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Tittel
The Kjøli Copper and Sulphur Mines

Forfatter	Dato	År	Bedrift (Oppdragsgiver og/eller oppdragstaker)
Collingwood Kitts, Thos.		1884	For engelsk interesseselskap

Kommune	Fylke	Bergdistrikt	1: 50 000 kartblad	1: 250 000 kartblad
Holtålen	Sør-Trøndelag		17204	Røros

Fagområde	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt)
Gruveteknisk Historisk		Kjøli

Råstoffgruppe	Råstofftype
Malm/metall	Cu, py

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

Håndskrevet rapport, dato noe usikker, tilsvarende rapport se BV 5542.
En innledning om hvor tvilsomme norske gruveeiere kanvære ved de store overdrivelsene som forekommer.
Beskriver en meget stor og kompakt linse og sammenlignes med Rio Tinto. Det refereres videre til den ferdige jernbanen mellom Christiania og Trondheim.
Det pekes på behov for investeringer for å få ut forventet fortjeneste. Jernbane fra gruven til sammenheng med Dovrebanen.

2383

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Commissions Geschäft & Holzexport
DRONTHEIM
Telegraphadresse: Huitfeldt.

The Kjoli Copper and Sulphur Mines

Report by Thos. Collingwood Kitto, Esq. M. E. late specially appointed Mining Engineer and Geologist to the Cape, Griqualand West, and late Anglo-Transvaal Governments.

Lulworth House
Gunnersbury

Gentlemen

I have much pleasure in handing you my report on the celebrated Kjoli Copper Mines in Norway. First, I must frankly confess that I left this country with a certain amount of prejudice against the Norwegian Mines. This prejudice arose from the fact that in 1870, accompanied by some members of the Stock Exchange, I went to Norway for the purpose of inspecting what was reported to be one of the richest discoveries of modern times. I unhesitatingly condemned the whole affair as being of no value, and even now the Messrs. Gundry, Margetts and others, seldom lose an opportunity of thanking me because I prevented them from losing a very large amount of capital. You will therefore see that my prejudice was not altogether unnatural. The Kjoli Mines are situated about 90 miles south east of the Port and City of Drontheim in the side of a hill about 3200 feet above the level of sea. The mines, though discovered much earlier, were most extensively worked in the early part of the

lengths of two miles /1760 fathoms/ therefore, assuming the lode throughout to be the same as where it is seen in the shafts, the reserves would be 8800000 tons and even if we reduce it to 1000 fathoms in length the reserves would still be 5000000 tons. But in order to allow for any variations or contractions in the lode /though it is just as likely to open as contract/ I shall place it at only 500 fathoms in length, or 2500000 tons of ore from the surface to a depth of 100 fathoms /I may point out that although the shaft is 100 fathoms down on the course of a lode it would only count about 25 fathoms vertically/.

Now, I do not hesitate to say that if the mine be properly opened out, the roads properly constructed and everything conducted as it ought to be, every ton of ore, even if sold in its crude state, should leave a profit of at least ten shillings /10s/ so that 2500000 tons of ore would leave a profit of £1250000.

This would probably extend over a period of, say, 25 years by which time other reserves would be laid open at a lower level in ore probably of a higher grade, though this, perhaps, is a little speculative.

Rich as the property unquestionably is for copper pyrites the above profits cannot be realized without the construction of the necessary machinery and plant and doing a certain amount of dead work for the expeditious discharge of the ore from the mine.

This will be made up as follows:

For chemical treatment on a comparatively small scale to begin last century and became notorious on account of the profits realised by the families who worked them. The geological formation may be briefly described as a micaceous schist, which is the prevailing rock of the neighbourhood.

The lode, which traverses the property in a northerly and southerly direction, dips west at an angle of about 15° and is unquestionably one of the most solid and compact lodes that it has ever been my privilege to inspect. The lode where it is exposed in the ends of the excavation is over twelve feet broad, of solid ore, and will yield fifty tons of marketable ore to the fathom.

To find such a large body of ore lying exposed and unwrought may naturally excite surprise in others as it did in me at first, but when the facts are fully known it will not be so surprising after all. In the first place the mines being situated at least 90 miles from the Port without railway or canal, the cost of transport must have been enormous and consequently they were compelled to confine their operations to the very high grade ore, which appears to be found in large pipes running down into the middle of the main lode.

In the next place the copper had to be extracted from the ore by smelting, and the sulphuric acid now so largely and profitably manufactured from copper pyrites was lost. I could refer to many minor reasons but the above are ample.

The above difficulties have been removed, the railway which has been completed from Drontheim to Christiania now passes ~~at~~ within twelve miles of the mines, and it would be a comparatively easy matter to extend the railway on to the property, after which a company would have no difficulty in making a large annual profit, even though they sent the ore to market in its crude state.

But ore in its crude state should not be shipped unless it contains a very high per centage of copper. I advise the Company to treat the main body of the ore on the property by the wet process in the same way as a similar body of ore is treated at the 'Rio Tinto Mine'. By this means a staff of 300 men could return at least 2000 tons of fine copper per annum. The cost from all quarters would not exceed £35000, so that with copper at only £40 per ton the profits will be £45000 per annum, but if copper be £45 per ton (as it is selling at present) then the annual profits will be £55000.

The next and perhaps the most important point is the quantity of ore likely to be found, and here I cannot do better than relate the facts as they have been laid bare. The Ancients have sunk down into the lode a depth of 100 fathoms in a very high per centage ore pipe, and at no part of the sinking was the lode richer or broader than where they left off the bottom. The work performed by them with so much labour is practically no other than a test shaft, and is very little more than ought to be done by any prudent company prior to laying out permanent works.

I wish particularly ~~to~~ call attention to the fact that from the surface down to a depth of 100 fathoms a lode is exposed in each end of the pit or shaft, which will yield 50 tons of ore per fathom, producing 44 per cent of sulphur and 3 1/4 per cent to 4 per cent of copper to the ton. The lode can be seen at intervals cropping out along the surface for a

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Bricks . .	£1200.0.0.	
Old rails for binders . .	600 0 0	
Cast-iron door frames .	400 0 0	
Crushers . . .	1000 0 0	
Engine . . .	1500 0 0	
Washing and precipitating tanks . . .	2000.0.0	
Sheds tools condenser &c	2300 0 0	
Carriage &c . . .	2000 0 0	
total .		11000. 0. 0.
Cost of driving tunnel to intersect bottom of shaft, driving necessary headings, and fixing shoots for the expeditions output of ore, and laying rails in tunnel		8000. 0. 0.
Sundry houses.	£1200.0.0	
Stores, &c	1200.0.0.	
Horses, Traps, Harness &c	500.0.0.	
Incidentals	1000.0.0	3900. 0. 0.
		£22900. 0. 0.

The next point to which I wish to call attention is the twelve miles of railway which will form the connecting link between the government railway and the mines. As far as I know it has not been surveyed, but I estimate the incline from the Reitan railway station to the mines to be about one in forty five (1 in 45).

The government line is narrow gauge, so that by constructing your line the same the trucks will pass from the mine to the seaport without the trouble and expense of re=loading. It is not absolutely necessary to construct the line at once, although I strongly recommend you to do so, because I am quite certain it will pay for itself in twelve months after it is open. I can not say positively what the cost of constructing the twelve miles of line would be, but I will undertake the job for £ 20.000

In this report I have particularly avoided theories and have confined myself to those points which can be as easily tested and valued as an exposed bed of coal.

I have met some persons who place the value of these mines on a level with the Rio Tinto. I think this is a mistake, for whatever they may prove eventually it would be a serious mistake to handicap them too heavily at the outset.

The property is most certainly a valuable one, and if opened out in the manner I recommend is capable of paying about thirty-five per cent /35%/ per annum on a capital of £ 150.000

I will say by way of conclusion that although in my previous reports on mines in other parts of Norway I have condemned them in the most unqualified terms, it affords me unqualified pleasure in the present instance to hand you a report on a mine that will pay good substantial dividends on a respectable Capital.

I would like in the interest of mining to say that I have noticed of late that when persons who ought to know better have rashly selected mines and failure has been the natural result, they try to console themselves by saying 'shining upon all lodes in a venture.

But I maintain that to a miner, who thoroughly knows his profession, mining is no more a venture than shipping, railways, banking, or any other commercial enterprise. It is true that owing to the wonderful success of many mines in different parts of the world, there has at different periods been a mania for it, when many concerns have been started whether success was probable or not, hence disappointment and odium has been the natural result. But when mines are honestly selected and properly managed there is no safer investment for capital; and the profits sometimes arising from mining are positively fabulous as compared to the profits arising from any other source

If in this report I have overlooked any points of interest, if you will kindly let me know I shall be glad to give you every information in my power.

I am, Gentlemen

Yours faithfully

Thos. Collingwood Kitto