to have as mathematics teacher Björn Gunnlaugsson (1788–1876), a mathematician who had earned two gold medals for mathematics at the University in Copenhagen. As students were few, the six-year programme had to be taught in only two groups: novices and veterans. The students studied arithmetic, algebra, geometry, stereometry, and trigonometry.

At his inauguration at the Learned School in 1822 Björn Gunnlaugsson said:

In order to be able to live, and live comfortably, we have to utilize the resources which God has in nature prepared for us; in order to use the resources of nature we have to know its evolution; in order to know its evolution we, or least some of us, have to research it, in order to research it we have to calculate it, often with *mathesi applicata*; to calculate with *mathesi applicata* we have to know *mathesin puram* and that thoroughly; and in order to know it properly we have to investigate all its tricks to the degree that we possibly can; and if not all of us have the opportunity and leisure time for that, then we have to send out some scouts who do that for us. Every nation should therefore have its *mathematicos* to send them out into nature to research its mysteries and who then point out to the nation where it should search to find the resources which are hidden in it. (Gunnlaugsson, 1993, p. 57).

Björn was influenced by the Enlightenment and was well acquainted with the laws of physics and their dependence on mathematics. Most other Icelanders may not have seen this connection in their country at that time.

Björn's address indicates that he considered it the goal of his teaching that the nation would be able to harness nature's resources, in addition to the official reason given for teaching mathematics, which was to ensure the admittance of Icelandic students to the University of Copenhagen. One can therefore identify, in early 19<sup>th</sup>-century Iceland, two of the fundamental reasons for mathematics education, stated by Mogens Niss, i.e. to provide the students with prerequisites for further studies, and to contribute to the technological development of society.

## 3 Debates about the new regulations

Intense debates about the teaching of modern languages in learned schools arose in Denmark and

other European countries during the 1860s. In 1871 the Danish parliament passed legislation on the division of Danish learned schools into two streams: a language/history stream, and a mathematics/natural sciences stream. Following the granting of Iceland's own constitution in 1874, a committee, the School Affairs Board, was appointed in Iceland in 1875 to prepare regulations for the Icelandic school. Among the board members was Jón Þorkelsson, headmaster of the Reykjavík Learned School. In October 5 1876, the board presented a proposal whereby new modern languages were implemented: French and English as compulsory subjects – French for six years and English for four years – and German as an elective in the last two years. German and Danish had prior to this been the only compulsory modern languages, both taught for the first four years. Hebrew was to be eliminated, Greek and exegetics were to be reduced, while Latin would be slightly reduced. Mathematics was to be taught for six years as before (Álitsskjal nefndarinnar í skólamálinu, 1877, 19–47). As the school was so small, it should have only one stream, a mixture of the two streams offered in Denmark.

When the regulations were published on July 12 1877, the following main amendments had been made to them: Danish and exegetics were to be taught in all grades, while mathematics was to be completed in the fourth year (Stjórnartíðindi, 1877). Several documents from the archives of the governor and the Ministry for Iceland, preserved in the National Archives of Iceland, reveal the lobbyism going on in 1876–77.

The new governor, Hilmar Finsen, a Dane of Icelandic origin, sent the School Affairs Board's proposal to Nellesmann, the Minister for Iceland in Copenhagen, along with 17 pages of his own comments, in which he expressed his concern about the workload of students having to study mathematics and Latin at the same time. He put forward his own proposal, that mathematics would terminate after four years, after which German would become a compulsory subject for the last two years. The Learned School would then resemble the Danish language stream. No mention was made of Danish in his letter. In his letter he stated that:

[...] the language-historic teaching must be considered as the one, for the present situation, which is the best suited to prepare the school's pupils for the professional education they later plan to acquire, and which they ... usually will attempt to gain by seeking qualifications for professional examinations, either at one of the present higher education institutes, that is the Theological Seminary or the Medical School or, in the case of the law or philology, at the University in Copenhagen.

It is an extremely rare exception if a student from the present school will seek further education at the University in the subjects for which instruction in mathematics and natural sciences must be considered as the best preparation, and in this country we do not have learning institutions where such instruction can be acquired (Íslenska stjórnardeildin, VI, p. 6).

Minister Nellesmann forwarded the proposals to King Christian IX, together with a letter in which he expressed his view that it was necessary to increase instruction in Danish at the Icelandic Learned School, since that language was of the greatest importance to Icelandic officials as a business language. Furthermore, exegetics should be taught through all classes, and German as a compulsory subject in the last two classes. This would not overload the pupils, as mathematics could be reduced (Skjalasafn landshöfðingja, LhJ 1877, N nr. 621). Regulations announcing the decision that mathematics would not be taught during the final two years, and that German and Danish would become compulsory subjects in its place, were published on July 12 1877.

## 4 Repercussions

It seems odd for the governor of Iceland to write such a long letter about details of Icelandic school affairs. Certainly, school affairs had great weight in the finances of the country, but finances were not the concern here. It seems reasonable to infer that some of the members of the School Affairs Board were discontented with its proposal, and had found an alternative route, via the governor, to express their ideas. Discussions soon after at two sessions of parliament, in 1877 and 1879, and two letters from 1882, could point to that conclusion.

The teacher of German at the Learned School, Halldór Kr. Friðriksson, was a member of parliament. During the parliamentary session in the summer of 1877, he submitted two questions to the governor: Firstly, why the teachers and management of the school had not been given an opportunity to present their opinions about the new school regulations before they were adopted, and secondly, how the regulations should be implemented that autumn. In his introduction, Halldór voiced the criticism that German had been transferred to the uppermost grade, that English and French started at the same time in the first grade and, moreover, that much of what had previously been taught in mathematics was now to be omitted. One could say that not everyone was expected to become a mathematician, but by this act general education was reduced. Mathematics had a great role, as it was a form of instruction in thinking for mankind. Halldór stated that there was no institution in France, England or Germany at the same level which did not teach at least as much mathematics as had been taught in the Learned School up to this time. One of the members of the School Affairs Board, also a member of parliament, said that, as in Iceland there was one more foreign language to cope with than in Denmark, i.e. Danish, one language had to be dropped, and German had been chosen (*Alþingistiðindi* 1877, pp. 636–643). In 1879 parliament resolved that the governor should set up a board of all the teachers and two others to revise the 1877 regulations and propose amendments to it. The matter was brought up by Halldór Kr. Friðriksson (*Alþingistiðindi* 1879, p. 408, p. 499).

In 1882, the teachers wrote a letter to the authorities, requesting that German replace French as the first of the three new modern languages, and that mathematics be restored to its previous status as a six-year subject. Their reasoning was that mathematics education was insufficient in itself, without trigonometry and stereometry. They drew attention to the fact that trigonometry supported physics and astronomy, and that these topics “finalized and perfected” mathematics education. This would achieve the necessary preparation for those wanting to continue the study of mathematics at a higher institution. Secondly, the topics in question were, in their opinion, important for the country’s “technical life”, and

[...] we think that there is the more reason to teach them in the Learned School, as they are not taught in any other school in this country at this time, so our countrymen thus do not have any choice to acquire knowledge in them except by self-instruction.

The letter was signed, with reservations, by Headmaster Jón Þorkelsson and another language teacher, while yet another language teacher, the mathematics teacher, the natural science teacher and others signed the letter unconditionally. The headmaster, who had been a member of the School Affairs Board and thus put forward the original proposal, expressed in a separate letter that he supported the exchange of German and French, while the present amount of mathematics would suffice for all but those who were not heading for the Polytechnic College [in Copenhagen]. He claimed that hardly more than one Icelander attended that school per decade, and those few would

have to seek private instruction in mathematics. The hours for more mathematics would inevitably have to be gained at the cost of the languages, and he, for his part, put the greatest emphasis on them (Íslenska stjórnardeildin S VI, 5. Isl. Journal 15, nr. 680).

Headmaster Jón Þorkelsson was thus, after all, not interested in re-introducing mathematics. One suspects him of having been in a minority on the School Affairs Board, and therefore having lobbied his way through the governor.

## 5 The reasoning

It is noteworthy that all the main reasons mentioned by Niss, concerning mathematics education, were drawn into the debate. Halldór Kr. Friðriksson's reasoning concerns mathematics' great role as instruction in thinking for mankind. This reason can be classified as contributing to society's cultural maintenance, although it may also be thought of as providing individuals with prerequisites to cope with life in an educated way.

The reasoning of the teachers also concerns the fundamental reasons, i.e. that mathematics education

- contributes to society's cultural maintenance, as they considered the mathematics education then offered by the school to be insufficient in itself without trigonometry and stereometry, and felt that these topics would "finalize and perfect" mathematics education in the school;
- provides individuals with prerequisites for further studies, for everyone who wanted to continue mathematics study at a higher institution;
- contributes to the technological development of society, in that it was important for the country's "technical life".

By mentioning the importance for "technical life," the teachers reiterated Björn Gunnlaugsson's reasoning about the importance of mathematics education for utilizing nature's resources, 60 years earlier. The process of utilizing nature's resources for "technical life" had not yet begun in Iceland. Neither the governor nor the Minister for Iceland in Copenhagen seems to have thought of that reason for mathematics education, while they were exerting their influence on Iceland's school affairs. Icelandic society at that time was without any infrastructure, and most buildings were not made of durable material. While authorities were beginning to realize that technical knowledge was needed, there was no universal consensus that the origin of such knowledge should be the Learned School.

The governor's reasoning concerned the society of that time. His reasons were that the pupils of the Reykjavík Learned School were seeking qualifications for professional examinations in theology, medicine, law or philology, and anything else would be an extremely rare exception. In 1877 learned persons of other kinds, such as engineers, could not expect any official post in Iceland. However, educational government requires a little foresight. Sixteen years later, in 1893, the office of National Engineer for Iceland was established.

## 6 Consequences

As the opinions of the teachers were unanimous only on the issue of languages, the consequences were that the regulations were amended, making German the primary foreign modern language, while mathematics was still limited to four years. Its status and respect diminished, as illustrated

by the fact that examination problems were not printed in school reports until after 1910. Pupils were mainly occupied with practical arithmetic. Higher mathematical knowledge disappeared from the country for over four decades, until 1919, when a mathematics / natural science stream was established at the Reykjavík School. The absence of higher mathematics education coincided with a period when the society was throwing off the shackles of the Middle Ages and building up an infrastructure, primarily under the supervision of foreign technical experts.

In 1911 the University of Iceland was established by uniting the theological, juridical and medical schools and adding a faculty of Icelandic studies. Teaching of mathematics within an engineering department first commenced during World War II.

#### REFERENCES

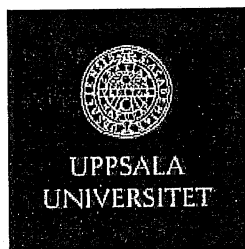
- Alþingistíðindi [Parliamentary Gazette], 1877, 1879.
- Álitsskjal nefndarinnar í skólamálinu, 1877, Reykjavík.
- Gunnlaugsson, B., 1993, "Um nytsemi mælifræðinnar, Fréttabréf íslenska stærðfræðafélagsins", 5 (1), Reykjavík, pp. 54–66.
- Niss, M., 1996, "Goals of Mathematics Teaching", in *International Handbook of Mathematics Education*, A.J. Bishop, K. Clements, C. Keitel, J. Kilpatrick, C. Laborde (eds.), Dordrecht-Boston-London: Kluwer, part 1, pp. 11–4.
- Skýrsla um hinn lærða skóla í Reykjavík [Reykjavík Learned School Report], 1846–1904.
- Skýrsla um Hinn almenna menntaskóla í Reykjavík [Reykjavík High School Report], 1904–1919.
- Stjórnartíðindi [Government Gazette] 1877.
- Þjóðskjalasafn Íslands (National Archives of Iceland):  
Íslenska stjórnardeildin S VI, 5. Ísl. Journal 15, n. 680.  
Skjalasafn landshöfðingja, LhJ 1877, N n. 621.



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