

Joseph Henry Collins 1841-1916; pioneering Cornish mineralogist, mining engineer and geologist

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IN any list of Cornish mineralogists, geologists and mining engineers who have made a major contribution to science and commerce, both locally and nationally, Joseph Henry Collins would have to be placed at or near the top.

He was a mining engineer, mineralogist, geologist and businessman who was involved not only in the local mines and china clay operations, but also in significant national and international professional activity as well. In addition he found the time to publish an extraordinary range of authoritative scientific papers and books on subjects as diverse as mineralogy and palaeontology, and to participate in the founding of several national professional and learned societies.

He was perhaps not fully appreciated by the national scientific establishment of his day, but the verdict of time has been to show that he made an extraordinary contribution to the development and study of the Cornubian mining region.

PUBLICATIONS

Many of his works are still referred to in modern publications. In 'Minerals of Cornwall and Devon' by Embrey and Symes, published by the British Museum (Natural History) in 1987, no less than 35 of Collins' papers are referred to; and three of Collins' books have been republished in

facsimile editions in the last 20 years - A Handbook to the Mineralogy of Cornwall and Devon (1871), The Hensbarrow Granite District (1878) and Observations on the West of England Mining Region (1912). All three books are still regarded today as valuable reference works. There can be very few, if any, 19th century scientists and/or engineers involved with the Cornubian Orefield whose publications have stood the test of time so well. A selection of Collins' publications is listed at the end of this note. Further lists will be found in Embrey and Symes (1987) and in the Obituary published in the 84th Annual Report of the Royal Cornwall Polytechnic Society (Volume 3, New series, 1917, 89-101), but neither are complete.

COLLINS' LIFE AND ACHIEVEMENTS

Joseph Henry Collins was born in London on the 16th March 1841, but he was of Cornish extraction, his family being descended from a branch of the Collins family of

Trewardhale in Blisland, on the west side of Bodmin Moor. Both of his parents were born in Devon, but on his mother's side he was of French descent.

His father was not wealthy and was a sculptor, so Joseph Henry was educated partly at Birkbeck School and partly at the Working Men's College in London. The family spent some years in the Peak District of Derbyshire, where young Collins' interest in mining and geology was awakened, before returning to London. He was a born scholar, so that by extensive reading in the sciences and attending of lectures by the leading scientists of the day, he developed a good working knowledge of geology, chemistry and mining. In 1867 he entered a competition for one of the much-prized Royal Exhibitions, to allow him to study at the Royal School of Mines. Owing to some official blunder, he was never informed of his success and only learned about it a year afterwards, by which time it was too late to take up the

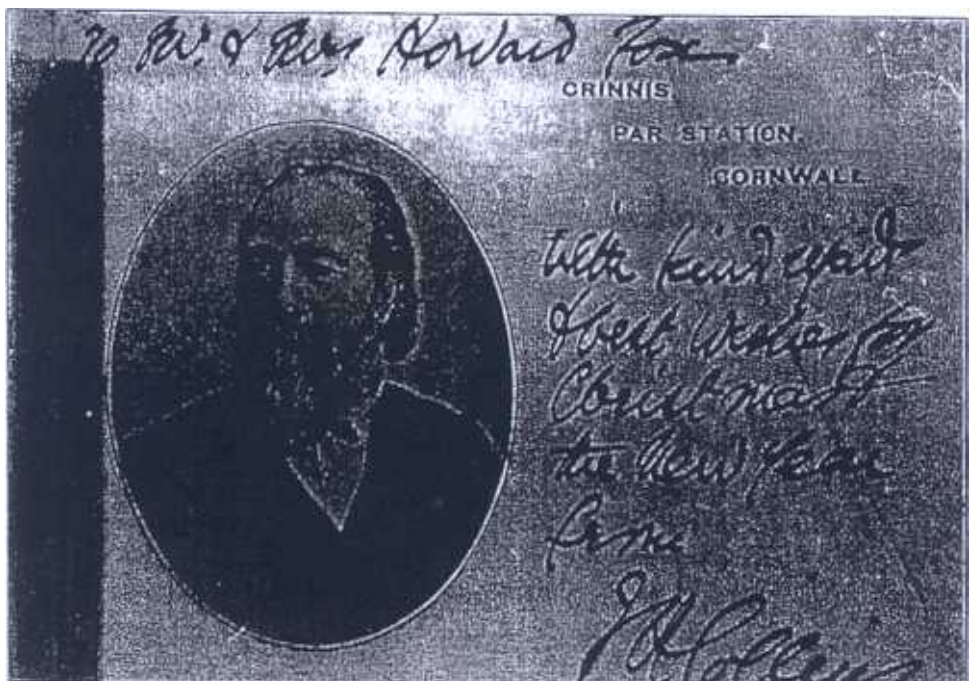


Figure 1 Portrait of J.H. Collins, together with his signature

scholarship.

However, nothing daunted, we find that Joseph Collins, through the good offices of Mr Robert Hunt F.R.S., was able to secure an appointment in 1868 as Lecturer and Assistant Secretary to the Miners' Association of Cornwall and Devon, to succeed Dr Clement Le Neve Foster. After two years, he resigned the travelling lectureship of the Miners' Association to become the full-time Secretary of the Royal Cornwall Polytechnic Society in Falmouth, although he retained the secretaryship of the Miners' Association.

During this period he wrote the 'Handbook to the Mineralogy of Cornwall and Devon' and edited the Western Chronicle of Science. Between 1873 and 1876 he also published a series of textbooks for students on mineralogy, coal and metal mining.

In 1873 he began his connection with the St Austell area and managed tin mining operations at Rock Hill, near Bugle. In his book on the Hensbarrow granite, he refers to Rocks and Beam tin mines, information which must have sprung from personal knowledge acquired at this time, although Rocks china clay pit only came into existence some time after Collins' death. Also in 1873, Collins took up an appointment as Public Analyst to the County of Cornwall, as well as for most of the Cornish Boroughs, so he must also have become a skilled analyst by that time. For a short period he became consulting engineer to the Perran Iron mines, although this does not appear to have lasted very long.

During the 1870s he began his connections with the china clay industry by managing a number of pits in the St Dennis, St Austell and Bodmin areas. He was part owner of Wheal Burn china clay works, known more familiarly in recent years as Mid-Cornwall, and invested a great deal of time and money in exploring the deposit by means of

boreholes - the first record of systematic exploration for china clay. His lack of capital, and an absence abroad, forced him to sell the property and others reaped the reward of his endeavours to establish the clay works on a firm footing. He provided us with the first detailed account of the china clay industry, with his book on the Hensbarrow granite district, published in 1878.

He became Honorary Secretary of the Royal Institution of Cornwall during the 1870s, and was said to have been a very popular lecturer, who was much in demand by all the learned societies in Cornwall.

In the winter of 1875 he commenced a correspondence with a number of the noted mineralogists of the day and this led to Collins taking the lead in founding the Mineralogical Society in 1876, for which he was the founding Secretary, and Editor of the magazine, until he left the country in 1881.

In Volume 1 of the Mineralogical Magazine, Collins contributed two papers on the ultrabasic intrusion at Duporth in St Austell Bay. One was concerned with the serpentinous mass as a whole, and the other dealt with a fibrous mineral found at the locality in veins, which Collins named 'Duporthite', which recent research has shown to be a mixture of talc and chlorite (see paper by Power, M.R. and Scott, P.W. 1995, Talc-carbonate alteration of some basic and ultrabasic intrusions in Cornwall, Proceedings of the Ussher Society, 8, 392-397). Collins was fond of creating new mineral names, frequently using localities in Cornwall - such as Duporthite, Carclazite and Penwithite. Some have stood the test of time, but most have failed to secure widespread recognition.

During this period Collins took an interest in Cornish stratigraphy and palaeontology, and was largely responsible for promulgating the idea that most of the stratified rocks

in West Cornwall were Silurian in age - a mistaken belief that persisted until the discoveries by E.M.L. Hendriks in the 1930s of fossil plants, indicating that the beds were of Devonian age.

Collins contributed a large number of palaeontological papers to the Transactions of the Royal Geological Society of Cornwall and the Journal of the Royal Institution of Cornwall, and in 1880 he was associated with the discovery of a magnificent specimen of an Orthoceratid in St Austell Bay, at Ropehaven, which later formed the basis for a paper published by the Royal Institution of Cornwall in 1912. This specimen is now on display in the Rashleigh Gallery of the Royal Cornwall Museum in Truro.

In 1881 Joseph Collins accepted an appointment as chief chemist and metallurgist to the Rio Tinto mines in Spain, which meant he had to sever all the ties with scientific activities in Cornwall which he had developed over the previous 13 years. An illuminated address was presented to him, as part of a testimonial, which was signed by practically the entire aristocratic and intellectual establishment of Cornwall at that time, including the Bishop and several other senior clerics, which confirmed his strong connections with the Church in Cornwall. Unfortunately, Collins suffered from ill health in Spain, probably due to malaria, and after three years was obliged to return to this country.

He then set up, with two of his sons, a consulting practice in London, offering services in the fields of mining engineering, geology and chemistry. Gradually his sons took over the overseas work for the consultancy, which enabled Joseph Collins to return to Cornwall in 1904. He became Chairman and General Manager of the cost-book company which worked Wheal Kitty and Penhalls mines at St Agnes. He was also a Director of East Pool and

Agar mine, the surface buildings of which have recently been restored by the Trevithick Trust, and was largely responsible for putting that mine on a sound footing, due to the re-location of the Great Lode in the northern part of the sett.

Not content with having founded the Mineralogical Society almost single-handed; he became involved in the founding of the Institution of Mining and Metallurgy, of which he was Vice-President at the time of its formation in 1892.

Collins was at one time both Secretary, and then later, President of the three principal learned societies in Cornwall - the Royal Geological Society of Cornwall, the Royal Institution of Cornwall and the Royal Cornwall Polytechnic Society. He received the Henwood Gold Medal from the Royal Institution of Cornwall and the Bolitho Gold Medal from the Royal Geological Society of Cornwall. He was elected an Honorary Member of the Imperial Mineralogical Society of St Petersburg. He also had terms of office as President of the Mineralogical Society and of the Institution of Mining and Metallurgy.

Many contemporary writers commented that he attended all the meetings of the various institutions in Cornwall, and nearly always vigorously contributed to the discussions that followed the presentation of papers.

Joseph Collins married in 1863 and had five sons and four daughters. Four of his sons - Henry, Arthur, George and Edgar, became mining engineers; the second son, William, after a brilliant career at Cambridge - became Bishop of Gibraltar in 1904, and died at sea off Smyrna in 1911. Arthur, one of the mining engineers, was murdered in a gunfight at Telluride, Colorado, in 1902, by a gang from the Western Federation of Miners, with whom he had come into conflict over the principle of the 'open shop'.

Collins was instrumental in

introducing the filter press and the monitor to the china clay industry - arguably two of the most important technical innovations ever applied to the industry. He also, according to Justin Brooke (pers. comm.), had the distinction of forming the last cost-book company to be formed in Cornwall in 1909, the South Tregrehan Syndicate, which proposed driving an adit to exploit the tin lodes at Tregrehan, near St Austell.

In the first decade of the twentieth century Collins was associated with the mining of alluvial tin, using steam powered suction and cutter dredges, on Goss Moor between 1908 and 1916. Extensive drilling was undertaken in 1908-9, but the detailed records of what was found in the boreholes were lost (they would be extremely interesting if anyone knows where they are). Some 70 tons of tin concentrate were produced and the dredges moved on to work alluvials in the Molinnis, Redmoor and Breney Common areas as well. It is somewhat ironic that these areas, which must have presented a picture of the utmost industrial dereliction in the early part of the 20th century, have naturally revegetated and are now nature reserves of outstanding interest, with Goss Moor achieving nationally important status by becoming a Site of Special Scientific Interest (SSSI).

Collins' connection with St Austell is particularly strong, as not only did he manage several tin mines and china clay operations in this area, but he also lived for the last 12 years of his life at Crinnis House, near St Austell. He almost certainly completed the writing of 'Observations on the West of England Mining Region' there.

One of his last papers was written jointly with Joseph Coon on the topazfels at St Mewan Beacon, near Blackpool china clay works, also now a Site of Special Scientific Interest.

He died at Crinnis and is buried in

Campdowns cemetery, between Crinnis and Charlestown. Apart from his gravestone there are no memorials to Collins anywhere in Cornwall and, apart from his writings, there is no other commemoration of any kind.

POSTSCRIPT

Following the recent erection of plaques to commemorate Charles Peach, the Coastguard Geologist at Gorran Haven and the Rev William Gregor, the discoverer of the element titanium at Tregonwell Mill near Manaccan; there are now moves to put up a plaque in a suitable location to commemorate Collins. Crinnis House is now demolished, so one possible location would be St Paul's Church at Charlestown, where Collins was an active member of the congregation, playing a leading role in raising the money for the building of the (old) vicarage. Through the medium of this newsletter, we will try to keep readers posted on developments.

If a plaque is to be erected, it would be nice to know if there are any of Collins' descendants who could be contacted, particularly if they are resident in Cornwall. Can anyone help in this respect?

SELECTED LIST OF COLLINS WORKS

1871/1892 A Handbook to the Mineralogy of Cornwall and Devon. London and Glasgow 1871, 2nd Edition 1892; facsimile reprint of 2nd Edition, D. Bradford Barton, Truro, 1969.

1872 A first book of Mining and Quarrying. Longmans, London.

1873 Note on the Rocks and Goonbarrow Mines, near St. Austell. Rep. Miners' Association of Cornwall and Devon (1872-73), 66-69.

1873 Elementary Mineralogy for Students. Collins' Elementary Science Series. London and Glasgow.

1875 Principles of Metal Mining.

Collins' Elementary Science Series. London and Glasgow.

1876 Principles of Coal Mining. Collins' Elementary Science Series. London and Glasgow.

1878 The Hensbarrow Granite District. Lake and Lake, Truro; facsimile reprint, Cornish Hillside Publications, St Austell, 1992.

1878 On the Serpentine of Duporth. Mineralogical Magazine, Volume 1, 222-225.

1878 On Duporthite. Mineralogical Magazine, Volume 1, 226-227.

1878 Mineralogy, Volume 1. General Principles. Collins' Advanced Science Series. London and Glasgow.

1883 Mineralogy, Volume 2. Systematic and Descriptive. Collins' Advanced Science Series. London and Glasgow.

1884 (with H.F. Collins) On the Geological Age of Central and West Cornwall. Journal of the Royal Institution of Cornwall, Volume VIII, 162.

1885 On the Geology of the Rio Tinto Mines. Quarterly Journal of the Geological Society of London, Volume XLI, 245-265.

1893 A Working List of the Palaeozoic Fossils of Cornwall. Transactions of the Royal Geological Society of Cornwall. Volume XI, 421-479.

1904 The Precious Metals in the West of England. Journal of the Royal Institute of Cornwall, Volume xvi, 103-119.

1909 Notes on some Geological Features observable at the Carpalla Claypits in the Parish of St. Stephens. Quarterly Journal of the Geological Society of London, Volume LXV, 155-159.

1909 The tin alluvials of the Goss and Tregoss Moors. Rep. Royal Cornwall Polytechnic Society (n.s.) 1: 121-126. Also see Collins Presidential Address (99th Annual Report) to the Royal Geological Society of Cornwall, 1913, where further information on this topic will be found.

1912 Description of a fossil (c.f. Actinoceras Devonians) from Rope Haven, St Austell Bay. Journal of the Royal Institution of Cornwall, Volume XIX, 36-39.

1912 Observations on the West of England Mining Region, being an Account of the Mineral Deposits and Economic Geology of the Region, Volume XIV of the Transactions of the Royal Geological Society of Cornwall; facsimile reprint, Cornish Mining Classics, Truro, 1988.

1914 (with J.F. Coon) On the Topaz Rock of St Mewan Beacon, Cornwall. Transactions of the Royal Geological Society of Cornwall. Volume XV, 43-54.

Colin M. Bristow

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The photograph below of a brass check was sent to John Tonkin by Plymouth Mineral & Mining Club member, Steve Roberts. Steve, who lives in Horrbridge, Devon, is a collector of artefacts, in particular, those that relate to collieries. Recently, amongst some assorted colliery checks, he found the one pictured. Checks from metal mines turn up from time to time, but he says that he has never encountered one relating to china clay. The brass check is in excellent condition and Steve thinks that it has never been used. It may not even be that old he says. The diameter is 1 3/8" and the wording reads "E.C.L.P. GOTHERS".

If anyone has any explanation on the possible history of this and any other checks related to the china clay industry, we are sure that Steve and many other of our readers would be interested. Please drop a line to the Newsletter with your thoughts and these will be published in the future editions. (ed)



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