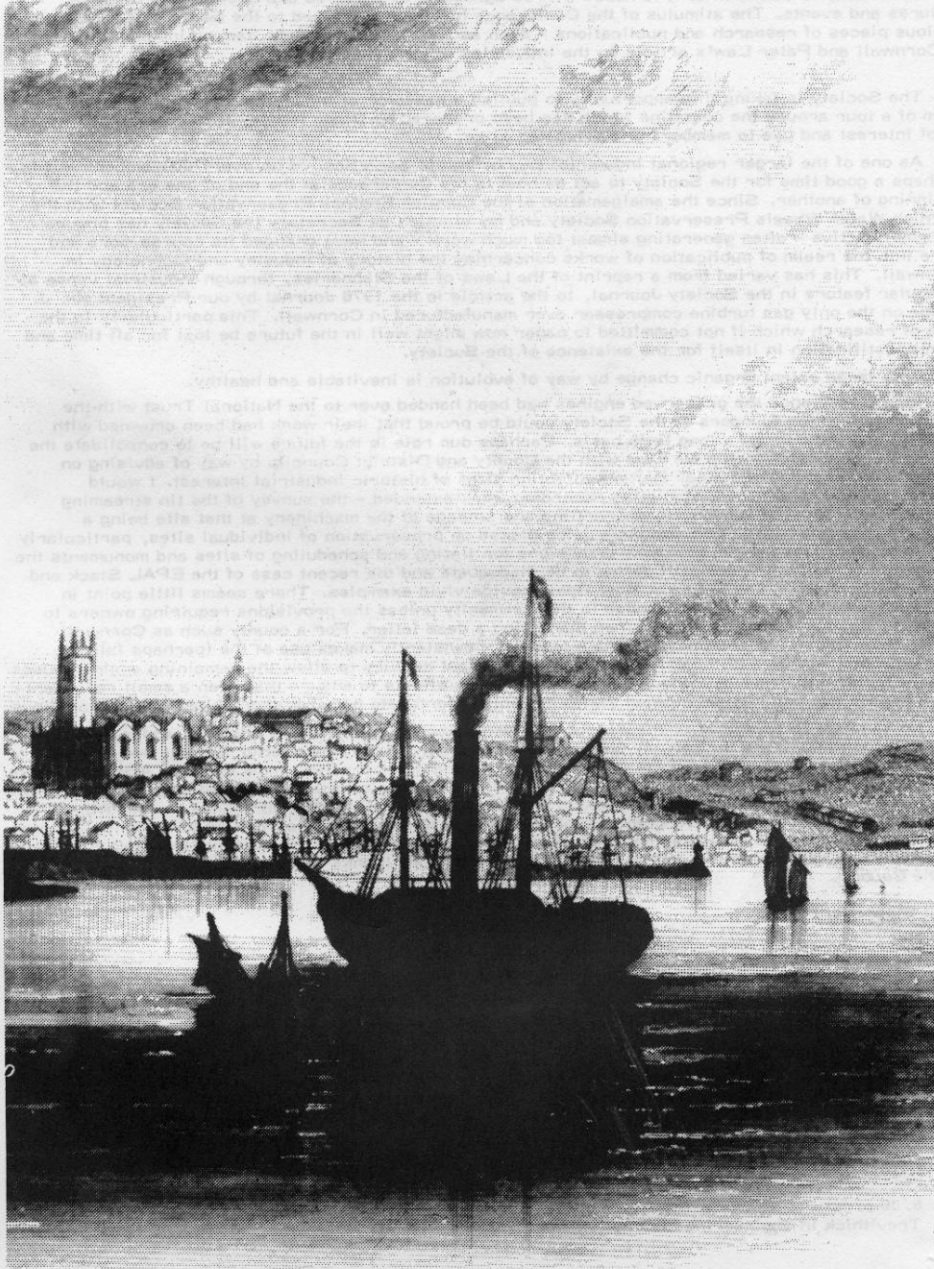


# THE TREVITHICK SOCIETY

NEWSLETTER NO 22

AUGUST 1978

Edited by Colin Yelland, 'T'rereifal, 45 Chough Crescent, St. Austell



Association for Industrial Archaeology. Annual Conference. Penzance 1978.

This issue of the News letter seems a useful opportunity to bring together both members of the Society and delegates to the 1978 Conference of the Association for Industrial Archaeology which is being held in Penzance between the 11th and 17th of September. Indeed, many members of our Society are also members of the AIA, and vice versa. The programme for the Conference and preceding week are set out in this issue of the News letter and it is hoped that as many members as possible will take the opportunity to attend what it is hoped will be agreed to be a varied and useful programme of lectures and events. The stimulus of the Conference has been welcomed to the Society as leading to various pieces of research and publications - such as Veronica Chesher's item on industrial housing in Cornwall and Peter Law's article on the industries of Penzance.

The Society is taking this opportunity to publish a gazeteer of industrial sites in Penwith in the form of a tour around the coastline which has been prepared by Dicon Nance. It is hoped that this will be of interest and use to members and delegates alike.

As one of the larger regional industrial archaeological Societies - with over 700 members - it is perhaps a good time for the Society to act as host to the Conference at the end of one era and the beginning of another. Since the amalgamation of the Cornish Engines Preservation Society with the Cornish Water Wheels Preservation Society and my election as Secretary the Society has proved extremely active - often generating almost too much work - and have changed its course more and more into the realm of publication of works concerning the history of industry and technology in Cornwall. This has varied from a reprint of the Laws of the Stanneries, through industrial verse as a regular feature in the Society Journal, to the article in the 1978 Journal by our President Mr. J. Hodge on the only gas turbine compressor ever manufactured in Cornwall. This particularly is the type of research which if not committed to paper now might well in the future be lost for all time and seems justification in itself for the existence of the Society.

To a large extent organic change by way of evolution is inevitable and healthy.

In our case once the preserved engines had been handed over to the National Trust with the endowment fund the founders of the Society could be proud that their work had been crowned with success and security on a long term basis. Perhaps our role in the future will be to consolidate the extremely good relationship we have with the County and District Councils by way of advising on planning applications and other matters affecting sites of historic industrial interest. I would personally like to see these Societies recording work extended - the survey of the tin streaming works at Pool and the subsequent dismantling and storage of the machinery at that site being a valuable exercise - and more emphasis being placed on preservation of individual sites, particularly engine houses. Despite the statutory provisions for listing and scheduling of sites and monuments the protection actually afforded still seems to be inadequate and the recent case of the EPAL Stack and Compressor and Winding House at East Pool provide vivid examples. There seems little point in designating buildings as being of value to the community unless the provisions requiring owners to maintain them are to be enforced rather than being a dead letter. For a county such as Cornwall whose main industry at the present time - tourism - constantly makes use of the (perhaps false) charisma and remounts of the mining industry of the last century to allow the remaining engine houses to deteriorate and crumble without making any specific efforts to ensure that even a small representative sample are actually maintained seems not only unfortunate but also short-sighted and avaricious.

My welcome to delegates of the AIA is extended on behalf of the whole Society, whereas the remaining comments are strictly my own, made by courtesy of the News letter Editor, and are not necessarily the views of the Society. As we shall have a new secretary from the 1978 AGM may I take this opportunity of wishing him well and also thanking all those members of the Society who have been willing to help in so many ways when asked. I must particularly express my thanks to Jim Hodge and Rodney Law who as successive Chairmen of the Society have always been willing to be consulted and take action themselves to lighten my load. Similarly Colin Yelland as the current News letter Editor and John Stengelhofen as the Journal Editor also receive my thanks together with all other members of the Council.

Paul Stephens.

ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY  
1978 CONFERENCE AT PENZANCE  
PROVISIONAL PROGRAMME

Monday, 11th September 1978

10.00 a.m. - Field Day in North Cornwall, visiting Delabole Slate Quarry and Bude canal and Museum.

7.30 p.m. - John Stengelhofen - a pictorial survey of the industrial archaeology of Cornwall.

8.30 p.m. - J. Hodge - The Place of Richard Trevithick in engineering history.

Tuesday, 12th September 1978

2. 00 p. m. - Underground visit for limited number of delegates. Members wishing to take part in the draw for places on this trip should send their name and address to the Secretary, and successful members will receive a ticket in due course.

7. 30 p. m. - Lecture - to be announced.

9. 00 p. m. - Film on the traditional process of smelting Japanese iron sand.

Wednesday, 13th September 1978

2. 00 p. m. - Field day to the St. Just mining area (including the engine houses at Botallack Mine and the Levant engine. (Time permitting, a visit will also be paid to Hayle to see Harvey's and Copperhouse Foundries, the Brewery, Canal and other sites).

7. 30 p. m. - Carn Brea Mining and Mineral Club (Mr. Laurence Holmes): The Wheal Owls Disaster.

8. 30 p. m. - P. G. Laws - The Industries of Penzance.

Thursday, 14th September 1978

2. 00 p. m. - Excursion to see Wendron Forge (the Greensplatt engine and other machinery of historic interest) and Tolgus Tin (where the Cornish stamps is likely to be seen in operation).

7. 30 p. m. - Mr. M. J. Messenger - The Liskeard and Caradon Railway.

8. 30 p. m. - Mrs. Veronica Cheshire - Industrial Housing in Cornwall.

COMMENCEMENT OF A. I. A. CONFERENCE

Friday, 15th September 1978

Members' Sale Counters and Exhibition commences at 10. 30 a. m.

10. 30 a. m. Visit to County Museum, Truro, to see exhibits of local industry and mineral collections, with a special exhibition mounted by the County Record Office.

12. 00 - 5. 00 p. m. - Enrolment of delegates commences at St. John's Hall.

4. 30 p. m. - Mr. M. Whetter - The Importance of Modern Industry to the study of Industrial Archaeology.

8. 00 p. m. - Lecture (to be announced).

9. 15 p. m. - Members' contributions (to be notified to the Conference organisers in advance with a written summary of the subject and content).

Saturday, 16th September 1978

9. 30 a. m. - Mr. Brian Earl - The Cornish Explosives Industry.

10. 30 a. m. - Coffee.

11. 00 a. m. - Lecture (to be announced).

12. 00 p. m. - 1. 00 p. m. - A. G. M. of Trevithick Society at St. John's Hall, Penzance.

2. 30 p. m. - Field trips -

(a). Rostowrack Engine at Holmans Museum and the preserved Cornish beam engines, including the 90 inch East Pool and Agar Pumping Engine.

- (b). Wheal Martyn China Clay Industry museum and Parc-an-dillack Cornish Engine.
  - (c). Charlestown Harbour and Tregargas China Stone Mill.
  - (d). Pentewan Harbour and Wheal Martyn.
  - (e). Perran Foundry (established by the Fox Family of Falmouth in the 1790's). The Kennal Vale explosives works, the Bissoe valley (including the track of the Redruth and Chacewater Railway and the surface workings of Mount Wellington and Wheal Jane Mines which now seem set to form part of the industrial archaeology of Cornwall) and the industrial village of St. Day.
- 9.00 p.m. L. T. C. Rolt Memorial Lecture - Sir Humphry Davy - The Man and his Work.

Sunday, 17th September 1978

9.30 a.m. - Mr. Neil Cossons - The Importance, Relevance and Future of Industrial Archaeology in the late 1970's.

10.30 a.m. - Coffee.

11.00 a.m. - A. G. M. of the Association for Industrial Archaeology.

2.00 p.m. - Field trip to the St. Just mining area.

NOTE

Members wishing to attend all or any of the above should contact the Secretary who will advise the applicant of the fee payable.

THE TREVITHICK SOCIETY

1978 A. G. M.

TO BE HELD ON 16th SEPT. AT 12.00 NOON

AGENDA

1. Apologies.
2. Approval of the Minutes of the 1977 Annual General Meeting (printed in Newsletter No. 18, November 1977).
3. Matters arising.
4. Election of Officers:
  - (a) Hon. Secretary.
  - (b) Hon. Treasurer.
  - (c) Members of Council retiring by rotation and eligible and willing for re-election:
    - Messrs. Bullen, Stephens, Mitchell and Thomas.
5. Hon. Secretary's Report (printed in Newsletter No. 21).
6. Hon. Curator's Report.
7. Hon. Treasurer's Report.
8. Chairman's Review.
9. Any Other Business.
10. To arrange the date for the 1979 A. G. M.

NOTICE - PROCEDURE FOR ELECTION

OF OFFICERS

The 1978 A. G. M. of the Trevithick Society will be held on Saturday, 16th September 1978 at 12 noon at St. John's Hall, Penzance.

The Secretary has indicated that he must decline to be nominated for election for a further year, and members are therefore asked to forward nominations for the post of Secretary to the Society to the Secretary at Prospect Villa, Greenbank Road, Devoran, nr. Truro, Cornwall, so as to reach the Secretary no later than the 1st September 1978. Nominations must be in the following form and must be signed by two members of the Society and countersigned by the person to be nominated by way of acceptance of such nomination:

"We, (name) of (address) and (name) of (address) hereby nominate (name) of (address) to be Secretary of the Society for the year commencing September 1978

(Signatures) .....

I, (name of (address), accept nomination  
for the position of Secretary of the Trevithick  
Society.

(Signature) .....

THE SOCIETY'S ANNUAL ACCOUNTS

It can be easily seen from the General Account that the final implementation of the increase in subscriptions which has been muted over the last two or three years was sorely needed. Without such an increase there would have been yet another loss by the Society of around £250.

Subscriptions are now being credited to the year's accounts in which they are due and so the sum of £1305.32 is correct.

You will all know that the Journal was late last year and so after discussion with my predecessor, we thought it only prudent for a provision to be made for the costs incurred and this is duly shown in the accounts.

The Publication accounts are, I am afraid, accurate only to the book-keeping entries. It is puzzling to see that stock has increased from £879 to £1210 despite no new publications. Similarly, an accurate debtor figure was unavailable and the figure inserted is an estimate only. May I strongly suggest that a more efficient way of stocktaking and invoicing be introduced in the future. There is still no provision for depreciation, as put forward in the Treasurer's Report for 1976 and this really is a decision which must come from the Committee and which certainly has my recommendation.

Once again, tribute must be made to Ramon Thomas, whose task gets more and more onerous and yet is done with no less enthusiasm as the months go by. He has certainly been of tremendous help to me during the past 12 months.

J. A. C. Batters A. I. B.

BALANCE SHEET AS AT 31. 12. 77

<u>1976</u>	<u>ASSETS</u>	<u>1976</u>	<u>FUNDED BY</u>	
1471	Investment @ cost	1470. 88	1648	GENERAL ACCOUNT 2075. 67
	£1510. 78 10½%		1727	PUBLICATION FUND 1886. 14
	Treasury Stock 1979			ACCUMULATED INCOME
348	Cash in hand			
	& at Bank	352. 88		
677	Sundry Debtors	927. 50		
879	Stock of Publications	1210. 55		
	@ cost			
<u>£3375</u>		<u>£3961. 81</u>	<u>£3375</u>	<u>£3961. 81</u>

NO ACCOUNT HAS BEEN TAKEN OF HISTORIC ITEMS IN THE POSSESSION OR OWNERSHIP OF THE SOCIETY

J. A. C. BATTERS A. I. B.

AUDITORS REPORT: I have examined the accounts of the Society and from the books and papers brought before me I confirm that they represent a true statement of the Society's finances for 1977.

P. J. BILHAM A. I. B.

SUMMARISED INCOME & EXPENDITURE ACCOUNT FOR YEAR ENDING 31:12:77

<u>1976</u>		<u>1976</u>
630	Subscriptions & donations 1977	1305. 32
53	Income Tax recovered under Deeds of Covenant	61. 85
1	Surplus from 1976 outings and A. G. M.	-
17	Sales items	14. 80
-	Rostrowrack Engine Collection box	19. 89
49	St. Ives Museum Models	28. 47
172	Interest from Bank & investments	178. 48
-	Engine drawings per Severn Lamb	20. 00
-	Publications Account	7. 00
<u>922</u>		<u>TOTAL INCOME 1635. 81</u>

<u>MEMBERSHIP EXPENSES</u>			
692	Newsletter costs	536.14	
373	Provision made for Journal costs	<u>320.00</u>	856.14
<u>ADMINISTRATIVE &amp; PUBLICITY EXPENSES</u>			
120	Stationery, printing & postages	69.60	
34	1978 AIA Conference	-	
24	Insurance	30.80	
6	Binding Newsletters	-	100.40
<u>NON-RECURRING ITEMS</u>			
	Photographs	44.07	
	Legal Fees: Bradford Barton	62.80	
	Transportation of wood mouldings	14.60	
	Tablet (D. Nance)	121.81	
	Camborne School	1.00	
	Publications	7.00	
10	Tape-recording of Trownson commentary	-	251.28
<u>1259</u>			<u>TOTAL EXPENDITURE</u> 1207.82
(337)	Excess of expenditure over income		427.99
1985	Balance brought forward 31:12:76		1647.68
1648	Balance carried forward 31:12:77		<u>2075.67</u>
<u>Represented by:</u>			
1471	Government Stock at cost		1470.88
28	Cash in hand 31:12:77		27.69
(351)	Cash at Bank 31:12:77		77.10
500	Loan to Publication		500.00
1648			<u>2075.67</u>
<u>PUBLICATIONS ACCOUNT FOR THE YEAR ENDED 31:12:77</u>			
<u>1976</u>			
763	Sales		765.12
287	Journals distributed to members (provisions)		320.00
879	Stock at cost 31:12:77		1210.55
1929			<u>2295.67</u>
<u>LESS:</u>			
660	Printing costs	1668.61	
	Journal provision	550.00	2218.61
49	Stationery	-	
31	Postage	-	10.00
8	Insurance	-	
842	Stock 31:12:76	879.08	3107.69
(1590)			<u>(812.02)</u>
339	Surplus/Loss on sales		13.62
52	Bank Interest		7.00
	Donation		950.00
	B. Earl explosives		
391			<u>970.62</u>
	Income for the year		158.60
1336	Balance brought forward 31:12:76		1727.54
1727	Balance carried forward 31:12:77		<u>1886.14</u>
<u>Represented by:</u>			
671	Cash at Bank 31:12:77		248.09
879	Stock at cost 31:12:77		1210.55
677	Debtors		927.50
2227			<u>2386.14</u>
500	Less General fund		500.00
6			



Stock of publication on hand has been valued at cost by the Honorary Treasurer from stock figures provided by officers holding stock.

No allowance has been made for depreciation.

#### TREVITHICK SOCIETY PUBLICATIONS

obtainable from: Publications Secretary,  
Trevenson House, Pool, Redruth, Cornwall.

#### JOURNAL OF THE TREVITHICK SOCIETY (Free to Members)

- No. 1 Published 1973  
including articles on: Richard Trevithick's place in Engineering History, Bodmin and Wade-bridge Railway, Wheal Guskus, The Redruth to Penzance Turnpike Roads, The Liskeard and Looe Canal. 240 mm x 180 mm 75p. (plus 15p. postage).
- No. 2 Published 1974  
including articles on: History of Camborne School of Mines, The West of England Bacon Co., The Early Years of Richard Trevithick, Blowing Houses and Smelting Works of St. Agnes and Redruth. 240 mm x 180 mm 75p. (plus 15p. postage).
- No. 3 Published 1974  
including articles on: Richard Trevithick; some unpublished contemporary documents, Iron in the Cornish Industrial Revolution, The Cornish Beam Engine and Patent Law, Notes on Cornish Industrial Literature. 240 mm x 180 mm 75p. (plus 15p. postage).
- No. 4 Published 1976  
including articles on: The Hornblower Family, Brea Adit Works, Camborne. A Glimpse of the Cornish Mineral Industry in 1873. 240 mm x 180 mm 75p. (plus 15p. postage).

#### OCCASIONAL PUBLICATIONS

- No. 1 DOLCOATH QUEEN OF CORNISH MINES - T. R. HARRIS  
The first published history of probably the most famous of all Cornish Mines from its beginnings in 1790 through to its final closure, and attempted revival. A5 (210 x 147) 108p. with illustrations and plan. £1.00 (plus 15p. postage).
- No. 2 SIR GOLDSWORTHY GURNEY, 1793 - 1875 - T. R. HARRIS  
Biography of the Cornish inventor, best remembered for his steam carriage. Published to commemorate the centenary of his death. A5 (210 x 147) 100p. with illustrations. 75p. (plus 15p postage) post free to members.

#### REPRINT SERIES

- LAWS OF THE STANNARIES, of Cornwall made at the convocation or parliament of Tinners at Truro, 1752. With introduction by Professor Robert R. Pennington. 175 mm x 105 mm viii plus 126p. £1.00 (plus 15p. postage) post free to members.
- AN ACCOUNT OF WRECKS - JOHN BRAY  
Compiled at the request of R. S. Hawker and edited by A. K. Hamilton Jenkin, many aspects of the commerce of the North Cornish Coast in the period 1959-1830 are brought into focus. A5 (210 x 147) 44p. 60p. (plus 10p. postage) (50p. plus 5p postage to members).
- ILLUSTRATED CATALOGUE of pumping and winding engines and other plant.... manufactured by Williams' Perran Foundry Co.  
285 mm x 220 mm 36p. £1.00 (plus 15p postage) post free to members.
- NEWSLETTER OF THE TREVITHICK SOCIETY 1973 - 1975  
Bound set of the Newsletters to cover this period.  
210 x 293 mm £2.00 (plus 29p. postage) post free to members.
- A SHORT HISTORY OF THE CAMBORNE SCHOOL OF MINES - L. P. S. PIPER  
Reprinted from the Journal of the Trevithick Society.  
240 mm x 180 mm. 50p (plus 10p. postage) post free to members.
- CAR STICKER - Brown on white, giving brief details of the aims of the Society. 10p. plus 5p. postage.

POSTCARDS -

Set of 9 high quality reproduction mining scenes: 90" pumping engine at Taylors Shaft, East Pool Mine. Man engine at Dolcoath Mine. Workings at 70 fm. level at East Pool Mine. Underground workings at Dolcoath Mine. 52 ton beam of 90" engine at Taylors Shaft. East Pool Whim and Headgear about 1895. Workings in East Pool Mine. Parkandillack Pumping Engine, Nr. St. Austell (150 mm x 105 mm) 45p. per set (plus 10p postage).

WATERMILLS IN CORNWALL LISTED AS AT 23rd June, 1978.

The following is a list of water mills in each of the District Councils in Cornwall together with fuller details of those in Penwith. Suggestions for the listing of further mills should be sent to:

Mr. Patrick Webb, 35, Cleveland Gardens, Barnes, London SW13.

<u>Local Authority</u>	<u>Civil Parish</u>	<u>Building</u>	<u>Remarks</u>
North Cornwall	Morwenstow	Lee Mill	-
	Blisland	Trehudreth Mill	-
Carrick	Newlyn East	Trewerry Mill	-
Kerrier	Mawgan	Lower Gweek Mill	-
	Grade Ruan	Poltesco Mill	-
	Crowan	Crowan Mill	-
Penwith	St. Keverne	Tregidden Mill	-
	Towednack	Nancedra Mill	-
	Madron	Trembath Mill	Probably early C19. Coursed and random rubble stone with hipped scantle slate roof. 2 storeys. 25" iron overshot wheel, pair of stones some internal gearing. Last worked in 1941.
	Paul	Kemyel Mills (Upper Mill)	C18/C19. Large squared granite blocks with corrugated asbestos and scantle slate roof. 15 foot diameter overshot iron waterwheel. No internal machinery. Very picturesque situation.
		Kemyel Mills (Lower Mill Building)	C18/C19. Granite rubble with scantle slate roof. 8" diameter overshot wheel driving a dynamo. Plain square-headed doorway gable end. Very picturesque situation.
	St. Buryan	Alsia Mill	Said to be medieval in origin (R. Wales) but now largely C. 18. Squared coursed granite construction with corrugated iron roof. The roof-line has been altered and there are additions. Driven by a 13'6" diameter overshot wheel. Last worked in 1966.
	St. Buryan	Clapper Mill	-
	Sancreed	Roskennels Mill	Probably C18. Granite boulder construction with scantle slate roof. Part three and part two storeys, various small windows and square headed door. Has a 13" diameter wheel which produced 25hp. Part of a farm group. It retains all internal gearing and a pair of 4" stones as well as a later roller mill.



## THE INDUSTRIAL ARCHAEOLOGY OF THE LANDS END PENINSULA

BY DICON NANCE

From time immemorial the industries of the Lands End peninsula have been farming, fishing and mining. It was on the last of these that the Industrial Revolution had the greatest effect so, not unnaturally, most of the remains relate to mining. By far the most obvious of these are the tall enginehouses and stacks which housed the beam engines which variously pumped the water or hoisted or crushed the ore. Both tin and copper were mined. It is a predominantly granite region and mines in and around the granite were usually relatively dry, consequently it is a land of small pumping engines, mostly between 30 inches and 40 inches (the diameter of their cylinders). Paradoxically even the mines under the sea, and there were several of them were exceptionally dry. Even Levant which extended more than a mile beneath the sea needed no more than a 45 inch engine. The mines were mostly small and started with the minimum of capital and there are numerous examples of engines being made to serve in more than one duty. It should be noted that the surface remains bear no relation to the size and importance of the mine. Providence and St. Ives Consols, two important mines, leave scarcely a trace whilst Wheal Heard, never a very successful mine, boasts two very prominent enginehouses.

In a sea-girt land like the fishing was always an important and vital industry ranging from the part-time fishing and crabbing of the St. Just miner to the large seine fishing companies of St. Ives and Mounts Bay. Always a conservative industry, fishing did not show anything like the changes that mining did with the advent of the Industrial Revolution. There was a steady growth throughout the 19th century but steam power was not introduced until the end of the century, and then only on a small scale while the screw press did not replace the time honoured "pressing stones" in the curing of pilchards until the 1870s. Until the last years of the century it was the pilchard seine fishing that was the most important and lucrative branch of the industry. The financial outlay in boats, gear and fish cellars meant that it was always run by companies financed by the local monied class. Coupled with this fishery was a very busy export trade to the Mediterranean, returning with fruit, olive oil etc. By a strange coincidence both mining and fishing underwent a decline at about the same time, though from quite unrelated causes. The first from foreign competition and the second by a change in the habits of the pilchard. Only farming has continued relatively unchanged, slow to adopt new methods but maintaining a fairly steady prosperity. In small details even farming profited by the facilities introduced by mining. For instance, the West Cornwall farm cart adopted the iron axle and later the "shut" or one piece iron axle long before its up-country counterpart.

St. Ives has altered very much in recent years and little now remains of its former industries. A visit to the museum at Wheal Dream and a study there of the excellent collection of photographs, pictures, models and relics is perhaps the best way to get an overall picture of town as it was in the last century. This will make interpretation easier of the little that remains.

As will be seen, St. Ives was primarily a fishing town with a highly developed pilchard seine industry and a large fleet of luggers variously employed in drift fishing, long-lining and crabbing. The larger boats going as far afield as Ireland and the North Sea. A small fleet of larger vessels was also owned locally, mostly brigs, brigantines and topsail schooners. These were mostly engaged in the Mediterranean trade taking out the "fair maids" or cured pilchards and returning with fruit, olive oil, currants, etc. There was also a brisk trade with S. Wales bring coal for the mines. Of the numerous fish cellars, only a few remain, mostly much mutilated and converted to other uses. There is, however, an excellently preserved baulking house or station from which operations were directed when a school of pilchards was actually being netted. This stands on the Hain Walk above Porthminster Point (524397). The base of the present quay up to the first lighthouse was designed by Smeaton and built in the year 1767. The stone lighthouse is of slightly more recent date. As will be seen in early photographs this marked the end of the quay. The present extension was built in the 1880's and 1890's. It will be seen that many of the bollards here and around the harbour are made of old mine "pumps" or sections of pipe. There were numerous mines in the St. Ives area of which St. Ives Consols (504398) and Providence (523386) were the most profitable, being worked for both copper and tin. Very little remains of either. The waste tips seen on the left above the school are those of Trenwith (514402). This mine achieved fame as the supplier of the radium with which Madame Curie did her early experiments. On leaving the town via the Stennack, two stacks will be seen on the left on Rosewall Hill. These belong to Rosewall Hill and Ransoms Mine (498393). The lower stack served the pumping engine, the bob wall of whose house still stands below. The connecting flue can still be traced in places. Further over is the house of the stamping engine. The shaft in front of the pumping engine needs approaching with caution, but is an excellent example of dry stone "stilling" in an oval shaft. Behind the hill to the south stands the ruined house of Tyingham Consols' pumping engine (494386). Far to the south standing up against the sky is the enginehouse at the Giew Mine. This is in the Lelant mining area and will be mentioned later. Continuing along the Zennor road the solitary stack on the right is all that remains of St. Ives Wheal Allen (499399) and on the cliffs beyond Trevalgan Hill can be seen the ruins of an enginehouse at Trevega Bal (481405). Proceeding now to Zennor, a visit to the Wayside Museum (454384) should prove well worthwhile. This museum which includes a watermill more or less intact except for waterwheel, has numerous examples of tools used in both farming and mining as well as some excellent models of surface workings of a Cornish mine. There is also an interesting "mortar stone" from an early Cornish tin stamps. This came from a site at New Mill (458342). Leaving again for St. Just a digression might be made at Poniu (445379) following a lane towards the sea to Carnello Mine (443389). This mine is interesting in its use of water power for pumping winding and stamping. Two large wheel pits remain and traces of an inclined tramroad. A millpool stands above the mine, originally conserving the water for the seemingly very inadequate Poniu stream. Returning to the road and proceeding as far as the Gurnards

Head Hotel, a digression can again be made towards the sea through Treen Townplace and bearing to the right. Here is Gurnards Head Mine (437382). A very small 10 foot by 18 foot house housed a 30 inch engine interesting in that it dispensed with the usual girder beam. Below the mine on the cliff edge stand the ruins of a fish cellar. A pathway, now inaccessible, leads down to the cove where there are the remains of a slipway and a large iron sheave is fastened to the rock. There are records of good catches being made here. Once again on the St. Just road, at Porthmeor a low stack can be seen in the valley to the right of the road. Here there are the well preserved remains of an early burning house (430372), part of a tin dressing complex of stamps, buddles etc. At Bosingran two enginehouses by the roadside and a count house, still occupied, belong to Carn Galver Mine (421365). Down the valley by the cliff edge, are the remains of stamps and dressing floors. Before turning inland to Trevean, the ruins of Morvah Consols (407359) can be seen on the clifftop. This mine made use of its engine for pumping stamping and winding. The pumped water being used to drive water-wheels on the dressing floor. There is a very well preserved whim plat with central hold stone to the east. Near the bottom of the valley leading from Bojewjan Stennack to Portheras beach at Oxmans stamps (390355) there are the wheel pits and houses of a number of water-driven stamps. To the west of Portheras beach itself there are the remains of a fish cellar (385359). Besides a seine fishing station, this was the cove where the Pendeen miners have always kept their boats. We are now on the eastern borders of the St. Just mining district and from here right round the coast to Porth Nanven and beyond there is a continuous succession of old mine workings. A prominent feature in the landscape are the long rows of miners' cottages. The two enginehouses at Wheal Hearle are clearly seen to the south. The pumping engine which appears at first sight to be a normal non-rotative Cornish engine is seen to have turned rotated machinery, said to have been stamps, by means of a secondary bob at the back of the house, an unusual arrangement. Beyond Boscaswell to the west lies Geevor Mine (375345), the only working mine in the district. This mine embraces both the Boscaswell and Levant sets. Being a working mine, the unannounced intruder is not welcome nor any but the seriously interested visitor. At Levant (370346) there is much of archaeological interest. It is reached by turning down the lane at Trewellard Chapel. Levant was the richest of the St. Just mines and only closed in 1930 after over a century of working. Much time can be spent here trying to sort out the remains which overlay one another. Points of particular interest are the whim. This is an engine of 1840 and one of the oldest in the County. It is still in situ and is the property of the National Trust, having been preserved in the 1930's by the Cornish Engines Preservation Society. The key may be obtained by arrangement from Geevor. The engine was rebuilt in 1860 and worked until the mine closed. The adjacent house was that a 45 inch pumping engine. They pumped and wound in separate shafts as was quite usual at this date. Originally built in 1835 as a 40 inch until it was rebuilt in 1872 and worked as a 45 inch until 1930. The stack still stands of the stamps and although the house is demolished the general layout of engine boilers and stamps is clearly visible. This engine also pumped water for the dressing floors from a small shaft in front, now sollarred over. There is an interesting arrangement at the man engine that can still be made out, whereby the men came from and went to the shaft by an underground passage from the dry. The site of the circular stairway can still be traced in the dry floor where there is also a bath, and a ventilating shaft to the passage can be seen across the lane. This man engine originally installed in 1857 was the last to work in the County, finally stopping in 1919 when it was responsible for one of the major disasters of Cornish mining. A breakage of the main rod caused the death of 31 miners. Higher Ball (370341) in the lane above Levant was latterly part of Levant and the engine installed here worked both pumps and winding gear in the Guide shaft. A short length of flat rods extended from the house to the shaft by the road.

West of Levant lies Botallack (364335). Though not so rich a mine as Levant it is perhaps the best known of all the western mines. Partly because of the romantic setting of the enginehouses in the crowns set and partly because it was this mine that was chosen for a visit by Royalty. The Prince & Princess of Wales were taken underground here in 1805. Most of the remains at the clifftop belong to the 1906 reopening. The large 12' by 20' Allens shaft with its winder and compressor house and stack, the Bruntons calciner and arsenic labyrinth, and the power house. A large circular shaft at Wheal Cock to the east belongs to the same period. The buildings of the crowns belong to an earlier date. These comprise a pumping engine house which housed a 30" engine put in in the first decades of the 19th century and a whim of 1860 which wound in the famous Boscawen inclined shaft. The opening is still visible in the cliff face. Around the cliff to the north are the remains of an even more inaccessible house and stack at the Button shaft. An interesting feature at the top of the cliff at the eastern end of (an almost obliterated by) the fresh granite burrows of Allens shaft is the old Bunny mine. Here the "old men" worked a series of "floors" or horizontal bodies of tin that succeeded one another with intervening rock. No fewer than seven of these floors were excavated. The small stack at the clifftop is all that remains of the engine that worked a skip-way down the face of the cliff to the ground.

Westward from Botallack lies Wheal Owles, an extensive mine comprising several earlier mines - amongst them Wheal Edward, Wheal Drea, Wheal Bogs and Wheal Grouse. Wheal Edward (362328) on the clifftop has houses of a pumping engine and a stamps with the ruin of a whim. The stamps have a secondary bob at the back of the house which pumped water for the dressing floors. The square stone walls below on the cliff face surrounds the opening of Cargodna or the so called "consecrated shaft". Underground here was the scene of the disastrous flooding which cost the lives of twenty miners and brought the career of Wheal Owles to an end in 1893. Other houses on the mine are at Wheal Owles (366326) and Wheal Drea (366323). The valley below Wheal Drea is full of remains of mining interest, principal amongst these are the large wheel pit which took a 52' wheel used for pumping and an unusual arsenic labyrinth with a Bruntons calciner. The waterwheel was

part of the Boswedden Mine, the foundation of whose stamps and pumping engine are also visible. The chimney stack on Cape Cornwall served the engine at Cape Cornwall mine on the southern side of the Cape. Here at Priests Cove and Porth Ledden on the northern side the St. Just men used and still do keep their boats. From here around to Letcha there is evidence of much mining activity in the form of shafts and burrows but little else remains. In the Porth Nanven valley are several wheel pits and many leats traverse the cliffs and valley sides. Except for a few outlying workings this marks the western extremity of the St. Just mining district and nothing of importance as regards mining occurs from here around to Penzance. There are remains of surface workings and two wheel pits at Nanjulian (358294) and away to the south at Nanjizel (358236) some workings in the cliff and a wheel pit and buddle. Inland from St. Just at Ballswidden (390310) is the site of a quite considerable tin mine and later a china clay pit. Little remains of the first save a stack and many shafts and burrows. An 80<sup>h</sup> engine was employed here which was unique as regards size for this western district. There are the ruins of two dries and settling tanks on the second. Another much smaller clay works was situated on Tredinney Common (395288).

In the centre of the peninsula and away from the metamorphic rocks surrounding the granite mass where most of the mines are situated lies Ding Dong Mine. Most prominent is Green Burrow enginehouse (435344) which is visible from places all over the peninsula. There are two other enginehouses still standing. Those of a whim and lower down a pumping engine.

Whilst there was little mining activity in the southern half of the peninsula, fishing was carried wherever it was possible to keep a boat there is evidence of seine fishing at a number of places. One of the most interesting of these sites is at Gazick (357292). Interesting, because it shows to what lengths men would go to win pilchards. There is little left of the cellar and only patches of slipway and a few iron rings have survived the storms, but there is enough to show how a seine fishing station was established on this most inhospitable of shores. At Sennen (353264) there was a very active seine fishery though little remains save the round capstan house which still houses the large manually operated capstan and the walls of a nearby yard reveal by the characteristic holes that it was once a cellar. At Porth Guarra (372217) there is evidence of seining, whilst at Penberth (403227) there is a capstan and two cellars. One of these latter on the western side of the stream is perhaps the best preserved of any. It is the property of the National Trust. At Lamorna (450240) a stone quay was built for shipment of stone, from the granite quarries which lie on both sides of the valley. Mousehole, once the foremost fishing village of Mounts Bay, had the cellars of numerous seining companies. A number of these remain though all converted and incorporated in other buildings. Part of the quay from Newlyn, now the principal fishing port, the harbour immensely enlarged by the north and south piers was once second in importance to Mousehole in size. The old harbour is a quay still remaining within the new one. The south pier was built for the shipment of roadstone from the still very active quarries at Carn Gwavas (468278). There was an active boat-building track, building mostly fishing boats and the town also had a foundry. At Stable Hobba (456294) was the Treveife Smelting Works, the most westerly of the numerous smelting houses grew up around Penzance as a coinage town. The premises have been variously converted to other uses and are now (1976) in course of demolition.

Penzance as a coinage town was the centre of the tin trade in this area, although apart from the name "Coinagehall Street" there is little to show. Holmans of St. Just established a foundry here in 1840 and later a dry dock. Both have been moved from their original sites but the firm continues to be very active. There were also other small foundries in the town. At Chyandour (478311) there was a smelting house the position of which may be clearly seen, though little of interest remains. To the west of the town at Werrytown was the Werry Mine. The shaft of this unusual mine was sunk at low water mark on what are known as the Werry Rocks, being protected by the sea by timber shuttering. Pumping was effected by flat rods from a shore-based engine. This unusual mine had a fittingly unusually end, being perhaps the only mine that perished in a shipwreck. The shuttering was destroyed and the mine consequently flooded by an American vessel in a storm. In the latter part of the 18th and first half of 19th centuries Penzance was the cultural centre of west Cornwall and history points to a highly developed cultural climate. To this Penzance owes the Morrab Library with its unique collection of books founded in 1818 and the Geological Museum, an equally valuable collection of minerals established by the Royal Cornwall Geological Society founded in 1814. Sir Humphrey Davy whose statue stands at the head of Market Jew Street was born in Penzance. Leaving Penzance on the A30 road one approached Ludgvan where at Lower Quarter (513333) the name Blowinghouse Hill reveals the site of a smelting house. A private house built on the actual site had incorporated some of the tin moulds as panels below the windows. At Treloweth (538354) behind the present Lamb & Flag Inn is Treloweth smelting house, since converted to a creamery but now idle. The inside is that of the tin mark of the smelting house.

On the right, beyond St. Erth Station, the present milk depot is on the site of and originally incorporated the dry of Porthia Clay works at Penderleith (495377). A pipe line which still supplies the dairy with water was built about 1930 to bring the clay to the dry and subsequent shipment at the nearby railway station.

A couple of miles west of here and centred around the hills of Trink and Trencrom, was the Lelant mining district. The principal of these mines were Wheal Reeth and Wheal Sisters. A prominent engine house stands at the Giew mine dating from the working of this mine as Reeth Consuls. Although somewhat mutilated by the last working of the mine, when it was incorporated in the head gear, it is typical of an engine house of the last decades of the 19th century. By some chance a cast iron window frame still stands in one of the window openings. Below, across the road to the south

west are the remains of the dressings floors. There are the decayed timbersbeds of several Californian stamp sets and a bruntons with a square brick stack. For one brief period in 1923 this was the only mine working in Cornwall. At Wheal Kitty (506362) there is a pumping engine with a square stack whilst John Roberts whim (513367) near Trencrom farm shows an unusual diagonally placed winding drum. This engine wound in Fox's shaft a couple of hundred yards to the south. Both the Nancedra and Trevanack valleys are bound with stamps sites and there have been at least 7 in the first and 6 in the second within living memory. At Chypons (495364) there is a small stamps axel for four heads and at Amcelembrea (493363) a very delapidated 7 spoked water wheel. At Little Stamps (499357) there is a three head stamp axel and at Lock (501355) a complete set of 8 cornish stamps with iron lifters and gear driven.

Although not strictly within the land end peninsula geographically, Hayle played such an important part in the life of the community that it cannot well be omitted. It was from here that most of the fleet of little vessels sailed carrying copper ore to the smelters in South Wales and returning with coal for the mine engines. Timber was also imported here, to which use Norway Mans quay (551377) bears testimony. The town grew around and practically owed its existance to the foundry of Messrs Harvey & Co and the copper smelting works and later foundry of Sandys Tran & Vyvyan. Throughout their existance these firms were relentless rivals as founders and importers. The Harvey Foundry was the largest, and indeed, was the largest in Cornwall if not the world at the time of its hey day in the first half of the century. Their premises which occupied a large part of Hayle and some of which are occupied by decendants of the firm, have noticably been adapted to other uses and much altered in recent years and without prior knowledge it is not possible to reconstruct the precise layout with any certainty. The canal built in 1769 and docks of the copper house firm are still evident even to a pair of decayed dock gates. It will be noted that much of the building here is with blocks of copper slag. These were used extensively in the district. The swing bridge that takes the railway and road over the copper house canal was built at Harvey's. Hayle was the terminus of the west Cornwall railway and the course of this may be followed from the terminus in foundry Square to the incline at Angarrick and its final junction with what is now the main line at the old Gwinear Road station. There were tin smelting works at Mellanear (558367) Trelissick - some where near the present post office - and at Angarrick (585382). There are the remains of a tide mill at copper house marked by a single brick stack above the copper house dock nearby to the present firm of J. & F. Pool Ltd. which specialises in perforated metal and which was established in 1848 by James Pool as a wire weaver and stamps grate maker. Little mention has been made of the grist mills that were numerous in the area. There was no stream of any size that did not have one or two or even more. There are no mills left in work, though Roskennals Mill (431311) near Newbridge is kept in working order, although now forming part of a private house. Ailsia Mill (396252) has not long been idle, and the wheel has wooden shrouds. Nancedra Mill (496360) has a wheel with iron shrouds but a wooden axel tree, whilst Crean Mill (393247) has an entirely metal wheel. All the mills were latterly used for grinding animal feed and had granite stones, although these were used to a large extent for grinding flour for human consumption at an earlier date although it was more usual to use some kind of imported stone for this purpose.