

The Norwegian Titanic Iron Co, Ltd. Mining operations in Blåfjell 1863 - 1875

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12 years of mining: 1863-1875

The two coastal districts, Eigersund and Sokndal, are the most southerly administrative districts in Rogaland county, located about 100 km from Stavanger, the regional capital. Their position allows them the shortest North Sea crossing to England, and the districts are rich in shipping and fishing traditions. Industrial activity on a large scale was first embarked on in the 1840s, when a pottery was founded in Egersund. Scattered attempts to exploit the ore bodies in the area are known from the end of the 18th century, but the ironworks which owned the mines, Moss Jernverk, was unable to extract the ore due to its high titanium content.

In autumn 1863 Norwegian newspapers reported from Sokndal that a certain J.B Faviell, of Yorkshire, England, was believed to have purchased the ores in the district for the sum of 10,500 pounds sterling. The ores were later resold to a company in which Faviell owned the majority stock. The deal also included certain coal mines near Leeds in England. The acquisition of the ore bodies and coal mines cost the company the sum of 40,000 pounds. The papers reported that *"There are rumours of a large facility, for example like a railway line half a Norwegian mile (15 km) long to the jetty etc"* (1).

(1) SAA, 26 October 1863. E.H Grude states in his book *Strandsted og ladested, Egersund fram til 1880* (Resort and Port, Egersund up to 1880), Egersund 1996, p. 328, that the prospecting rights were sold for 9,000 pounds sterling.

Rapid commencement

The English company, The Norwegian Titanic Iron Company Ltd, wasted no time preparing for regular operations at Blåfjell, which was deemed the most interesting of the many ore bodies in Sokndal. But considerable planning and construction work had to be completed before operations to attain any significant volume. Blåfjell was over eight kilometres from the chosen export harbour in Rekefjord, and access to the mines had to negotiate some very difficult countryside. When demand was high the Blåfjell ore was likely to prove inadequate until the transport difficulties could be overcome, and surveys for a railway between Rekefjord and Blåfjell were soon reported almost finished, in mid-November 1863. An English engineer oversaw this work.

Operations commenced in several of the prospects, and in 1864 production took place from as many as eight mines in Sokndal. Perhaps one of the aims of starting so quickly was to bring up production volumes, another perhaps to test the quality of the different ore bodies. In November–December 1863 some 10–50 miners were hard at work every day in Blåfjell. Even more were desired as winter closed in, and before the railway was due to start up.

Heavy investments, small operations

To begin with there was the heavy cost of acquiring land where the railway would pass. Local landlords demanded up to 12 Norwegian skilling* per square alen*, and the total compensation that would be needed for the land was about 15,000–16,000 speciedaler*, about 60,000–70,000 Norwegian crowns. Also houses had to be acquired, so that overheads even before any part of the railway could be constructed, were a heavy load on the company's economy.

Stavanger Amtstidende reported in April 1864 that an English steamer was standing by at Rekefjord, carrying *"presumably railway sleepers and other appliances for the projected railway, and we expect Farewell [Faviell] is also onboard"*. New labourers had now arrived in the community, and they were employed on the railway. A Norwegian engineer, Johan A Hysing, was taken on to take charge of building the railway.

Later in 1965 it seems that railway construction came to a standstill. A newspaper reporter stated that the reason was difficult to discern with certainty, but rumours indicated lack of cash remittances as the main reason. There is much to suggest that the ore quality posed problems for the Englishmen. Its high titanium content made it difficult to smelt, and there was concern that operation of the ore mines might not even be able to continue. *"Certainly the people in England, who with a multi-year patent had acquired the sole right to make smelting attempts - by crushing the rock - utilise 25 to 30 per cent. Titanic iron ore, together with other iron (magnetic iron ore), [was tried,] but since in that case the costs were disproportionately great, often increasing because the rock frequently exploded during smelting, it was decided, that titanic ore was not suitable for the purpose. Additionally, the patent described meant that the trials (in England) could not be extended to a general process, as had been desired."* (2) In the county governor's five-year report, we are also informed that operation at the end of 1865 was virtually stopped and that during the next two years it was carried out *"with little force"*.

(2) Egersundsposten, 7 July 1866.

Production picks up

It would take many years before production attained any volume, and revenues from the ore therefore could not have been large. The amount sold in 1865 was 1,575 tonnes raw ore, while in 1866 the figure was 2,275 tonnes, and in 1867 some 3,280 tonnes. The next year, 1868, was the first to show a definite increase in production, when the volume extracted was 8,690 tonnes. The increases continued for the next few years: in 1869 production was 13,530 tonnes and in 1870 some 15,715 tonnes of ore. This increased production brought with it an increase in average manpower in the mines and activation of the smaller deposits. In 1864 an average of 72 people worked



in eight mines. The workforce declined to 13 in 1865, 12 in 1866, and 18 in 1867. During these years only a couple of mines were worked. The workforce again rose in 1868 to 48, in 1869 to 81, and in 1870 to 150. Now there were six or seven mines in operation. In addition to the mining operations there were sometimes large numbers of navvies on the railway project. According to the county governor's five-year reports for 1861–1865, there were about 200 workers on the railway when operations were discontinued temporarily in March 1865.

In the middle of 1867 the newspaper reports started to indicate a nascent optimism. Large cargoes of ore were reported, some of it going to Antwerp, and in Egersundsposten on 21 August 1867 we find this report: *“Former mining operations in Sokndal have as we know for a considerable time been almost at a standstill, specifically because nobody has quite managed to smelt the titanic iron ore. This task seems now to have been resolved in a fairly satisfactory manner and as a result the mining operations have again started with renewed vigour. There is hope that the railway line which has already been commenced will be completed in the not-too-distant future for transporting the ore from the mines to the ship jetty.”* (3)

(3) Egersundsposten, 21 August 1867.

Railway line is completed

With the prospects of higher production the completion of the line right up to the mine face was renewed sometime in 1868. The first construction phase had brought the line from a point about 3000 alen from the jetty in Rekefjord to a point about four or five kilometres inland, at the western end of the lake at Refsvannet. From the mine, horses and carts descended down through Blåfjelldalen to the other end of the lake. Barges were used to cross the water, or in winter when the ice was strong, sleds. The ore then had to be loaded into railway waggons for the final section of the journey. Apparently gravity was the only locomotive on this downhill run. The ore once again was loaded into horse-drawn carts for the final run to the jetty. This complex journey necessitated a large force of workers and equipment, and could not have been very economic.

The new pressure to complete the line resulted in more employment for the available labourers in the community, but the works also attracted people from outside the district. *Stavanger Amtstidende og Adresseavis* estimated the total workforce in the mines and railway works in early autumn 1868 at about 150 individuals. Engineer Hysing had returned as works manager. There was hope that the remaining segment of the line between Refsvann and Blåfjell would be completed for *“utilisation and construction of the railway”* in a

month or two, but in fact events were to take considerably longer to unfold. Only towards the end of 1869 does the construction of the railway seem finally to be nearing completion – when the papers reported that the lower section of the line to the jetty was now in place. The final segment below the mines would probably not be completed before the spring. And in March 1870 the same paper reported that the line in just a few *“weeks would be completed along its whole length”*.

New difficulties

From the production reports we can see that operations in Blåfjell were heavily cut back in 1871. Production shrank from its peak year in 1870 to 2,146 tonnes of ore, and a small average workforce of 16 people. In 1872 production again approached the 1870 level, sinking again steadily in 1873 and 1874. A characteristic feature of the activity nonetheless is that sales in 1870 exceeded the volume produced, whilst in 1872 and 1873 less than half the annual production could find a buyer. What was the cause of this decline in demand? We cannot say from the literature – but the Stavanger Amtstidende og Adresseavis explains the rumours of reduced ore exports in winter 1870–71 as being due to the Franco–German war, *“which has caused ore smelted in England to be less popular in France than before”*. This supposition was repeated in January 1871, when it became clear that the titanic iron company would close operations in Blåfjell from that month. Only the works supervisor was not sacked. We do not know when operations again started up. Rumours of commencement continued all that year, but we have to wait until March 1872 for a report in *Egersundsposten* that operations had been recommenced with a workforce of 104 men, which would be increased to 200 in April. (4)

(4) Egersundsposten, 23 March 1872. The workforce never reached 200. Egersundsposten writes on 15 May 1872 that there were about 135 workers in Blåfjell, while the average complement for the year, according to Norges Bergverksdrift, Norwegian Mining Operations, was 129.

Roasting trials

While the years 1868 to 1870 were a period of growth for the Blåfjell mines, the same period was one of operational standstill at Koldalsgruvene near Egersund. In 1872 the titanic iron company had restarted operations here, and in that year the total production at the regional mines reached its peak, almost 20,000 tonnes of iron ore being excavated.

It seems as if the high production was followed by some metallurgical projects at the mine site in Blåfjell. During the years of mine working there was never



any regular smelting operation, although an attempt to roast the ore appears to have shown promise. In 1872 two small roasters, each rated at about 50 tonnes, were erected. Coal was carried to the Blåfjell mines, when the roasters were prepared and lit. The heat continued for almost 3 weeks, causing a red tint to form on the ore. The ore's properties were altered by the roast, making lean ore easier to remove. The trials were a success and early in 1873 preparations for a larger roaster were reported. (5) But whether these ever came to anything, is not known.

(5) Letter from works manager Olsen to mines superintendent* Dahll, 7 January 1873. National Archives in Bergen. In a later letter Dahll writes to Olsen that coal supplies for roasting have run out, and it is uncertain whether more will be shipped from England.

The ore quality varied at the different faces, and Blåfjell ore contained less iron than some of the other deposits. The skeidete* ore from Blåfjell had an iron content of 37–40 per cent, whilst its titanium content varied between 40 and 47 per cent titanium dioxide (TiO₂). (6) Hauge mine, which was close to the railway only about 2.5 kilometres from the export jetty in Rekefjord, had an iron content of about 48 per cent, but the mine was closed on Christmas Eve 1872 on the orders of Faviell himself. The sulphur content was poisoning the smelter crews. (7)

(6) J.H.L Vogt: Norges Jernmalforekomster (Norway's Iron Ore Deposits), Norges Geological Surveys 1910.

(7) Letter from works manager Olsen to mines superintendent Dahll, 7 January 1873. National Archives in Bergen. The sulphur content was stated as 3 per cent.

Cut-backs

A relatively high production rate declined in 1873, and in March that year a "large amount of ore" fell into the sea when the wooden jetty at Rekefjord gave way to the ravages of pile worm. A few months afterwards the remaining jetty collapsed, sinking with 800 tonnes of ore, again due to worms in the timber. *Egersundsposten* reported that Faviell himself "was witness to the catastrophe".

It was now decided to construct a new stone jetty, a project that would take time to complete. Even after a steam engine was put on the Blåfjell railway in January 1874, production in the mines was heavily curtailed.

Sales of ore had fallen so sharply subsequently in 1874 that almost two-thirds of the workforce had to be laid off when, in early November, it was decided that the titanic iron company must half its expenses, until there was again a demand for the ore. *Egersundsposten* now reported that the company's smelters in England had supposedly been inoperative for over six months, and that a "volume of smelted ore is lying unsold and unmarketable". (8) In the same newspaper article the titanic iron company is also openly criticised for the conduct of its affairs: "...no enterprise in our country pays its workers so poorly as the great Norwegian Titanic Iron Company, and therefore reports of closure or redundancies elicit only laughter and ridicule from the workmen so treated".

(8) EP, 19 December 1874

Operations continued at reduced complement during 1875, when in November the final mine workers were also sacked. Only works manager Olsen and the engine driver from England now stood on the titanic iron company's payroll in Sokndal. Olsen wondered in a letter to mines superintendent Dahll whether they should even have "spent so long working at such extremely reduced operations as has been the case recently..." (9).

(9) Letter from works manager Olsen to mines superintendent Dahll, 1 December 1875. National Archives in Bergen.

1875 was the final year of regular operation in Blåfjell. Altogether in the 1860s and 1870s about 100,000 tonnes of ore had been removed from the Sokndal and Egersund mines, by far the greatest amount in Blåfjell. Export to England during the same period is estimated at about 90,000 tonnes. Small quantities of the mined ore were sent to England for smelting after working stopped, but in 1882 the decision finally came to close the titanic iron company.

J.H.L Vogt believed early this century that it was unlikely that the ore deposits in the region could be of any economic importance as a source of iron. "The high titanium content interfered with the reduction process for iron, and the uses that the ore had in the 1860s and 1870s in English blast furnaces (masovner*) were based on incorrect ideas of the titanium's influence on blast furnace smelting. If these ores are to be of any use, it must be primarily for their titanium content." (10)

(10) J.H.L Vogt: Norges Jernmalforekomster (Norway's Iron Ore Deposits), Norges Geological Surveys 1910.

The demand for good quality ore from mine operations in Eigersund and Sokndal reached their peak in the early 1870s. The entire Norwegian iron ore export came exclusively from the Blåfjell mine in Dalane during this period.

Original photos from the mining period
1863 - 1875.



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