Parbola Mine

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Introduction

Parbola, also known as Wheal Jennings, could be described as the odd 'mine' out among those in the parish of Gwinear, for the following three reasons. The first being that it was the only mine that was extensively worked for tin in an otherwise predominantly copper producing area. In comparison, most of the neighbouring mines were large concerns, such as the Rosewarne and Herland Mines which produced well over 18,000 tons of copper ore, the Treasury group with over 26,000 tons, Pendarves and St. Aubyn Consols with over 15,000 tons, and Relistien with over 12,000 tons. The Tremayne group were an exception, having produced, from 1848-56 and 1863-68 5,256 tons of 6 per cent copper ore, and from 1852-67 1,529 tons of black tin, added to which the mines sold £880 worth of tinstuff in the years 1868-72.

But Parbola, as already mentioned, was worked exclusively for tin although its yield was not large by any means. Some copper had been raised in 'South Rosewarne Mine' which adjoined the Parbola sett, and has loosely been classified as the forerunner of the latter, which, in the writer's opinion is very much open to question and which has been questioned in the ensuing narrative. Furthermore there is no reference to South Rosewarne in Dines, or if there is the writer has certainly not found it.

The second, and perhaps the main point of interest, is the geology of the mine and the peculiarity of its mineral deposits, a subject which has attracted much interest in the previous century and indeed in the present.

The third and final distinction is that Parbola was the only mine in the parish of Gwinear to be reworked on any scale at the beginning of the present century.

However, the mine could hardly be regarded as a successful venture in spite of the aforementioned points. Throughout the last century and in the first quarter of the present, she was worked sporadically, often with a change of name which makes its history even more complex. Of the shafts, Dines refers to seven, these being: Tregoning's which was 20 fms. below adit (adit 5 fms.); Dock (10 fms.); Main or Engine-Shaft (40 fms.); Williams's or Willyams' (20 fms.); Thomas's (30 fms.); Blewitt's (18 fms.) and Eastern or Derry's (10 fms.). There is also a reference to Goldsworthy Shaft in connection with South Rosewarne, and of 'Cock' shaft which may be a misprint for Dock. In addition there was Middlin's Shaft (spelt Medlyn's in Dines) in the northern part of the sett which was 60 feet or 10 fms. deep, and another of the same depth had been sunk some 283 yards S.E. of Wall Methodist Chapel. (Dines p.157). As to the presentation of this paper, the

writer has divided the subject into two parts, dealing first with the geological formation, and secondly, the history of the mine itself. Also the writer has taken the precaution of heavily referencing the text as doubtless there will remain points that are subject to question.

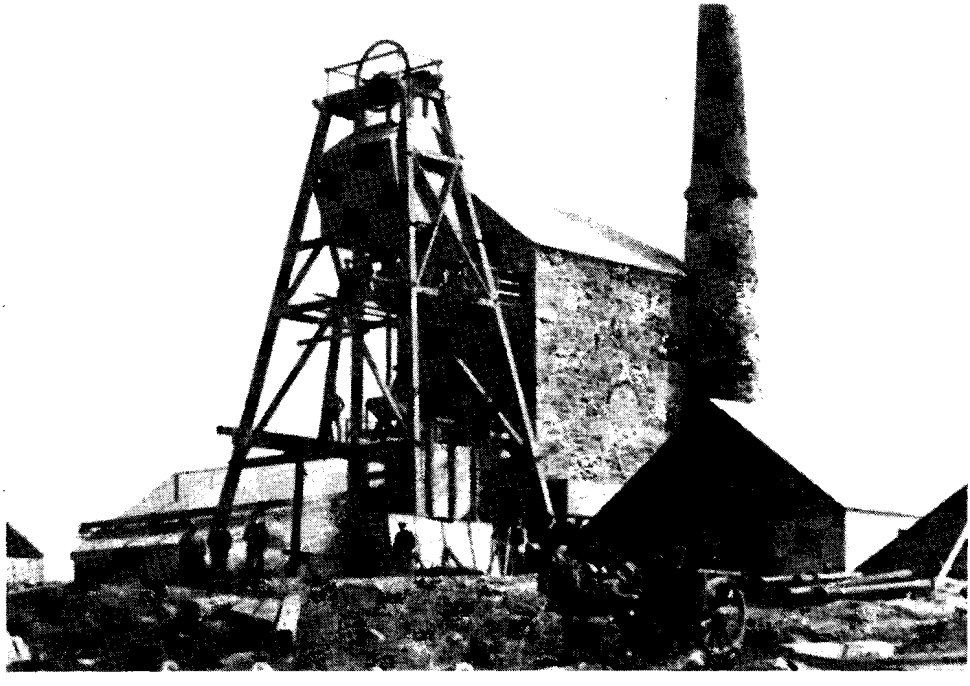
The Geology

Mineralised deposits appear in many forms such as the irregular masses of ore, known as "Carbonas", as found in the St. Ives district,[1] or the similar but smaller formations as were peculiar to Ding Dong where, states Robert Hunt in his *"British Mining"* p.351: "The lodes were constantly throwing out branches and disseminating strings to such an extent as to appear to fill the granite with mineralized veins."

Another form of mineral intrusion are in the form of 'Stockworks', derived from the German "Stockwerke". These are irregular masses, belts, or zones of "country" which are traversed by numerous thin veins, or their numerous joints are thinly lined, or they are sprinkled throughout with small deposits of metalliferous substance, the whole mass being thus rendered of considerable value. Stockworks in the West of England have only been worked for tin or copper.

Tin stockworks have been worked in granite and have also been worked in ordinary killas (clay slate).[2] Also tin and copper have frequently been found in 'Elvans', this term being applied to almost every kind of rock which occurs in dykes or distinct beds other than granite[3] and probably one of the best examples of this is the Wherry Mine.

In some cases lodes pass through elvan dykes as a number of small parallel cracks, the mineralization of which gives rise to a small stockworks within the elvan.[4] One such



South Parbola 1906-1909

example is that of Parbola Mine, in the parish of Gwinear, of which a detailed account of the geology and mineralogy of the mine, by George Seymour, Jun., Associate of the Royal School of Mines, was published in 1878,[5] and from which the following extracts are taken:

"This mine, formerly known as Parbola, is situated in the parish of Gwinear, about a mile to the south of Gwinear Road Railway Station. The country is the ordinary bluish-grey killas of the locality, generally dipping south at an angle of about 50°. There are no indications of a lode occuring near the elvan in this sett, which is traversed from east to west by a powerful elvan course, the occurrence of tin ore in which presents some interesting features.

The general character of this deposit approximates somewhat to that of the German Stockwerke, consisting of an infinate number of small veins running through a non-stratified rock, the whole body of which is traversed by them. It differs, however from the true Stockwerke, inasmuch as the tin bearing branches follow one direction. Such a deposit is however by no means without precedents in Cornwall ..... Mr. Henwood,[6] in his work on the Mineral Deposits of Cornwall and Devon, also devotes a few brief remarks to the instance described in the present paper.

The tin bearing elvan course in question traverses the country in a generally east and west direction, passing through the South Rosewarne and Parbola setts, and running east to the Trevoole elvan quarries by the side of the Helston Road .... In the Wheal Jennings sett the elvan course actually bears about 10° N. of W. and S. of E., underlying S. about 2 feet in a fathom, the angle of dip being pretty constant throughout the mine. The dyke varies in breadth from 70 feet to 80 feet; and the tin ore is found distributed throughout the whole extent in more or less parallel strings or branches running across the elvan. The texture of the matrix is variable, consisting generally of a hard yellowish-white elvan, frequently coloured red by the presence of iron, and occasionally passing into an almost violet-grey. In some places again it is almost pure-white near the ten-fathom level east of Tregoning's Shaft, where it is also soft and earthy, crumbling easily beneath the fingers, owing to the kaolinising of the felspar. The ground here, which has proved fairly productive, can be easily worked away with a pick. In the lower levels the elvan is generally harder, requiring more frequent use of powder; and a red or buff colour has invariably proved the most productive, while the tributors look on the softer ground as the most congenial.

East of the engine-shaft the mass changes to a light blue colour and has proved unproductive, such having invariably been the case throughout the mine wherever the colour of the elvan has passed from buff or red into blue. Some magnetic iron was, I believe, found here in veins traversing the elvan.

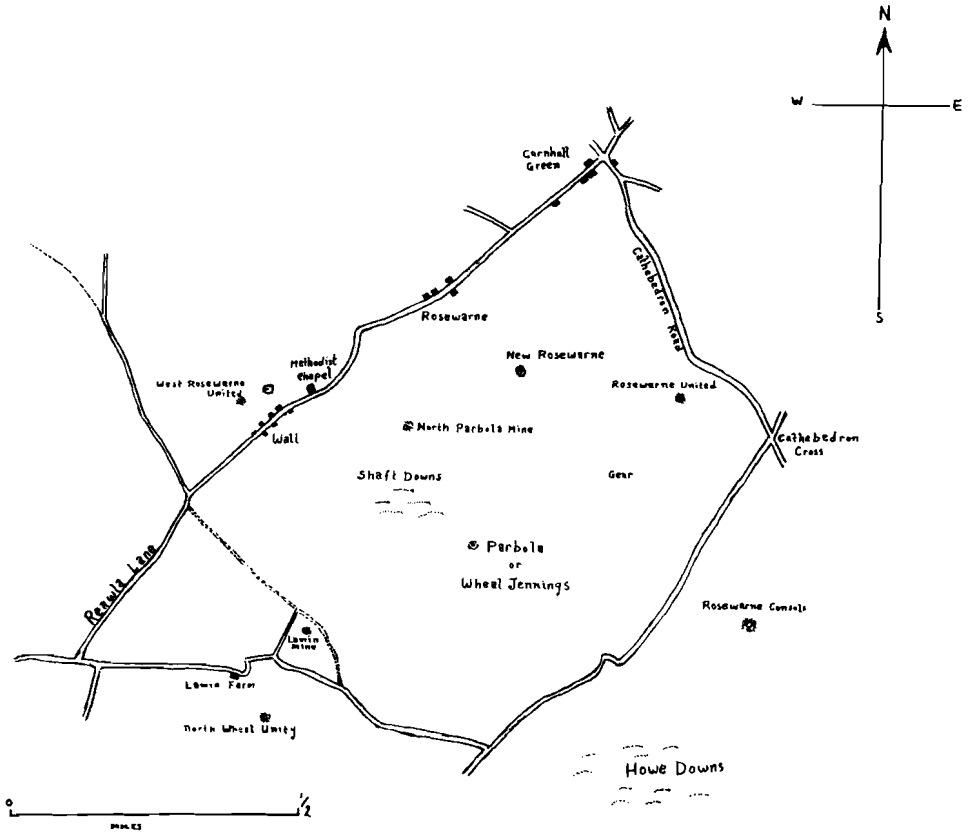
East of Blewitt's Shaft, towards the eastern part of the sett, the elvan course narrows to a width of 40 feet to 50 feet, widening again as it goes eastwards and is traversed by several 'iron floors' and crossings. The tin-bearing branches here course east and west, parallel to the course of the elvan, and at right angles to their general bearing. Such 'iron floors' or horizontal joints, filled with oxide of iron, occur frequently throughout the mine, and are looked upon as favourable indications.

It is noticeable that, although situated at a considerable distance (two miles) from the granite, fragments of this rock have been found enclosed in the elvan — such an instant occurred within 2 feet of the south wall, where a mass of granite about

6 inches square was found embedded in the elvan, the planes of junction being more or less rectangular and sharply defined. The edges of the enclosing mass of elvan exhibit a very perfect columner structure, although a tendency to break into rhomboidal masses is much more generally apparent.

In no place does the elvan present a porphyritic structure, small rounded aggregations of quartz, visible through the lense, and occasionally perceptible to the naked eye, are frequent, as well as small radiating masses of schorl, and small dendritic (tree like) markings of manganese, occurring most often in the soft and whiter elvans."

Of the tin ore he wrote: "The dimensions of the strings, running across the elvan, vary considerably. Some of them are no thicker than, and much resemble a pencil line in appearance. As many as thirty of these strings can frequently be counted in the space of a single linear inch, whilst others again attain to as much as 4 inches or even 8 inches in thickness. The average breadth may be more generally stated as about one-sixteenth of an inch. The most profitable branches are however those which run like masterly lodes for great distances, and are not infrequently followed by tributors right across the dyke from killas to killas. Like lodes again they are not unfrequently enriched by droppers falling into the hanging wall. Intersections are frequent both in strike and dip, although the general parallelism of the tin producing planes is very apparent. In some places they interlace



in all directions, forming a network of tin-bearing strings. The brown branches again generally prove richer than those of a black colour, and the tributors prefer a masterly brown patch, especially when making in softish ground, to any other .....

It is observable, as stated before, that the most productive veins are those which pass across the elvan from killas to killas, other veins frequently falling into them.

Where these, as well as the small veins, abut against the killas, they generally make against it in bunches, varying, according to the power of the vein, from the size of a pin's head to that of a man's fist''.

The paper concludes with an explanation into the origins of these geological conditions, of which Seymour wrote: ''In the case of an ordinary lode the explanation would be a comparatively easy one, since the fissure itself would serve as a channel to convey up the gaseous emanations form the interior of the earth to crystallize out in such pre-existent fissures, cavities, or porous aggregations of matter in the partly formed lode, as could be easily filled and permeated by these vapours, the whole being subsequently still further consolidated by such cementing materials as quartz, calcite, fluor-spar, etc.

In the case referred to, however, the question assumes a somewhat more complicated form. Instead of finding the metalliferous substances distributed among the well-defined cementing materials of a lode, once an open fissure, we here find them crystallized out in a matrix, itself once unquestionably in a fused or pasty condition, and in some such state intruded from below. That the elvan itself served through some fissures or openings in its mass, as a duct for the passage of the metalliferous substances now embedded in it is more than probable, and it only remains to account for those joins or fissures in which the tin ore is now found distributed throughout its mass. There can, I think, be but little doubt that the strings in question originated in shrinkage-fissures, due to the contraction of the mass during the process of cooling, when the laminae probably separated on the surfaces of the weakest cohesion ..... At some period then subsequent to the formation of these shrinkage fissures through the cooling of the mass, and after a greater or less interval of time, it would appear that stanniferous emanations ascended through the more or less fissured body of the elvan in sufficient volumes to force their way into every small crevice and fissure now filled with tin, crystallizing of course with greater regularity in the larger branches, from many of which fine specimens of crystallized cassiterite have from time to time been obtained.

Where the mass of rock was in a greater degree porous, the emanations penetrated into and impregnated the adjacent elvan (as was more especially the case near the larger branches), thus forming the deposits of so-called 'grey tin previously referred to'.''

The Mine

Immediately to the north of the B3280 road, between Leedstown and Praze-an-Beeble, there lies two tracts of land known respectively as Gwinear and Howe Downs.

This area is bordered on the west by the road which runs north from Leedstown to Reawla, and Cathebedron Road forms the eastern boundary.

Three quarters of a mile north-east lies the hamlet of Rosewarne, a name which was also shared by no less than nine mining companies in the parish of Gwinear during the last century.[1]

About one and a quarter miles east-south-east lay Parbola (SW 614363) whose name first appears in the year 1717 as Perbula and which was then merely one of a number

of bounds which also included Rosewarren (Rosewarne).[2] However the working of mineral deposits in the district can be established at least a century or more prior to the aforementioned year in John Norden's *'Speculi Britanniae Pars, Cornwall'* (A topographical and Historical Description of Cornwall) which has generally been accepted as having been written around the year 1584, although in recent years this data has been questioned by among others, Oliver Padel, of the Institute of Cornish Studies, who puts the date as c.1605. The work was not finally published until 1728. In it Norden describes *"GWYMER, a parish situate in the moares, nere which are manie tynne mynes"*.

J.H. Collins (1912 p.542) states that Parbola was also worked as Wheal Jennings, and as South Rosewarne or Lamin. Such over simplification is misleading as whilst it is true that Parbola was worked in the 1870s as Wheal Jennings, the sett of South Rosewarne was in fact comprised of two pieces of ground which were known as Gear and Parbola and adjoined the sett of Rosewarne Consols.[3]

Lamin Mine (SW 609362) lay 700 yards west-by-south of Parbola and was active between the years 1823 and 1828, during which time it sold 363 tons of copper ore for £2,367.1s. (£2,367.5p), an average of £6.10s.5d (£6.52p) per ton.[4] In January 1832 a single sale of 36 tons of copper ore was made from Lemin* which realised £6.0s.6d (£6.2½p) per ton or £216.18s (£216.90p).[5]

Parbola was also active at this period as in 1835 it was reported that the mine had been worked for several years when tin was about £38 per ton and did not pay for working.[6]

In October 1839 the mine and materials, which included a 30 inch cylinder engine, were advertised for sale.[7] Early in 1850 operations had re-commenced at Wheal Lamin which was now, according to Dines (p.159), a part of the sett of North Unity (SW607358) situated immediately south of Lamin farm, but it seems unlikely that the two mines were worked as a joint venture as the only recorded output for North Unity was 161 tons of 5½ per cent copper ore in 1856.[8]

Lamin appears to have been re-started in 1850 when in April of that year a meeting was held at which it was decided to purchase a 30 inch engine. In the following year, under the name Le Min, 15 tons of copper ore were sold for £41.19s (£41.95p) which indicates that this sale took place either towards the end of the year 1850 or in the early months of 1851 as the *Mining Journal* reported that in May 1852 the mine had been suspended during the past year. In the following October it was re-started again, possibly by the same company[9] but its status as a separate entity appears to have ended shortly afterwards.

Spargo (1868) reported the mine as: "Idle. Now with South Rosewarne, which also takes Parbola Mine".[10]

Towards the end of 1855 work had begun at 'South Rosewarne Copper Mine'. At the end of December the *Mining Journal* reported that a costean pit had been sunk and a fine lode had been cut close to the boundary, at a depth of 6 fathoms from surface. This was said by some to be one of the northern lodes of the adjacent Wheal Unity, but it was also reported that the characteristics differed, as did the underlie. The lode was stated as being about 2 feet wide.[11] It was further claimed that most of the lodes in South Rosewarne ran parallel to those in Rosewarne United and a caunter in the latter was said to go through

*This is thought to refer to Lamin and not Wheal Lemon in Germoe (Justin Brooke). The latter ceased in 1855 (Cornish Telegraph 14.3.55, and was re-started in 1862 as North Grylls, later worked as 'Leeds & Lemon'. (Spargo 1865 & 1868).

South Rosewarne. Although it was stated that the mine was in a good locality, a report presented at the beginning of April 1856 described the present working as being "not very energetic at present",[12] but at the end of the year Captain George Odgers, manager of Wheal Grenville, presented a slightly more favourable account of the workings after visiting the mine in the following report: "Goldsworthy Shaft is sunk about 12 fathoms deep, and near the western boundary which is evidently on the same lode as Wheal Unity, and about 100 fathoms east of where they are now raising copper ores in the latter mine. There being 4 fathoms of water in the shaft, I could not go down, but judging from the stuff broken from the lode (which the agent tells me is 2 feet wide), it being comprised of gossan, prian, quartz, and a little mundic, with oxide of iron, I am of opinion it must be a promising lode. After looking at the stratum, it being of a light killas, with cross lodes and an elvan traversing the sett, on which I have been informed, a large quantity of tin was raised in Parbola (I saw some specimens of tin about a fortnight since from the 10 fathom level, and they were very good, being large-grained and crystallised, embedded in a light elvan) being in the immediate neighbourhood of Rosewarne United and Wheal Unity, and parallel with the former, I think there are fair prospects of ultimate success".[13] Work appears to have continued until sometime after August 1857 as the *Mining Journal*, for the 8th of August reported that at a meeting, held at the Royal Hotel, Truro, on July 8th, Mr. Humphrey Willyams, the proprietor of Parbola, had agreed to grant a lease of the latter property which had formerly been held under license, and evidently under another name.

Mr. James Paul who was one of the trustees of South Rosewarne had been ordered to forward the license to Mr. Willyams' solicitor in order that the lease could be prepared as quickly as possible.

Also inserted in the lease were the names of South Rosewarne's three trustees, Messrs. M. Kenworthy, J. Paull, and J. Rickard, this being done 'on behalf of themselves and co-adventurers'. The report concluded by announcing that a further meeting would be held at the same venue on Tuesday July 11th to decide on future operations. On the 17th of August a call of 1s (5p) per share was made (£128.00)[14] and from all appearances the mine was totally suspended shortly afterwards as it was reported a year later that Captain J. Rickard had been appointed manager and had been directed to visit the mine immediately to make the necessary arrangements for its effectual working.[15] However the legal affairs of the company were far from satisfactory and the lease of the mine had been forfeited due to non-compliance with its terms. In January 1861 a move was made to form a new company by Mr. I.R. Preston, a major shareholder in the former enterprise. In a letter, dated May 23rd and addressed 'to the late adventurers', he wrote:

> "Gentlemen, — The South Rosewarne sett having become forfeited by the adventurers', for non-compliance with the terms of the lease, and having been a large shareholder in therein, I have been induced, from the many favourable reports of the mine, to take up a new lease for re-working the same. Finding your name recorded on the cost-book as having paid all monies due on your shares, it becomes my duty to ascertain whether you feel disposed to join me in setting the mine to work again.
>
> I shall convene a meeting to be held at Dunn's Hotel, St. Austell, on Monday June 10th, 1861 where your presence or a reply is requested, stating whether you

are inclined to hold your former interest, or increase the same, should there be any shares to dispose of. If I do not receive any communications from you on or before the day of the meeting, I shall not consider you an adventurer therein.

The expenses in obtaining the new lease etc., will be about £200, which is to be paid out of the first call, viz. — 5s (25p) per 2560th part of share, 2s.6d (12½p) to be paid on the day of the meeting and the remaining 2s.6d on or before the 10th of August following, during which time no shares will be transferable unless the full amount of 5s per share be previously paid to the purser.

I am, Gentleman,

Yours respectfully,

I.R. Preston".[16]

The attempt appears to have been unsuccessful.

Spargo (1865) states that the mine was 35 fathoms deep, depth of adit 5 fathoms; depth under 30 fathoms. He also states: "the present party commenced in 1863, but no effectual trial can be made without the aid of a steam pumping engine, which it is intended to erect as soon as the shares are subscribed for. Hitherto the expenses have been borne by an individual, who has expended about £600 in preliminary works".[17]

Whether he was referring to the 'I.R. Preston flotation' and that the individual so mentioned was Preston himself, and that 1863 was a misprint for 1861 is open to speculation, but one significant point is that from 1855 to 1858 South Rosewarne was in 2,560 shares and Spargo's report of 1865 states that the mine was in 3,000 thus indicating another attempted working, but what is known for certain is that by 1868 the mine was idle.[18]

In April 1872, at a shareholders meeting held at Tregoning's Hotel, Camborne, it was resolved to re-start the mine. A new cost-book company was formed with Mr. John Rule Daniel as purser together with Messrs. John Tonkin and W.P. Tregoning who were appointed to form a new committee. Daniel's appointment was at a salary of £5.5s. (£5.25p) per month, the resident agent was Captain Robert Richards, and the new company, *Parbola Mining Company* was divided into 1,000 shares.[19]

At a further meeting, held towards the end of October, the accounts presented showed that the total expenditure over the previous four month's working amounted to £1,207. A call, less discount, resulted in an income of £956 over the same period, but the mine was still left with a debit balance of £251. Another call of 10s (50p) per share was made (£500), Captain Richards's salary was increased to £8.8s. (£8.40) per month — an increase of £2.2s. (£2.10p), and the shares were subdivided to now stand at 3,000 instead of the original 1,000.

Captain Richards reported that the water was in fork to the 10 fm. level, where some rich veins of tin had been discovered and in the western part of the mine he declared that the lode was worth fully £20 per fm.[20] On December 5th he reported that the engine-shaft had been cleared and secured from the 10 to the 20 fm. level and that the pitwork had been lowered and fixed into position. Also the 20 fm. level had been cleared east and west of the shaft about 30 fms. each way. He added that they had not been able, as yet, to thoroughly search the backs, but had found several places that could be worked on tribute as soon as the clearing operations allowed. The 10 fm. level had been cleared east to Willyams' Shaft where three tribute pitches had been set in *Willyams' branch* — two at

8s (40p) and the other at 12s (60p) in the £. To the west they were still clearing to reach some tin branches reported on by old workers, the first of which had just been found and was to be set on tribute as soon as the ground was ready. They were expecting daily to reach the main branch which was said to be 'very rich for tin', the report concluded.[21] Reporting on December 16th, Captain John Tonkin stated that he found that the water was now drawn out to the 20 fm. level. He remarked that as soon as the new lift could be fixed at that level, the present drawing lift would be let down to the bottom (the 30 fm. level). The shaftmen were at present clearing some crushed ground which had been left by former workers, and this had to be done before the tin-ground could be reached. He stated that a sample was taken in his presence from about 12 tons of the stuff, which he had assayed and had found it to produce one and three-quarter per cent, or about 28s (£1.40p) worth of tin in a ton of stuff. He further remarked that it was impossible to say how much of the stuff remained to be cleared, but everyone could fairly assume that the tin ground, when reached, would be found quite as good as the stuff that was now being cleared, and he strongly advised the erection of a water powered stamps to work as many heads as possible as the tin stuff could be raised and dressed for at least 10s (50p) per ton.[22]

The recommendation for adequate stamping power was readily supported by Captain Richards who reported that since his last report (also on the 16th) the branch of tin that they had been in search of, west of Cock Shaft in the 10 fm. level, had been cut and they were also still drawing tinstuff from the 20 of the same quality as last reported, and of which there appeared to be a very large quantity to bring to grass.[23]

In September 1873 the *Mining Journal* reported that it seemed highly probable that the company would be changed from cost-book to that of limited liability. John Rule Daniel had issued a circular in which he stated that the committee were satisfied that the discoveries were of such importance that only stamping power and dressing appliances were required to render the mine profitable. A special general meeting would be held to determine the course to be pursued in reference to the further prosecution and development of the undertaking. Resolutions were prepared to be submitted to the meeting, among the following: That the committee be authorised to expend such as may be necessary, not exceeding £250, in the preliminary expenses of the formation of a limited liability company, to purchase and work the mine with a capital of £10,000 in 10,000 shares of £1 each, only 800 of such shares to be issued at first.[24]

In their report of June 11th 1874, Messrs. Richards and Tregoning stated that since the stamps had been put to work three months previously (March 18th), over 17 tons of tin had been sold, the last batch amounting to 6 tons which realised £53 per ton. They were now engaged in erecting a lift for getting more water to enable the stamps to work full time instead of only half which they were now doing. Tregoning's Shaft had been holed to the 10 fm. level where they were now cutting plat which, it was remarked, when completed, in about a week's time, they would then be able to reach the 'large deposit' of tinground which had been their goal for some time. It was observed that the rich run of ground in the 20 continued to hold its own and the report concluded by stating that the mine was at last getting into thorough working order at surface as well as underground.[25] At a meeting held on Thursday November 12th, with John R. Daniel presiding, the accounts revealed a debit balance of £2,955.10s.5d. (£2,955.52p). The agent's report, after referring to various points of operations, stated: "We have been selling

about 7 tons of tin per month, with the stamps only working 8 hours a day, but we are now making the necessary alterations and additions on the floors to work the stamps from 18 to 20 hours per day. We are also laying down a tramway to Haw (Howe) Downs, and clearing up the old mine, which is unwatered by our engine, and can be worked dry, and we have no hesitation in saying that as soon as these combined operations, which we are pushing foreward as fast as possible, are completed, we shall be in a position to make such improvements in our returns as will leave a considerable profit.''

It seems likely that the 'old mine' to which he referred was Rosewarne Consols which lay within a short distance east-south-east of Parbola.*

Following the report on the progress of the current operations the meeting was then 'made special' and it was decided to register the company as a limited concern with a capital of £4,000 in £6 shares. Mr. George Still, of Bishopsgate St., London, was appointed liquidator of the cost-book company, and was voted £150 for his services, the conversion was conducted on a share for share basis, with the shares in the limited company being credited £5 paid. The new company agreed to take the cost-book company's liabilities, these resolutions being confirmed at a further meeting held on Monday the 23rd.[26]

In July 1875 Mr. Alfred Lanyon, of Redruth, for the Cornwall Candle and Tallow Company, petitioned the Vice-Warden's Court to wind up the Parbola Mining Company and in August the order was made. Its successor, *Parbola Mining Company (Limited)* was wound up at the same time with Mr. J.H. Hamley acting as liquidator.[27]

The winding up of the latter was due to a petition presented by Messrs. Harvey & Co., of Hayle. In a hearing in the Vice-Warden's Court, in 1875, it was contended that Parbola Mining Company Ltd. had never opened an account at the bank and had not been asked to do so, but that the account opened by the former cost-book company had been used by its limited successor. The bank had a claim of £3,000 against the cost-book company, and the Vice-Warden ruled that although the bank might be perfect strangers to the limited company it had no right to keep its assets, and was ordered to return £252 to the cost-book company, representing the proceeds of a sale of black tin. Set off against this was the sum of £212 advanced by the bank to pay labourers. Payment of the difference was ordered to be made to the liquidator.

The liquidator's accounts, presented some years later, showed receipts of £7,212.8s.9d (£7,212.44p), which included £5,645.5s.7d. (£5,645.28p), general calls, £1,390.12s.6d (£1,390.62½p) received from the limited company, and £102.1s.9d (£102.9p) arrears of company's calls received. This left a balance of £5.6s.3d. (£5.31p) after two capital payments totalling £412.10s. (£412.50p) or 15s (75p) per share. The liquidator (J.H. Hamley) was discharged in June 1881 but the liquidation of the two companies was not completed until November 1892. This delay was due to a contributor having promised a large amount to the liquidator.

Ore sales (tinstuff)		
1873 (September)	122 tons	£353.16s.0d (£353.80p)
1873 (October)	180 tons, 9 cwts.	—

*A.K. Hamilton Jenkin — annotated map. LXIX NE. 1908 edition. This could also refer to ''Hoe Downs Mine'' — see Collins p.509

Black tin		
1873-74	52 tons, 3 cwts, 1 qr., 27 lbs. realising	£2,614.19s.7d (£2,614.98p)
1875 to the end of August	49 tons, 17 cwts., 1 qr. 19 lbs realising	£2,478.10s.10d (£2,478.54p)[28]

On the 31st of August, 1875 the mine was re-started as *Wheal Jennings* — this name having been taken from one Mr. Richard Jennings who, as the *Royal Cornwall Gazette* of October 7th, 1876, stated, was now the principal owner of the mine and in addition was the owner of numerous oil wells in Pennysylvania. Other leading shareholders in the new company were Messrs. Williams & Co. and Harvey and Co., of Hayle.

Work continued for two years, ending in August 1877, during which time the mine sold 65 tons, 5 cwts., 2 qrs., 4 lbs. of black tin for £2,724.10s (£2,724.50p). At the end of this brief interlude the *Royal Cornwall Gazette* (31.8.77) reported that the mine had been worked entirely by tributors and 'had not been sunk by so much as a foot in seven years'.[29]

Throughout the 1880's there were further attempts to work the mine. In April 1880 the *Cornishman* reported: "Parbola, in Gwinear, is nearly ready to work the pumping engine. It is thought that she can be forked in about a fortnight and will then offer employment to at least 30 men",[30] but it appears that no further work was carried out until the end of the year. The *Mining Journal* for January 1st 1881 reported that the maximum depth of the mine did not exceed 35 fathoms and the machinery on the mine consisted of a 40 inch pumping-engine, a horizontal stamping engine with 16 head of stamps and dressing floors complete. The report continued: "In a month or two it is expected that with the present price of tin the returns will more than pay costs, but with an advance in the price of metal (as anticipated), and should a new discovery be made, substantial profits would be at once realised. The shaft will be sunk deeper, levels extended, and so exceedingly cheap can the mine be worked that it will take only about 3 months to reach another level (10 fms. deeper). As one of the most experienced mine agents in Cornwall says: 'It is one of the cheapest mines to work that I have ever known. There is little water, the mine does not require much timber, and the natural state of the tin is so free of impurities that it requires no calcining.' " In conclusion the report declared: "The mine will be conducted on the cost-book system and is in 6,000 shares, which are being issued at £1 each, out of which £4,000 will be given for the mine machinery and plant, leaving £2,000 for working capital, which is considered ample to bring the mine into a good dividend state. The mine will be under the management of Captain W.R. Rutter, of West Seton Mine".

Exactly what actual work was done in 1880-81 raises a question as in April 1882 the *Mining World* reported that the mine was about to be re-worked and that the engine had been started "the other day". In that year sales of black tin amounted to 26½ tons and the mine was the only one at work in the parish of Gwinear at the time.[31]

Under the name Wheal Jennings a report in the *Cornishman* in September stated that on Thursday the 14th five tons of tin had been sold at £58.15s. (£58.75p) per ton to Messrs. Daubuz's smelting works, the produce of four week's work.[32] It appears that during the years leading up to 1884 reports on the mine were sometimes headed Wheal Jennings and on other occasions, Parbola as in November 1882 the *Cornishman* reported: "Parbola

looks better as work proceeds and is opening out to the satisfaction of the shareholders and of Captain Harris, the manager'',[33] and as Parbola or Wheal Jennings, but correctly Parbola Tin Mine, the company went into receivership on the 20th of May 1884.[34]

In July 1887 Robert Symons, of Truro noted that Captain Peter Temby, of Camborne Consols, had obtained a lease of Parbola at 1-20th dues with a view to resuming operations but nothing appears to have resulted from this attempt and in April 1888 the property was acquired by the Parbola Tin Mining Company Ltd.[35]

This company was registered in Truro on Thursday April 19th for the purpose of re-starting the mine which had closed in March 1884, due to the then low price of tin which, at that time, was under £40 per ton. At the time of the present flotation the price stood at £90.

An agreement was made with the vendors to erect a complete and efficient plant within four months of the allotment of shares, the capital of the new company being £25,000 in shares of £1. The plant was to include a 40 inch, and 21 inch steam engine, 2 boilers, a 26 inch cylinder engine with winding machinery, 84 heads of stamps sufficient to treat a hundred tons of tinstuff a day, and other buildings, all of which was included in the purchase consideration. The mine was to be delivered to the company in complete working order.

In the prospectus it was stated that the failure of the previous working, in addition to the low price of tin, was due to the then incomplete state of the plant. A considerable portion of the tin was left in the ore and it simply did not pay to work the mine.[36]

In November the *Mining Journal* erroneously reported that not a single application had been made for shares in the Parbola Tin Mining Company when it was attempted to float the concern some months since, and that the project had, for the present, been abandoned,[37] but in the following issue an apology was printed stating that they (the *Mining Journal*) had been misinformed and that nearly 2,000 shares had been applied for, adding that some of the applications had come from the best known mining men in Cornwall.[38]

In October 1889 the property was acquired by Gwinear Tin Elvan Quarry and Mine Limited and the company was struck off the register towards the end of the following month.[39]

The opening years of the present century witnessed a revival in Cornish mining as from 1903 the price of tin began to climb once more. In 1905 it had reached £80 per ton[40] and this, coupled with cheaper means of pumping powered by electricity, resulted in wide spread investigation and unwatering of mines throughout the county. Parbola was not immune from this period or renewed interest, but the circumstances which led to the re-opening of the mine are somewhat singular. In 1905 prospecting started immediately north of Parbola Mine where a lode had been discovered by Mr. William Middlin, of Rosewarne. The details which led to this find were reported early in 1906 and are as follows: ''About the middle of last year Mr. William Middlin, at an auction, bought about 8 acres of waste land or moors close to his residence, at Shaft Downs, Gwinear, known by the name of 'Peter's Moors.'

The original idea was to have a place for some sport, and the owner and his friends spent several days killing rabbits. In October Mr. Middlin started digging to obtain water for his cattle, and came across rich traces of tin only a foot from the surface. Cutting through the ridge of the lode he discovered it to be 12 feet through. Diggings in other parts of the moors were satisfactory, and after acquiring the mineral rights of the property,

he started operations. The course is expected to be 60 feet through'', the report continued, ''About 60 tons of stuff have already been got out in readiness for the erection of the dressing appliances and six men are employed at present in excavating. The land adjoins the Parbola sett which was worked at a loss between 20 and 30 years ago. Several mining experts have visited the place, and it is more than probable that the lode forms a junction with that of the Parbola sett''.[41]

The ensuing work on this lode was carried out under the name of North Parbola and at the beginning of January 1906 the *Cornishman* reported that the mine was 'turning up trumps'. The tin lode had been cut at four shallow points above which an elder tree grew, it being the practice of old tinners to plant an elder tree to mark the spot where they had found tin.[42] By April pumping had started and at the beginning of May a crushing plant had been erected.[43] In June the *Cornishman* reported: ''Mr. Middlin's mine (North Parbola) shaws some fine spots of tin in a creamy elvan, which looks like 'currents in a pudding'. It is hoped that this will not prove to be merely an alluring surface deposit''.[44]

Shortly afterwards William Middlin sold his interest in the concern to another company, Parbola Limited who had also acquired the old Parbola sett which, to distinguish it from its northern counterpart, was now also referred to as 'South Parbola'.[45] Parbola Limited was registered on the 24th of September 1906 with a capital of £60,000 in £1 shares,[46] and by the end of the year about 30 men were employed.[47]

In March 1907 the southern section or South Parbola had commenced pumping, but four months later it was reported that the present electric pump was unable to work to full capacity and a new one was to be installed as soon as possible. Buildings for two gas engines and milling plant were being erected and the workforce now numbered about 100 men.[48]

During the summer of 1908 the company had acquired the adjoining 'Hoe Downs' mine from a lead syndicate. The latter sett had been explored on the Parbola elvan and pumping was started in November with a 12 inch Cornish pump which had replaced the former inadequate one. This work was followed, as was reported, by a few months shut down, due to differences between the owners.[49]

By now South Parbola was being worked to a depth of 40 fms. below adit, adit (5 fms.). All the developed ground had been removed and levels were being driven in both directions on the strike of the elvan course. Refuse from clearing the mine had been put through the mill and 12 tons, 2 cwts. of black tin had been recovered. The mill consisted of 20 heads of Californian stamps, two pulverisers, twelve vanners, four concentrating tables, three round tables and buddles, which according to Mr. J.W. Daw, the manager, cost nearly £35,000 with other appliances,[50] and the mine was also crushing ore brought up from the northern section where William Middlin had made the original discovery.[51]

In September 1910 it was reported that attention was now being chiefly devoted to development work with the continued sinking of the main shaft and the extending of the main levels east and west. The latter work had opened up several new tin branches which, it was said, on being dressed, gave values varying from 14 to 32 lbs. of tin oxide per ton. The report concluded: ''We are informed that arrangements are being made for a more vigorous development of the mine''.[52] But this was not to be. In November all work was suspended[53] and towards the end of December the *Cornishman*, quoting the *Mining Magazine*, reported: ''Unless further capital is raised, the valuable plant erected during the past three years, will be dismantled''.[54]

Actually there had been premonitions of failure two years previously when, in March 1908, a report stated: "Parbola has little to show for the large amount of capital spent. Pumping has been resumed, but we cannot gather that up to the present the operations have been any more successful than those of Wheal Vor".[55] Between May 1906 and February 1910 attempts to unwater the latter had proved to be a financial disaster. The electric turbine pump gave constant trouble, and when the water had been lowered to about half the depth of the mine, the breaking of a single bolt completely wrecked the only generator then in operation. Consequently, and with a lack of foresight to provide for such an emergency, the mine was flooded again before the damage could be made good.[56]

Despite the gloomy report in March 1908, further reports were a little more optimistic. In May 1909 the *Cornishman* reported: "Parbola seems to be pursuing the even tenor

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of its way, but no reports are sent to the press", and in December: "At Parbola Mine the outlook is reported to be steadily brightening. Between 80 and 90 hands are now employed".[57] In June the *Western Daily Mercury* and the *Mining Magazine* stated that Parbola was to be worked on a larger scale with every possibility of an amalgamation with Rosewarne Consols and other adjacent 'inactive bals'.[58]

However such ambitions had been thwarted by 1910 by a lack of further capital in the wake of a substantial financial outlay with little to show for it. In June 1911 the company went into voluntary liquidation, the plant was eventually put up for public auction in July 1916 and the company went into receivership on the 29th of October 1917.[59]

Further attempts, in the 1920s and 30s, to re-start the mine proved fruitless as the ensuing narrative relates.

In October 1926 the *Mining Journal* reported that Parbola was to be unwatered again with a view to prospecting it once more, as a new company was interested in the property. Prospecting was said to have ceased "for the time being till later in the month", but it appears that work continued until early 1927.

The mine was re-opened again in the summer of 1928, and development work was carried on for a short time with "very satisfactory results". Values from 60 to 120 lbs. of black tin to the ton were obtained over several feet, but work stopped soon after, and in October the mine was once more in a derelict condition.

In February 1929 the Cornwall correspondent of the *Mining Journal* reported that development was once again being carried out, but nothing further was heard of this attempt.[60]

Early in 1933 the *Mining Journal* noted that interest was being taken in North Parbola which, it was said, had been opened several times since the war. Negotiation to re-open the mine were in progress in February and in June the mine was re-opened, only to quickly close again. A second attempt to raise money for unwatering was made in January 1934 which also proved unsuccessful.[61]

In March 1971 representatives of the Mineral Development of the Department of Trade and Industry visited Parbola, where Consolidated Gold Fields had started test drilling for a lode beneath the old workings,[62] and finally, in 1973, the Institute of Geological Sciences (now British Geological Survey) drilled boreholes near Bosworgy (SW58093367) and Parbola in search of hydrothermal alteration associated with buried granite cupolas.[63]

Mineral Output

Parbola	1874-75	110 tons of black tin
	1906-10	29 tons of black tin
Wheal Jennings	1875-77 and 1882-84	219 tons of black tin[64]

A return of tin worth £616 in 1873 appears under the title of "Carbola" which is clearly a misprint for Parbola (see Mining Journal 13.9.73 p.996).

The Geology

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