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THE WICKLOW GOLD RUSH

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Abstract: Events of the gold rush are narrated following their contextualisation. What sort of gold was it? Where did it come from? Theories are explored but there are no certain answers. *Journal of the Mining Heritage Trust of Ireland*, **3**, 2003, 15-19.

FRASER'S WICKLOW

"The map gives the impression that a number of plump, fuzzy and brightly coloured caterpillars are slowly crawling their way across the sheet!" So my good friend, Professor Gordon Herries Davies, somewhat harshly describes the earliest geological map of the county of Wicklow. Completed in 1801 by Robert Fraser, it is now entering its third century and yet our understanding of the distribution of rock types has not changed dramatically in that time. Colour is applied only where rock is exposed, unlike modern geological maps where colour is used more liberally. The pink is granite, forming the mountains. The low ground on either side is composed of slaty sediment, coloured in blue. The lowest ground, especially in the west, has a greenish tint, representing boulder clays derived specifically from the limestones of the Irish midlands. But the special bright golden colour on his map is reserved by Fraser for the mining district that extends from Avondale through Avoca southwest to the county border at Croghan Kinshelagh mountain. I wonder was he influenced in his choice of colours by the events that took place in this very area only five or six years earlier.

At this time gold in quantity was found in sediments of the Goldmine River (Figure 1) which flows northwards off Croghan Kinshelagh mountain, near the village of Woodenbridge. This discovery precipitated a short-lived gold rush and this river has been worked ever since on an intermittent basis, although with increasingly poor returns. The total recorded production has amounted to 7400-9000 ounces, or say 300kg, of gold.



Figure 1. The Goldmine River valley, County Wicklow

Gold rushes from California to Serra Pelada tend to be celebrated and exotic affairs, that are written and even sung about quite extensively. But the remarkable thing is that they tend to be nineteenth century affairs, generally occurring in frontier situations, where any able-bodied person, however far-travelled, might participate. Prior to the nineteenth century, as in the case of the Goldmine River, perhaps the social fabric was too structured to permit such chaotic gold rushes.

Writing in the 1850s about this Wicklow Gold Rush, when the California gold rush was in full flight, the mining geologist Sir Warington W. Smyth lamented that people considered alluvial gold extraction to be both novel and unique, and had quite forgotten the Wicklow events of 1795:

"Whilst tongue and press during the last five years reiterated expressions of astonishment that gold should be found in lumps near the surface of the earth, the recent scenes in Wicklow were overlooked, and the almost universality of the occurrences of alluvial gold appears to have been lost from sight by all but a few geologists and miners."

THE GOLD RUSH

So what exactly happened along the Goldmine River in 1795? There are sexist stories told about the young wife who spread golden rumours, not to mention tales of a fisherman who by chance spotted a gold nugget in the river bed. But what we know for certain is that a local schoolmaster was found to be living beyond his means. I come from the northside of Dublin and people in that part of the city tend to be very curious about neighbours who live beyond their means. Have any readers shared a similar experience in their own neighbourhoods? Well these Wicklow neighbours quickly realised that the schoolmaster was making early morning excursions along this valley and panning its sands for grains of that lucrative metal which he would subsequently sell to Dublin jewellers.

Several hundred neighbours of the schoolmaster immediately abandoned their harvest work early in September 1795 and joined him in a determined and joyful search for the yellow metal. It seems that the considerable number of experienced miners and labourers at the copper mines in Avoca, only 10km away, were not tempted away from their orderly workings. However, men, women and children of the immediate district used any implement available, including household tools, in



FIGURE 2. The most prospective stretch of the Goldmine River valley, with Ballycoog-Moneyteige ridge in the background.

their frantic endeavour. Enthusiasm overcame thoroughness very quickly - a risky event for any gold-digger - and subsequently it was found that much of the worked sand could be reworked with profit. The most prospective stretch of Goldmine River was soon identified as that shown on Figure 2 and it extended for several hundreds of metres in the townlands of Ballinvally and Ballinasilloge, including the spot called the Red Hole. In the six weeks up to 15 October 1795, these enthusiastic prospectors had recovered perhaps more than a quarter of all the gold found here (as much as 80kg of gold).

However on that particular day, 15 October 1795, a party of the

Kildare Militia took possession of the workings on behalf of the government. The ruins of the small barracks they built and occupied are still visible in the valley. It seems there was genuine concern about public disorder and the sale of alcohol onsite fuelled tensions over possession of the more rewarding stretches of the river. The neighbours retired gracefully with their precious treasure and so began the second phase of the gold rush - the Governmentmanaged part.

Thomas Weaver, as one of three Commissioners, was a key figure in the new enterprise and he would in time gain a considerable reputation as a geologist. However at this time he was a relatively recent graduate of the University of Freiburg, aged only 23 and he had been in charge of the copper mines at Cronebane and Tigroney since 1793. Some of Weaver's later work received some justifiable criticism on both commercial and scientific grounds. However, in the case of the Goldmine River valley he was certainly a thorough and competent geologist.

An Act of Parliament to legalise the operation received the Royal Assent in April



FIGURE 3. Print of the gold workings prepared by Thomas Sautell Roberts.[original in colour]

1797 and the first ingot of gold was sold to the Bank of Ireland two months later. At this time a Waterford-born artist, Thomas Sautell Roberts, prepared a lithograph (Figure 3) of the workings for the information of Members of Parliament and this print is the best known illustration of the gold workings. The purpose of the operation, according to G.A. Kinahan, was "to endeavour to collect all the gold deposited, and thereby to remove every temptation for the assembling of mobs, whose numbers had before that time increased to a very alarming degree." There was no question that the British Government might be interested in any gold recovered!



FIGURE 4. Map of the exploration trenches (broken lines) and gold workings (stippled) in the area of the Goldmine River valley. From Reeves (1971).

The workings were carried out efficiently and thoroughly, using riffles and similar equipment as shown on Figure 3. The gold preferentially (but not totally) occurs at the base of the subsoil and so the overburden right down to bedrock was thoroughly worked and all gold particles extracted. Only where the overburden exceeded 9m in thickness did this not happen. The thinking seems to have been that the neighbours would not be tempted by gold that required the removal of more than 9m of materials in order to retrieve it. By the time of the May 1798 Rebellion, when the workings ceased, another 17kg gold had been profitably recovered. A party of militia went to the workings at the end of May 1798, when the workforce had gone off to join the rebels, and transported all the timber and materials back to Rathdrum where it was used in fitting out a barracks. The militia were just in time, for shortly afterwards the rebels destroyed any buildings or workings remaining at Goldmine River. The directors of the company served as military officers themselves and were rewarded by the company when the Rebellion ended, with First Lt. Weaver receiving silver plate worth 30 guineas, a handsome reward.

When work resumed in September 1800, Weaver came into his own. The directors now recommended to the Government that work be extended beyond the simple collection of alluvial gold to include a search for any gold-bearing veins in the bedrock. The Government had finally abandoned any pretence that it was focused only on preventing the assembly of mobs! Weaver worked on the assumption that the alluvial gold would be sourced in quartz veins on the higher ground surrounding Croghan Kinshelagh Mountain. He opened 12.8km of trenches down to bedrock, quite an extensive undertaking (Figure 4). The depth of overburden gradually thins upwards along the valley slope and at the point where it almost disappears in Ballinvally an adit was driven into the mountain for 320m. Additional adits and shafts were also opened in the district. The evidence of all these workings still remains in the valley and the occasional radial trench forms the basis of modern drainage. However it was all to no avail. None of the quartz veins had any gold particles, despite thorough sampling and rigorous chemical analysis, and this suggested there was no local source for the alluvial gold.

Weaver's efforts were terminated in 1803, with another 12kg of gold recovered since 1800, but the military barracks remained occupied for some years afterwards just in case the neighbours were distracted once more! The subsequent history of the gold workings, related with authority by Tom Reeves in 1971, is beyond the scope of this paper. Tom Reeves is now, of course, the Commissioner for Energy Regulation in Ireland but in 1971 he was a geologist with the Geological Survey of Ireland. Suffice it to say that many commercial attempts were made over the years but that the returns tended to be less with each successive venture. What about the neighbours, did they lose interest? No! They operated the main section of the Goldmine River whenever commercial operations ceased. When these restarted they moved to the more peripheral streams. The neighbours have always tended to be more successful. For example, in their 1840s tour of Ireland, Mr and Mrs Hall visited the Goldmine River:-

Until the period of our visit, we confess we had considered the stories in circulation concerning the discoveries here as little more than seductive fictions.

Whether naïve or not, they quickly became convinced of the riches that were readily available to those neighbours. More realistically, I do remember one resident, Mary Ellen Byrne, who in recent decades regularly recovered gold, especially after stormy weather.

On the other hand, Smyth at the same time as Mr and Mrs Hall reflected on possible reasons for the relative lack of success of commercial operations and he concluded it stemmed in large measure from the behaviour of workers:

There appears to be something so magical in the sight and feel of native gold - so dangerous a property of ready convertibility into all the requisites of life, that in passing through the hands of a labourer it cannot be a matter of surprise that the more tangible pieces stick by the way, and are not forthcoming among the assets of the company.

Perhaps the labouring classes were not the only ones with sticky fingers!

NATURE OF THE GOLD

The gold occurs as free particles in the form of minute scales although grains and nuggets are also reported. Indeed, Tom Reeves notes that 10 years before the gold rush started, in 1785, a nugget of a quarter of an ounce from Goldmine River was sold in Dublin. He also relates that nuggets of up to 22 ounces (0.75kg) were found. It is related that another 15 nuggets, ranging up to more than 4 ounces in weight, were lodged in various museums, including the National Museum of Ireland. These are spectacular and occasionally fist-sized. Some adhere to quartz, due to the malleability of the gold, but this has been wrongly used in the past as evidence in favour of a bedrock source in guartz veins. In the 1850s the now elderly Weaver confirmed to Smyth that the tin ore, cassiterite, was present in significant quantities in the alluvium. More unusually, a platinum nugget has also been found, distinctively possessing almost 11% iridium, and it is in the care of the Natural History Museum in London.

The British monarch of the day was George III, who in 1795 was midway through a sixty-year reign. In all that time he would never set foot in Ireland, unlike his well-travelled and equally long-reigning grand-daughter, Victoria. Throughout and following the 1790s the king increasingly suffered from the Royal Malady- a virulent form of a rare disease called porphyria which was a source of intense physical and mental pain. Popularly called the Mad Monarch, his erratic behaviour was the result either of the illness itself or the medicine he was given to relieve its symptoms. He did have a direct link to the gold rush because the largest nugget, weighing 0.75kg, was presented to him and he was so pleased that he had it fashioned into a snuff box. He later requested Lord Brabazon, MP for Wicklow, to see that the donor, Abraham Coates, was suitably rewarded.

No doubt the nugget was a consolation and a distraction to the king in his deteriorating condition.

Some of the gold nuggets are in the possession of the National Museum of Ireland, where they are displayed alongside ancient Irish gold artefacts. There has long been discussion over whether the gold in these artefacts was native or the result of vigorous overseas trading. Studies in the 1960s-1970s seemed to swing the pendulum in favour of the latter. However during the extensive gold exploration of the 1980s it became clear that there were many potential gold sources in all parts of Ireland and this helped to swing the pendulum back again. In recent years an international group of scholars, led by Mary Cahill of the National Museum of Ireland, has been attempting to secure convincing evidence using chemical techniques. Could the trace element signatures of artefacts be matched with those of native gold sources? Despite some supporting hints, this has proven more difficult than anticipated - and the jury is still out.

BEDROCK SOURCE OF GOLD

But what about the bedrock source of Wicklow's alluvial gold? For Thomas Weaver it clearly lay in quartz veins, although his own work tended to discredit this. What alternative ideas were offered?



Figure 5. George H. Kinahan and his wife in the 1860s. (Source: Royal Irish Academy).

The Geological Survey of Ireland might have been expected to provide some suggestions. After all, it was actively completing the bedrock mapping of this region during the 1880s, not long after Weaver had been writing about it, and one of its senior officers actually lived in Avoca for several years at this time. When I mention that his name was George Henry Kinahan you may realise why I have some hesitation in raising the issue at all! His somewhat forbidding portrait appears in Figure 5. Professor Gordon Herries Davies has made a particular study of Kinahan:

"Kinahan was a large, tough, shaggy individual, the very epitome of the popular image of the geologist as a visible, hammer-swinging, cross-country-striding sort of man, careless of the elements as he grapples with the secrets of earth-history in nature's remotest fastness."

Nothing too unusual in this for a geologist you might say, except that there is more:

"In temperament Kinahan was quite unbalanced. Sometimes he was placid, pliable and possessed of a child like innocence...but for much of the time Kinahan was a victim of black moods associated with fits of anger during which he was clearly both unstable and intolerable."

This does not sound promising. However Kinahan did write clearly about the gold bedrock source in his 1878 book "Manual of the Geology of Ireland":

"But some of the nuggets are attached to quartz, as if a quartz-vein carrying gold must somewhere exist. Numerous experiments however have been made on the quartz blocks so common in the country, and hundreds of tons of them were reduced at Ballintemple without a particle of gold being got in return for all the labour."

Elsewhere he states that alluvial gold always occurs below the outcrops of certain iron and copper deposits, including those of the Ballycoog-Moneyteige ridge, and that these form its bedrock source. Smyth also noted this iron-copper ore as a possible gold source.

A colleague of mine, Willie Warren, and myself came to a similar conclusion in the 1980s. We argued that the origin of the Wicklow gold lies in the conflicting forces of fire and ice. Let us start with fire: geologically Goldmine River is part of the volcanic terrain of Avoca, part of that golden area on Fraser's 1801 map. The energy associated with those fiery volcanoes drove the mineralising processes that gave rise to the variety of mineral deposits here, including those iron-copper ores of the Ballycoog-Moneyteige ridge, which overlooks the Goldmine River. These deposits carry the copper mineral chalcopyrite and it is in this mineral that the gold is contained. We concluded that this was the major, but not necessarily the exclusive, source of gold for the Goldmine River.

Gold released from chalcopyrite by weathering was transported



Figure 6. The overburden in the Goldmine River valley.

down to the Goldmine River by the action of ice and frost during the Ice Age. In Figure 6 Willie Warren indicates the top of the overburden section which was transported by the effects of repeated freezing and unfreezing. The overlying material is glacial till, transported to the valley floor by the scouring of a moving ice sheet. The gold in all this material would have been re-worked by the river and concentrated in its alluivum.

THE FUTURE

Kinahan was among many who were optimistic about future prospects for gold production at Goldmine River. However, he had personal reasons, reasons of family loyalty, to emphasise these views some years later. His son, Gerrard A. Kinahan, also a geologist and Avoca resident, became interested in its nearby gold resources. In his 1883 paper he does cover some of the same ground as his father and with supporting views. However he goes much deeper into many aspects and clearly carried out his own research, although perhaps still influenced by his father. When the son's published results were criticised as being too optimistic his father felt compelled to publish a short paper that same year in the same journal as his son, supporting the latter's conclusions and referring to his "very exhaustive account". G.H. Kinahan went on:- "In conclusion however I must submit to the Society that to me it appears rash to give an opinion on the non-existence of gold, while the miles of alluvial ground now enumerated still remain unexplored while no attempt has been made to explore the shelves of the valleys." An experienced geologist like Kinahan would have been fully aware of the dangers of espousing such views. How marvellous to see that even such an intemperate character as Kinahan can be spurred into action when his son's reputation is under fire. Sad to relate, father outlived son by 20 years, for Gerrard was killed in 1886 by a poisoned arrow while participating in a mineral survey in the Niger Basin of West Africa.

Exploration and assessment work over the past century has not added to the case of the Kinahans. Quite the reverse. Despite

many attempts at finding alluvial or bedrock gold in commercial quantity, none has been found. The area has attracted more than its share of colourful characters, including the water diviner who felt compelled to re-drill a borehole although he relocated it less than 0.5m away. Also, the consortium, including some politicians, in the 1930s which successfully sought a mining licence over the area and thereby caused a major political crisis.

The lure of gold has always been strong for mankind and Robert Service, reflecting on the Klondyke gold rush, expressed it very well:

"There's gold, and it's haunting and haunting; It's luring me on as of old; Yet it isn't the gold that I'm wanting; So much as just finding the gold."

In the spirit of Robert Service, the real heritage of this valley may lie in explaining its interesting past to a wider public. In this regard, the late Mary-Ellen Byrne forged a golden link with the schoolmaster of an earlier age. But her interest did not lie in enhancing her lifestyle. Mary-Ellen was renowned for her constant curiosity about, and keen knowledge of, the gold workings. With her warm welcome and small bottle of gold grains, she enthralled many a group of visitors with her fascinating story. She kept alive the tradition of the Wicklow Gold Rush started by her neighbours over 200 years ago.

FURTHER READING

- Herries Davies, G.L. 1983. *Sheets of Many Colours*. Royal Dublin Society. 242 pp.
- Kinahan, G.A. 1883. On the mode of occurrence and winning of gold in Ireland. Scientific Proceedings of the Royal Dublin Society, Volume 3, 263-285.
- Kinahan, G.H. 1878. *Manual of the Geology of Ireland*. C. Kegan Paul, London. 444 pp.
- Kinahan, G.H. 1883. On the possibility of gold being found in quantity in the County Wicklow. Scientific Proceedings of the Royal Dublin Society, Volume 4, 39-42.
- McArdle, P. and Warren, W.P. 1987. The bedrock source and emplacement of placer gold at Goldmine River valley, County Wicklow. *Geological Survey of Ireland Bulletin*, Volume 4, 11-26.
- Mills, A., King, T. and Weaver, T. 1801. Report of the goldmines in the County of Wicklow. *Transactions of the Royal Dublin Society*, Volume 2, 131-148.
- Reeves, T.J. 1971. Gold in Ireland. *Geological Survey of Ireland Bulletin*, Volume 1, 73-85.
- Smyth, W.W. 1853. *On the mines of Wicklow and Wexford*. Records of the School of Mines, Volume 1, 349-412.