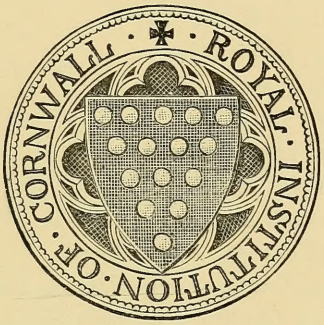
JOURNAL

OF THE

Royal Institution of Cornwall.



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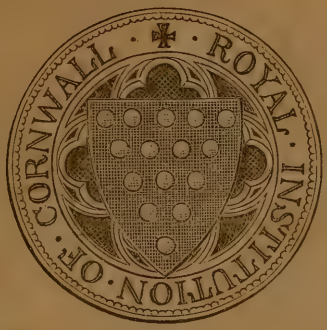

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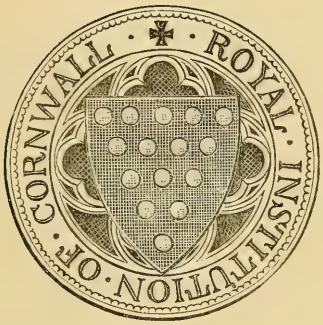

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Part I.—*1896.*

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The MUSEUM is open to *Members and their families* every day except Sunday, between the hours of Ten and Four o'clock during the winter, and between Ten and Five o'clock in the summer.

The Museum is open to the *public*, free of charge, on WEDNESDAYS, from Eleven until Four. On other days, an admission fee of sixpence is required.

A Subscription of One Guinea entitles the Subscriber to all the publications issued by the Institution, to admission to the Museum, for himself and family on every day of the week (except Sunday), and to the Meetings of the Society; and to ten transferable Tickets of admission to the Museum whenever open.

Royal Institution of Cornwall.

SPRING MEETING, 1895.

The Spring Meeting was held on Tuesday, May 28th, at the rooms of the Institution, Truro.

The chair was taken by the President, Mr. J. D. Enys, F.G.S., who delivered his address. The following papers were then read:—

"The Fauna of Falmouth Harbour for 1894," by Mr. Rupert Vallentin.

"Further Killigrew MSS. relating to the Killigrew Pyramid or Monument at Falmouth, and other matters," by Mr. Howard Fox, F.G.S.

"Bulbils and Gemmæ," by Mr. F. H. Davey.

"Basaltic Columns in West Devon," by Mr. T. Clark.

"The Rude Stone Monuments of Cornwall," by Mr. R. N. Worth, F.G.S.

Mr. E. A. Wünsch, F.G.S., gave an exposition of a new method of nature printing discovered by himself. He said a year ago he gave some particulars on the subject, but then it was quite possible to take impressions of the under sides of the leaves, but as to the upper sides it was entirely impractical and unsuccessful. Since then, taking a hint from photographers, and their refinements in the manipulation of gelatine, he had succeeded in perfecting the process by means of which both sides of the leaves could be printed perfectly successfully, as shewn by specimens exhibited. On the primrose leaf the convolutions were so produced that the fine lines which were hardly perceptible in nature, came out well. He had quite recently hit upon the process, and he hoped between this and July to be able to show at the Falmouth Institution something more perfect.

On the motion of Mr. J. G. Chilcott, seconded by Canon Donaldson, a vote of thanks was passed to the authors of papers, and donors to the museum and library.

THE PRESIDENT'S ADDRESS.

In addressing the members of this Institution for the second time, I cannot but regret that my first duty is to report the losses by death sustained by us during the past year. First that of our late President, Sir John Maclean. The Royal Institution of Cornwall has long enjoyed the benefit of Sir John Maclean's researches, in the many and interesting papers he has contributed to the Journal, as well as in the volumes of his works in our library. These speak for themselves of an immense amount of research and ability in compilation, though I fear that a History of Cornwall on the lines of Sir John's History of the Hundred of Trigg Minor would take up more time and demand more energy than could be well afforded by most of those interested in the County and its history. Then in the death of Mr. H. Sewell Stokes, Cornwall has lost a son by adoption if not by descent, and the Institution a staunch supporter. His poems and other works were greatly valued by Tennyson and Longfellow. Of his public life, we, as a society, cannot speak, but we know he was held in high esteem by every section of society in the county.

The Chair which I occupy for the first time, as the Presidential chair of the Royal Institution, has an interesting history. When the old church of St. Mary's was taken down, (with the exception of the south aisle, now embodied in the Cathedral,) the old fittings were sold, and Mr. J. C. Daubuz purchased the carved work of the Mayor's seat, and presented it to the Royal Institution. It is rather interesting that in the picture hung at the end of this room, the Mayor's seat is shown in one position in the church, whilst in an old engraving of the interior of Truro church it is shown in another. Its date, I should say, would be before 1681-85. If so, in the year 1895 I am occupying the same seat, under different circumstances, that one of my ancestors occupied when Mayor of Truro in those years. I have recently found an an old drawing of my father's, showing an alteration for the improvement of the old Mayoral chair at Truro. The parts of the present chair which are ancient, are the top and two side portions; the rest is new.

There are two important books, (one of which is in the press) which I trust will be published shortly, namely, Mr. A. G. Langdon's work on the Early Stone Crosses of Cornwall, and the Rev. W. Iago's on the Inscribed Stones of Cornwall, both of which are of the highest interest to Cornishmen. Some of the engravings of the crosses in Mr. Langdon's work I have pleasure in submitting for your inspection, and am glad to say they come up to my idea of what such illustrations should be, that is, showing the kind of stone used for the crosses, and faithfully detailing the rude carvings on them. Over 300 of these engravings will appear in Mr. Langdon's book, all of which are reduced to the same scale.

A work on the Cornish Holy Wells, by Miss Quiller Couch has recently been published, much of the information for which was collected by Dr. Couch, of Bodmin, some years ago. It is of great value to those of antiquarian tastes, as it not only shows the locality and state of the wells, but also their former conditions and usages.

Referring to my former address, where I suggested a complete index to the various County Histories, I now give an example of such an index, which I believe would be of great value to Cornish students, and have chosen my own parish of St. Gluvias as an illustration.

1st edition Carew, 1602 [p. 53 (vol. 2) Faires], p. 150 (vol. 2).
2nd ,, 1722, p. 250 (vol. 2).
3rd ,, 1759, p. 151 (vol. 2).
4th ,, 1811, p. 364.
Hals, 1750, p. 144.
Hals in Gilbert } 1838, p. 92, vol. 2
Tonkin do. }
Lysons, 1814, vol. i, p. 118.
Drew and Hitchens, 1824, p. 289.
Davies Gilbert, 1838, vol. ii, p.92.
Norden, 1728, p. 49.
Parochial History published by Lake, 1868, vol. ii, p. 78.
C. S. Gilbert, 1820, vol. ii, p. 785.

I much regret the delay in the publication of the last number of the Journal, and may state that the following number is being

put together, and the council trust to have it in the hands of our members in a short time.

Since our last meeting, no matter of particular interest to our society has come under my notice, but I have brought for your inspection an interesting silver ring, dug up near the site of the old college of Glasney, at Penryn; it bears a letter S with branches of what may be palm on each side, and is well cut.

I have also obtained a short account of a small gold ring, found some time since in a parish abutting on Falmouth Harbour, the only mark on it being a fleur-de-lis. I regret that this ring is lost to Cornwall, having passed into a large collection of rings out of the county. It was pronounced to be a very early sample of a rare kind of French ring.

The Rev. W. Iago exhibited to us a short time since a bronze ring, with the head of a serpent, found by a lady; it was embedded in freshly formed sandstone, under the cliffs in Trevone bay, near Padstow, but I regret to say this ring was broken in taking it out.

I have taken no particular subject for study this year, but have made a variety of notes on Cornish matters which have come under my observation, the reading of which may be interesting to many.

Notes on Cornish Matters.

Miss Collins, of Bodmin, has presented a most interesting set of the original matrices of the seals of the archdeacons of Cornwall, and others, amongst them that of the Leper Hospital of St. Laurence, near Bodmin. This matrix, with a brass candlestick, was bought in one lot at a sale, for a small sum.

COINING OF TIN.

In the years 1661 to 1671, Christopher Bellot, of Bodmin, and Samuel Enys obtained (through Lord Arundel it would seem) the coinage of tin for the county of Cornwall, and the account books show the amount of tin coined during those years. I have selected from these books such extracts as I thought would be of interest, and a list of such persons as have descendants or representatives still existing in the county.

William Gregor,	R. Freeman,
John Beachamp,	Francis Buller,
W. Cornish,	Daniel Moyle,
R. Lobb,	Jonas Rowe,
James Hearle,	Robert Hawkin,
William Oppy,	Henry Williams,
Thomas Cox,	Thomas Tonkin,
Elias Heard,	Richard and Thomas Enys,
W. Rosewarne,	Richard Roscrow,
—. Grills,	Sir F. Godolphin,
S. Hext,	John Saint Aubyn,
Edward Tremayne,	John Rogers,
Thomas Nankivell,	Charles Ustick,
John Borlase,	Thomas Bolitho.

1662.			
The tyn coyned 'Xmas ½-year ..	£1098	05	00
2nd ½-year	1508	17	00
1663.			
1st ½	2428	02	00
2nd ½	2504	04	11
A journey to London cost ..	4	11	0
Back	3	1	0
My horse meate cost	3	2	0
My chamber cost	1	13	0
April 14th, 1664..	12	07	10
13 weeks, my expenses in meate, drinke, coach and boat hire	33	10	10
Journey in 1667 up	4	9	6
Down	4	5	6
Horse meate	5	2	6
	13	17	6

OLD RECORDS OF FALMOUTH.

That the old name by which Falmouth was known was Pennycomequick is substantiated by the following two notices: first from the Record Office, date Nov. 1660, Charles II, vol. XXII. "The Mayor of Penryn, Cornwall, petition that no grant of

fair or market be made to Sir Peter Killigrew without their knowledge, as he has threatened decay by his causing, by his interest, the Custom House and a weekly market to be removed to *Penny-come-quick*, alias *Smitheck*. The second comes from a MS. at Enys, of the coynage dues, under date of 1663, Feb. 14. "Ambros Jeninens, of Pennicomquick."

PILCHARD FISHING IN 1500.

Some years since, I found some interesting documents relating to the Pilchard industry in the Record Office in London, and also in an old MS. letter book preserved at Enys Under July 17th, 1591, at the Record Office was an order made in the reign of Queen Elizabeth "that no more Fumadoes* were to be made, so that the Queen's enimays might not be supplied with provisions, and be able to remain on the coast." This looks like a report that the loyal Cornish supplied the enemy with food, or that the Queen's advisers feared the enemy would take it by force.

Another order was "that no fish should be removed from the place of landing it till after 2 or 3 tydes, so that the inhabitants should not be deprived of their 1st chance of fresh fish."

Same date, 1591, "Pilchards yield £16 per ton in the straits to the merchants."

"In Charles II reign, pilchards were brought by land from St. Ives, to be shipped at Penzance, at twice the cost of conveying them by sea, in consequence of the amount of French and Turkish vessels that rendered it dangerous to carry them by sea.

THE EARLY HISTORY OF THE STEAM ENGINE

must always be of special interest to Cornwall, as she claims some of the earliest inventors, and I have therefore no hesitation in reading some extracts from a correspondence between Davies Giddy, afterwards Davies Gilbert, and Jonathan Hornblower, extending over a period of 14 years, from March, 1790 to 1814. The letters are in my possession, having been given to my father, J. S. Enys, by Mr. D. Gilbert, and the correspondence is fortunately complete, as Mr. Davies Gilbert had his letters returned

* The Cornish word fair maids used for prepared pilchards is no doubt derived from this word, meaning smoked pilchards.

to him by Miss Hornblower on the death of Jonathan Hornblower in 1815. There are about 60 letters of J. Hornblower and 50 of Davies Gilbert. The first letter, dated March 25th, 1790, makes an appointment to meet Mr. Davies Gilbert at Tincroft, and the following note made by Davies Gilbert, in 1815, when recording Hornblower's death, alludes to his appointment.

"Feb. 23rd, 1815. On this day died Mr. Jonathan Hornblower, of Penryn, inventor of the steam engine with two cylinders."

"I became acquainted with this gentleman in 1790, when I met him at Tincroft mine in Illogan to talk about purchasing a model steam engine for Oxford; and for several years after I frequently assisted him in making experiments, and especially in calculations."

"I most earnestly recommended him to try the condensation of strong steam raised by a quick fire."

"I founded my opinion of strong steam on the principle that about 1000 thermometrical degrees of heat being rendered latent by the conversion of water into steam, it seemed to me very improbable that the capacity of steam could be so great as to require a 1000 degrees more to double its elasticity. These recommendations were made about 1793."

"In 1815, Mr. Woolf is actually performing 38 millions by this means, when 20 years ago the average duty of engines in Cornwall was about 14 millions."

"I first got acquainted with Mr. Jonathan Hornblower in consequence of his having applied the expansive power of steam by the application of a second cylinder about twice the capacity of the first. He constructed a working model, which I wished to have purchased for a lecturer at Oxford. I met Mr. H. at a mine in Camborne, where he had put up a large engine on this principle, and he was very much surprised when I gave him the power of his second cylinder as compared with the first, supposing the vacuum perfect and friction evanescent."

I quote the original description of this engine from a printed bill got ready to be introduced into the House of Commons to secure an extension of his patent for this engine, 1792. Original patent dated 13th July, 21 Geo. III, or 1780.

1st. "I use the vessels in which the steam is to act, and which in other steam engines are called cylinders."

2nd. "I employ the steam, after it has acted in the first vessel, to operate a second time in the other, by permitting it to expand itself, which I do by connecting the vessels together and forming proper channels and apertures whereby the steam shall occasionally go in and out of the said vessels."

3rd. "I condense the steam by causing it to pass in contact with metallic surfaces, while water is applied to the opposite side."

4th. "To discharge the engine of the water used to condense the steam, I suspend a column of water in a tube or vessel constructed for that purpose, on the principles of the barometer, the upper end having open communication with the steam vessels and the lower end immersed into a vessel of water.'

5th. "To discharge the air which enters the steam vessels with the condensing water or otherwise, I introduce it into a separate vessel, whence it is protruded by the admission of steam."

6th. "That the condensed vapour shall not remain in the steam vessels in which the steam is condensed, I collect it into another vessel, which has open communication with the steam vessel, and the water in the mine or river."

Lastly. "In cases where the atmosphere is to be employed to act on the piston, I use a piston so constructed as to admit steam round its periphery, and in contact with the sides of the steam vessel, thereby to prevent the external air from passing in between the piston and the sides of the steam vessel."

In an enclyclopædia published at Edinburgh, Hornblower describes his first model of a double acting engine as having been made in 1776, and which worked well, but was not carried any further in deference to his father's advice, relative to mechanical difficulties in his use of a lid to the steam vessels.

This article was written by J. Hornblower, assisted by Davies Giddy, as is recorded in a letter of Oct. 22nd, 1792.

In a letter of Davies Giddy's, dated May 27th, 1792, is drawn a diagram of the force of steam as exerted at different parts of the stroke of the piston, which is almost the same as that now used. I have a diagram of the 90-in. engine working at Wheal Grenville, drawn in May, 1894, for comparison.

The letters of Richard Trevithick to Mr. Davies Gilbert, commencing about 1804, are also of interest, and I can only regret that the answers to them were not preserved, as, judging from those to Hornblower, they would have shown the same kindly readiness to help in making calculations for the practical experimenter.

Most of Mr. R. Trevithick's letters have been published by T. Trevithick, C.E., his son, in the life of his father, but I have many that have not been published.

THE OLD GAME OF HURLING

formerly so common in many parts of the county, but now chiefly confined to the district round St. Columb, has left some interesting remains in the silver balls used in these matches. Whenever I have had an opportunity to examine them, I have found them made of wood covered with two plates of silver fastened to the wood with nails, having heads formed, in one case, like roses, and generally of about the same size.

One I have lately seen differs from all others in being pierced through by a hole about an inch across. The silver plate on one side covering the hole remains, and is engraved with a circle marking the hole, and a pattern showing an open flower in the centre pierced with small holes; on the other side the silver has been broken away, but the pattern was different as shown by small remains of foliage engraved round it. One side has "God save the King;" the other half has inscribed round it, "Play fare, bee merry and wise, that of your sport no harm arise."

From MSS. of Dr. Borlase on the Cornish Language, &c., I extract the following—

"Motto on a hurling ball—

Theram ky do why an Belema,
De Guare gen Bonogath da.
I do bestow on you this ball,
In goodwill for to play withall."

After the plundering of Penzance by Col. Bennett and his troopers, sent from Pendennis during the Commonwealth, in 1646, a procession was formed through the streets of Penryn preceded by 3 men, each carrying a silver hurling ball tied to his sword. This is recorded by Peter Mundy in his MS., now in the British Museum. One ball has recorded on it the name of the place where it was used.

Dr. Jago, in a paper in our Journal of Oct., 1866, mentions several hurling balls, and exhibited one which was an heirloom in the family of the late Mr. Richard Pearce, of Penzance. It bore the date of 1704, preceded by the following inscription:—"Paul Tuz whek Gware tek heb ate buz Henwis."

Mr. Richard Edwards, of Penzance, gives the following as an approximate translation:—"Fair play without malice is called good play."

Mr. Copeland Borlase also, in a former Journal, quotes from a MS. of Dr. Borlase, (which is now in my possession) a motto on a hurling ball:—

Gware têg yn guare whêg.
Fair play is good play.—(*Tonkin MS.*)

Hurling balls exist at Newton Ferrers, Enys, Penrose, Penzance Natural History and Antiquarian Society's Museum, Lanhydrock, and in the possession of R. Couch of Penzance, and others.

THIRD ANNUAL JOINT MEETING OF THE CORNISH SCIENTIFIC SOCIETIES.

The Scientific Societies of Cornwall—The Royal Geological Society of Cornwall, The Royal Institution of Cornwall, The Royal Cornwall Polytechnic Society, and The Mining Association and Institute of Cornwall,—held their annual joint meeting on Tuesday, July 16th, 1895. The principal item in the day's programme was a rock-drilling demonstration at Wheal Agar mine. This was arranged by the Tuckingmill Foundry Company, who have recently erected at Wheal Agar a splendid specimen of Mr. McCulloch's new compound air-compressor, of which some interesting particulars will be found in a later portion of this report. The Foundry Company are the makers not only of this engine, but of the "Rio Tinto" and "Little Hercules" rock drills, of which Mr. McCulloch is also the inventor and patentee. The "Rio Tinto" is a drill of world-wide fame, having come out of many important competitions with flying colours. The "Little Hercules," a more recent invention, is claimed by Mr. McCulloch to represent a great improvement on the "Rio Tinto." It is much lighter and shorter, and to show that it combines with these advantages the still greater advantage of increased speed capacity, was the principal object of the demonstration which took place on Tuesday. A large company assembled at Wheal Agar, and watched the proceedings with the greatest possible interest. The drills were tested on large blocks of the hardest granite, and were worked at an air pressure of seventy pounds to the square inch. Mr. William Thomas, secretary of the Mining Association and Institute, acted as adjudicator, and the results as given by him were as follow:—In the first case the "Rio Tinto" bored five inches in a minute; whilst "TheLittle Hercules" bored 12¼ inches in 57 seconds, each with a 1½ inch bit. A horizontal hole, five feet four and a half inches long, was next bored by "The Little Hercules" in eight minutes fifty three seconds. The time occupied in this trial from start to finish, including stoppages, was 18 minutes, and the bits varied from 2½ inches down to 1½ inches. In the next

demonstration, "The Little Hercules" bored a vertical hole, two feet eleven inches deep, with bits varying from $2\frac{1}{4}$ inches to $1\frac{1}{2}$ inches. The running time in this case was six minutes thirty eight seconds, and the full time occupied, including stoppages, nine and a half minutes. The performances of the little machine were regarded by all present as being highly satisfactory, and hearty congratulations were tendered to Mr. George J. Smith, the principal of the foundry, and Mr. McCulloch who superintended the demonstrations.

After inspecting the air-compressor, the company adjourned to East Pool account-house, where they were entertained at a luncheon by Mr. G. J. Smith; after which the following papers were read at Carn Brea account house.

"Recent discoveries of fossils at Nelly's Cove Porthallow," and "Some modern ideas as to the formation of granite," by Mr. F. J. Stephens.

"The Convocations of the tinners of Cornwall," by Mr. H. W. Fisher.

"Economy and speed in Air-Compressing and Rock-Drilling," by Mr. W. Burgess.

The reading of these papers concluded the business of the meeting.

THE ANNUAL EXCURSION.

The annual excursion of the members of the Royal Institution of Cornwall took place on Friday, 16th August, and the Cambrian Archæological Association, holding its meeting at Launceston, (having been invited to visit Cornwall by the former society), it was decided to join the excursion of the Cambrian Archæological Society to the Cheesewring. The members of the Royal Institution came to Liskeard and drove out first to Kilmar, the tor beyond the Cheesewring, and then met the excursion of the Cambrian Association at the Cheesewring Hotel for luncheon.

The Cheesewring and the prehistoric remains near it were explored, after a capital luncheon at the Cheesewring Hotel. Mr. Harris, superintendent of the Caradon Railway, added much to the interest of the visit by his explanations and local information. A visit was first made to what is known as the Rillaton Barrow—so named from the manor on which it is situated—in which a remarkable gold drinking cup was found in 1837. Mr. Iago produced an enlarged drawing of it. It is $3\frac{3}{4}$ inches in height, and the bullion value of it is £10. Mr. Harris stated that before the cup was found there was a curious legend current in the neighbourhood. Whenever hunters came round that way, the Arch Druid would receive them sitting in his chair, and would offer them drink out of a golden goblet; and if there were forty or fifty of them, they could all drink from the cup without emptying it. One day a party were hunting the wild boar in the Widdecombe Marsh, to the west of the Cheesewring, and one of their number took an oath, or laid a wager, that if the Druid was there then, he would drink the cup dry. They thereupon saw the locks of the priest floating in the air, and hastened up to him. The hunter drank of the cup until he could drink no more, and was so enraged at his inability to finish it that he dashed the wine in the face of the Druid, who immediately disappeared. In connection with this legend, it is curious that within a quarter of a mile of the traditional seat of the Druid this gold cup was found.

The Cheesewring itself was described in the guide-book specially prepared for the visit as having "the appearance of several separate cheese-shaped blocks of granite of gigantic size piled one on the top of the other, and in imminent danger of toppling over in consequence of the blocks at the bottom being of smaller diameter than those above." This, however, was found to be hardly the case now. The quarry beneath has been worked almost up to the ground on which the Cheesewring stands, and when they were blasting near it, the directors of the quarry thought it advisable to put a number of granite blocks to support the overhanging blocks of the Cheesewring. The stone circles known as "the Hurlers" were also visited, as well as the Longstone and Trethewy Cromlech; the members then returning to Liskeard.

Before leaving, Mr. Iago, at the request of Canon Moor, gave the Welsh Society a hearty invitation to visit Cornwall again at some future time, Bodmin being especially named as the next suitable centre.

Royal Institution of Cornwall.

ANNUAL GENERAL MEETING, 1895.

The Annual Meeting of the Royal Institution of Cornwall was held on Tuesday, November 12th, at the rooms of the Institution. The President, Mr. J. D. Enys, F.G.S., in the chair.

The Minutes of the last Meeting having been read and confirmed, Major Parkyn, F.G.S., Hon. Sec., read the following

REPORT OF THE COUNCIL.

In submitting the 77th Annual Report to the Members of the Royal Institution of Cornwall, the Council are gratified in being able to speak of the continued good work carried on by the Society, and the prospects indicative of more extensive operations and increased usefulness. By the accession of new members the losses occasioned by death and removal are more than made up. Nothing is perhaps more likely to conduce to the permanence of a Society such as ours, than the possession of valuable property, and we have in our museum and library a combination probably unsurpassed in any of the provincial towns.

Several valued members have been lost by death during the past year. Lord Swansea, better known to Cornish people as Sir Hussey Vivian, who formerly represented Truro in Parliament, died towards the close of last year. He was a very old member of the society, and was always ready to render it any service in his power. It may be interesting to state that the building in which we are now assembled is built on the site of a former residence of the Vivian family.

By the death of Mr. Wm. Bolitho, Junr., the society has lost a warm and generous hearted friend, whose presence was looked forward to at these annual gatherings with much pleasure, and he always made an effort to be present. He did much towards bringing about an annual combined meeting of the four learned societies of the county, and he took an especial interest in these meetings.

In the death of Mr. E. A. Wünsch the society has met with a great loss, for he was not only one of the most constant and efficient members, but a valued contributor to the journal. His genial presence was ever welcome, and the keen interest he took in the proceedings of the meetings was shown by the zeal with which he entered into the discussions.

By the death of Charles Cardale Babington, F.R.S., the society has lost one of its most distinguished honorary members, whose numerous and valuable writings have become text books for students of natural history. A few years since, when on a visit to Cornwall, he stopped at Truro; and spent some time in examining the collections in our rooms, with which he expressed himself highly pleased.

Mr. Chivell's death is also to be regretted, for he always showed a willingness to further the interests of the society.

The late Sir John Maclean, Kt., F.R.S.A., F.S.A., who died (aged 84 years) on the 5th of March last, had served the office of President of this society from 1891 to 1893.

He had previously been elected an Honorary member, and at the time of his death was a Vice-President. His loss is sincerely regretted.

His literary talents were widely known, and his geniality endeared him to those who were associated with him.

He was born in the parish of Blisland, near Bodmin, on the 17th of September, 1811, at Trehudreth Barton, the residence of his father, Mr. Robert Lean. Having traced his ancestry to the Macleans of Scotland he resumed that name (which had been shortened in Cornwall by the dropping of the prefix Mac.)

As Mr. Lean he was appointed, through the influence of the first Lord Vivian, to a position in the War Office, and after some years became keeper of the records of H.M. Ordnance in the Tower of London. He was also Deputy Chief Auditor of army accounts down to 1871, in which year a special Act of Parliament was passed pensioning him on the abolition of his office. He also at that time received the honour of Knighthood at the hands of the Queen at Osborne, on January 14th, 1871.

He resided for many years at Pallingswick Lodge, Hammersmith, London, and afterwards at Bicknor Court, Gloucestershire. Eventually he lived at Glasbury House, Clifton, where he died after having become one of the leading literati of Bristol and Gloucestershire, President of the Archæological Society of the district, and Editor of its Journal.

Throughout a long period of his life he devoted himself to writing on matters historical and antiquarian, with special reference to Cornwall.

The columns of the Cornish Bibliotheca and Collectanea, by Boase and Courtenay, contain long lists of his publications.

He wrote upon church matters in years long gone by, and also published a life of Sir Peter Carew, taken from the original manuscript in Lambeth Palace Library. This he illustrated with preface, introduction, and notes. His largest work was the Parochial and Family History of the Deanery of Trigg Minor, Cornwall, in 3 large volumes, in which he was assisted by the local investigations of Rev. W. Iago, who also furnished him with nearly all the illustrations of antiquities appearing in the book, either executed by autographic-transfer process, or drawn for the engraver upon the wood, as acknowledged throughout the work.

In 1874 Col. Vivian published the Visitation Pedigrees of Cornwall, and acknowledged in his preface the valuable co-operation he had received from Sir John Maclean in the numerous contributions signed J.M.

Sir John's life was not spent in seclusion. He was an ardent churchman and a strong conservative. He was in the habit of rising early and of donning a surplice in church before proceeding to his office in the morning. He wrote on Church Guilds and a variety of subjects, and took an interest in active work.

In his History of the Deanery of Trigg Minor (which Deanery has since been altered in direction and extent) he treated of 20 parishes. Afterwards finding that Otterham ought perhaps to have been included in his book, he wrote its history separately, and contributed it to our Society's Journal.

He and his brother, Col. Maclean, of New Zealand, married sisters—Blisland ladies, descended from the ancient family of Billing, long resident at Lank in Cornwall.* Sir John and Lady Maclean adopted their joint niece, Miss Blanche Maclean, through whom Lady Maclean has lately forwarded, in response to our request, an excellent portrait of our late President, which the society cannot fail to regard as a highly acceptable present.

By the death of Mr. Henry Sewell Stokes, of Bodmin and formerly of Truro, this society has lost a very distinguished member. Not only had he filled legal and municipal offices with the greatest credit, attaining to the chief positions connected with them, but his literary work was of a very high order. His poems relating to many persons and places in Cornwall—as well as those which are descriptive of other subjects—have become so familiar to us all that it is almost unnecessary to give their titles. "The Vale of Lanherne" was his principal poem, but his other writings were equally excellent. He took the greatest interest in the work of this society, with which he was connected for very many years, and presented to it a valuable collection of documents and manuscripts, formerly belonging to the late Dr. Taunton of Truro.

His amiability and upright conduct, caused him to be publicly honoured, and his memory is held in the greatest respect.

The Museum continues to be a source of great interest, attracting a large number of visitors, not only for purposes of curiosity but also for instruction. The number of students visiting the museum to obtain knowledge is continually increasing, and they are afforded every facility for prosecuting their studies. Numerous visits have been made by pupils from the elementary schools, and the Curator has explained the construction and action of the various meteorological instruments to the students from the training college.

The numbers admitted during the year, were :—

Admitted Free	2601
Members and friends ..	251
By Payment	361
	3213

* Trigg Minor, Vol. 1, p. 390.

In the Museum the work of renovating and re-labelling the specimens has been continued. The interiors of the whole of the cases have been cleaned, and several, in which the linings had become very unsightly, have been painted. It is proposed gradually to do away with the paper linings in the antiquarian room and have all the interiors painted, by which means the specimens will be shown to much greater advantage.

The thanks of the society are once more due to the many generous donors, from whom gifts have been received since the last annual meeting. Amongst these should be mentioned Mrs. Sharp, of Kensington Gardens, London, who has been a constant benefactor to the museum for a number of years, Her gift includes a number of curiosities from India and Barbadoes.

Mr. Osborne, recently of the Rio Tinto Mines, Spain, who has at various times given articles of great scientific and antiquarian interest, this year sends several old Roman vases, a tear bottle, and a Roman lamp, which he obtained from some of the graves in the old Roman workings in the Rio Tinto Mines.

A case containing the seals of Archdeacons Moore, Short, Sheepshanks, Phillpotts, and Hobhouse, as well as those of the Lepers' Hospital, St. Lawrence, Bodmin, and John Harris, Dean of St. Burian in 1717, presented by Miss Collins, at the request of her father, the late Mr. John Basset Collins of Bodmin, is especially worthy of mention.

Mr. T. V. Keam, a former inhabitant of Truro, who a short time since presented a number of articles of North American Indian manufacture, has given two specimens of a fine-grained red sandstone from Arizona, containing the impressions of some two-toed animal. These are of special value as they were obtained by Mr. Keam himself, after a great deal of trouble, from a stratum of sandstone underlying some 600 feet of green, white, and red sandstones and shales, which was previously supposed to be unfossiliferous. Professor Woodward considers they are of comparatively recent date, geologically, and Mr. Keam intends to have the neighbourhood examined by a practical geologist, so we may expect to receive some further information respecting them.

Mr. Thurstan C. Peter, by permission of Mr. Arthur Basset, the lord of the soil, has presented to the museum the first instalment of his "finds," from Castle Carn Brea in Illogan parish. It includes a considerable number of neolithic flints and stone implements, the scrapers and arrow-heads being of exceptionally delicate workmanship. Among the larger implements were some celts, one very neat specimen, much corroded by weather, being of gabbro. A bronze fibula, and a Roman Denarius of A.D. 70, were the only relics of later times, with the probable exception of a granite quern. The largest "find" presented to the museum was a complete cooking-hole from one of the Carn Brea inter-boulder dwellings.

Efforts are continually being made to complete the sets of volumes of the Transactions of the Societies with which we are in exchange, and during the past year success has attended these efforts. Since the last annual meeting valuable additions have been made to the library by the purchase of the latest editions of a large number of standard scientific works, thereby giving the members an opportunity of consulting the writings of the most eminent men of science of the present day. Our Society continues to be greatly indebted to our president, Mr. John D. Enys, for his continued gifts of valuable books. Professor Richard Pearce, (so well known as a former teacher in our mining school, and by his valuable gifts to the society since,) keeps his name green in our memories by transmitting to us, from time to time, papers of great interest which he has contributed to scientific societies in America. The government of the United States of America is continually enriching our library by the gifts of most costly and valuable publications; the American section of our library is therefore most complete. The library has been freely used by members and visitors, and advantage has been taken of its well-stored shelves by friends outside the county.

The growth of the library has continued in a remarkable degree which has necessitated the provision of extensive new shelf accommodation. The additions, indeed, have been of such nature as to render the old catalogue useless. The Council has, therefore, entered into arrangements for a new catalogue

which is now in course of preparation, and which, it is hoped, will be completed in the spring of next year. It might be added that Mr. Richard Pearce, F.G.S., already mentioned in this report, has sent a generous donation towards the expense of the new catalogue. A considerable sum has been spent in the course of the year in binding the transactions of the various societies with which we are in exchange.

Part 1 of vol. xii of the Journal has appeared since our last annual meeting. The Editor, Rev. W. Iago, B.A., contributes two papers, "Duloe Circular Enclosure," and "Inscribed Stones of Cornwall;" our President, Mr. J. D. Enys, F.G.S., "Amalgamation of Societies in New Zealand;" Capt. Josiah Thomas, "New Californian Stamps at Dolcoath Mine;" Mr. E. Kitto, F.R.Met.S., "Climate of West Cornwall;" Mr. J. H. Collins, F.G.S., "Origin and Development of Ore Deposits;" Mr. R. N. Worth, F.G.S., "Rude Stone Monuments of Cornwall;" Rev. Canon Rogers, "Recovery of a Lost Ring." It must be generally conceded that this collection of papers forms an excellent number of the Journal, and the Council feel that it fully sustains the reputation of the publication.

The Meteorological observations have been taken with the accustomed regularity, and reports furnished to the Registrar-General, the Sanitary Committee of the Cornwall County Council and the press. The generous gift of our President, of a Jordan sunshine recorder has enabled us to make the observations complete, and much interest has been evinced in this and the other instruments by visitors, to whom they have been exhibited and explained by the curator.

The Council are pleased to report that the technical classes held under the auspices of the Institution are in a flourishing condition, and that substantial work is being done in them is proved by the successes gained at the late examinations of the Science and Art Department, South Kensington. During the last session the classes were attended by 113 students, 53 of whom presented themselves for examination, with the following result:—2 passed 1st class, and 13 2nd class, in the advanced stage; 22 1st class, and 16 2nd class, in the elementary stage.

This bears very favourable comparison with the rest of the country.

During the present session 10 classes are being held and well attended, and the whole of the benches in the laboratory of the Institution are occupied by students in chemistry.

This report would be incomplete without including in it an allusion to the Presidential Chair, which has been brought into use since the last annual meeting. The most interesting portions of it were secured at a sale, which took place at the time of the demolition of a great part of the old S. Mary's Parish Church, these were generously presented to our society by Mr. J. C. Daubuz. The Rev. W. Iago was consulted as to the best means of ensuring the preservation of the relic and furnished a design for a handsome chair to be used by the Presidents of the Royal Institution of Cornwall.

Arrangements have been made whereby there shall be mutual interchange of privileges between our Society and the Devon and Exeter Institution. As the result of these arrangements should any of the members of the Royal Institution of Cornwall be on a visit to Exeter or the neighbourhood they will be able to use the rooms of the Exeter Institution, and will be entitled to enjoy all its privileges the same as the resident members, and this no doubt will be much appreciated. Of course the members of the Devon and Exeter Institution will be entitled to the same privileges when visiting this neighbourhood by making use of the rooms of our Society.

The President Mr. J. D. Enys, F.G.S., having to the great advantage of the Society, filled the office for two years, the Council have much pleasure in proposing as his successor,

THE RIGHT HON. LEONARD H. COURTNEY, M.P.

As Vice-Presidents for the ensuing year:—

Ven. Archdeacon Cornish, M.A. | Rev. W. Iago, B.A.
Rev. Canon Moor, M.A. | Edwin Dunkin, F.R.S., F.R.A.S.
J. D. Enys, F.G.S.

Treasurer:—Mr. A. P. Nix.

Secretaries:—Major Parkyn, F.G.S., & Rev. W. Iago, B.A.

Other Members of Council :—

Mr. W. E. Baily.
Mr. Howard Fox, F.G.S.
Mr. Hamilton James.
Mr. F. W. Michell, C.E.
Chancellor Paul, M.A.
Mr. Thurstan C. Peter.
Rev. A. R. Tomlinson, M.A.
Mr. Robert Tweedy.
Rev. D. G. Whitley.

The President said he desired to thank the members for electing him President two years ago, and he would congratulate the Society upon having secured so distinguished a Cornishman as the Right Hon. Leonard H. Courtney, M.P., as his successor in the chair. He was sure they were all pleased to learn that Mr. Courtney had accepted the office, as he would be an honour to the Society, and they might look forward with confidence to some able addresses which he would deliver from the chair. Having referred to the losses which the Society had sustained by deaths, he referred to the visit of the Cambrian Society this year. They, he said, visited the east and north of the county, and were everywhere received with the greatest cordiality and kindness. They were desirous of visiting the Bodmin district, and that, he hoped, they would do before long. The visit had thrown light on their Cornish antiquities, and they were able to be of mutual benefit one to another, the great object of that and kindred Societies. They must in examining their own antiquities do so in connection with the cognate antiquities of Wales and Brittany.

The following papers were then read :—

"The Archdeaconry Records at Bodmin, Cornwall," by Rev. W. Iago, B.A.

"Explorations on Carn Brea," by Mr. Thurstan C. Peter.

"The Functions of Colour and Smell of Fungi," by Mr. T. H. Davey.

"Reminiscences of Dr. L. H. Potts," by Mr. Hamilton James.

The Rev. W. Iago having called attention to the Henwood gold medal, which would be open for competition next year, referred to the movement being organised in Falmouth to erect a monument to the Heroes of the old Falmouth Packets. The Falmouth people had organised a fund for the purpose, and as Mr. Enys represented the county in the matter, he hoped the fund would not be confined to Falmouth.

The Rev. W. Iago said Mr. Baring-Gould had informed him that he had examined pottery recently discovered in some early dwellings, and had at last found what he had so long looked for in hut-circles, distinctive patterns almost identical with the adornments of the funereal urns. The designs were similar to the zig-zag and herring-bone patterns upon them. Mr. Iago also referred to the fact that Bishop Stubbs had discovered another Bishop of Cornwall,—Daniel, mentioned in an interesting letter written by St. Dunstan, Archbishop of Canterbury. He had made inquiries with regard to the difference between the list of Cornish Bishops which appeared some years ago in the R.I.C. Journal, and that now in the Diocesan Calendar, and he had come to the conclusion that the latter was the more correct. Mr. Iago expressed regret that it was the last occasion on which they would meet, at all events for a time, Mr. Enys as their president. If such a thing as re-election of presidents were allowed, he felt sure Mr. Enys would be re-elected. No man had ever sat in the chair who had done more for the society or made himself more agreeable or helpful.

The Rev. H. R. Jennings proposed a vote of thanks to the officers of the institution, and moved that the gentlemen named in the report constitute the Council for the ensuing year—Mr. T. L. Dorrington seconded, and it was carried.

Mr. Osborne proposed a vote of thanks to Mr. J. D. Enys. the retiring president.—Mr. John Bryant seconded, and it was was agreed to, unanimously.

The President, in acknowledging the compliment, expressed his thanks to all who had assisted him to carry out the duties. He had given his best attention to the work, and had, he hoped, been able to do a little in contributing towards the collection in the Museum. He had commenced a collection of Seals of the Boroughs of Cornwall, which he hoped would be continued. There would be some difficulty in recovering the seals of extinct boroughs; but he hoped nevertheless to be able to get even these. It had been a great pleasure to him to occupy the chair, as the first president who had taken his seat in the well-known Truro relic, presented to the Institution by Mr. Daubuz.

A vote of thanks to contributors of papers and to the donors

to the Museum and Library, proposed by the Mayor of Truro (Mr. E. Roberts), and seconded by Mr. W. Bullen, closed the proceedings.

On the motion of Mr. John Barrett, seconded by Mr. Blenkinsop, it was resolved that the Report be received, adopted, and printed.

PRESENTS TO THE MUSEUM.

Two pairs of Hindoo Shoes	Mrs. Sharp, London.
3 Indian Coins from Travancore	
Agate Marbles	
English Jubilee Coins	
Small Egyptian Gods from Karnac	
Berry from Mahogany Tree, Barbadoes	
Horse knicker Berries	
Pods of Calvary Clover	
Crab's Eye Vine Pods, Barbadoes	
Nutmegs with mace around them	
Ticket of admission to Paris Exhibition of 1889	
4 Roman Vases, a Tear Bottle, and a Roman Lamp from Roman Graves in Rio Tinto	Mr. James Osborne, F.G.S.
Roman Poll-pick	
Walking-stick made from wood impregnated with copper from old Roman workings, Rio Tlnto... ...	
Natural Crystals of Sulphate of Copper from Rio Tinto	
Sample of Mica from the Mysore Shales, Shimoog district, South India	Mr. Martin.
Lantern for holding Rushlights...	Mr. Michael.
Part of a Quern from a hedge in Towan Farm, St. Austell	Mr. F. G. Hammer.
Flint Implements, &c., from Carn Brea	Mr. T. C. Peter, by permission of Mr. Arthur Basset.
Part of Basaltic Column from near Tavistock	Mr. T. Collins, Redruth.
Water-colour Paintings, executed by Chinese	Rev. Canon J. H. Moore.
Framed Photograph of interior of Old Grammar School, Truro	Mr. W. Bullen.
Case of Seals of Archdeacons, &c., of Cornwall	Miss Collins, by desire of late Mr. J. Basset Collins.
Impression of Lostwithiel Borough Seal...	Col. C. B. Rashleigh.
Impression of Launceston Borough Seal	Mr. J. D. Enys, F.G.S.
Impressions of Fowey, Penzance, and Truro Borough Seals...	

Impression of Truro Borough Treasurer's Seal	Mr. A. P. Nix.
Specimen of Sprudel Stein from Ipplepen Marble quarries, Newton Abbot	Mr. W. G. Thorpe, F.S.A.
Specimen of Swimming Crab	Miss Paull, Bosvigo.
Specimen of Sargassum bacciferum	Mr. W. Bennett, Truro.
Emu's Egg	Mr. H. Meadows King.
Rushlights	Mr. R. G. Read.
Impressions of Two-toed Animals in Sandstone, from Arizona	Mr. T. V. Keam, Keam's Canon, Arizona.
Particulars of the noted Diamonds of the world... ...	Mr. J. T. Letcher.
Deed of Bodmin Borough, 1744...	Mr. J. D. Enys.
Portrait of Prof. John Couch Adams	Mr. G. Bown Millett, M.R.C.S.

GIFTS TO THE LIBRARY.

A suspected new mineral from Cripple Creek... ... ... Vein Structure in the Enterprise Mine ... . Recent History and Present Status of Chemistry... .. The Volcanic Rock of Alum Hill, Boulder County ... Determination of Bismuth in refined lead ... . Notes on precipitation of the precious metals from cyanide solutions	Colorado Scientific Society.
Common Trees of English Park and Wood, 3 vols. ... Compendium of Brett and Little's Electric Telegraph British Association Report, 1895 ... . Paris, Life of Sir Humphrey Davy ... ... Addresses to the Royal Society and Papers by Davies Gilbert, Esq.	Mr. J. D. Enys, F.G.S.
The Buller Papers...	Mrs. Pole-Carew.
"God is," "God is Love," "The Square of the Circle" The Typal use of the 22 letters of the Hebrew Alphabet A Final Effort on Physics	Mr. Edward Dingle, Tavistock.
Selected Fac-similies of National Manuscripts of Great Britain and Ireland	Mr. J. George, Truro.
Photograph of fragment of Urn found in Duloe Circle	Mr. E. H. W. Dunkin.
Ancient Map of Cornwall	Mr. Thos. Worth.
The Universe, or the infinitely great and infinitely little Darwin's Journal of a Voyage round the World	Mr. C. Seargeant.
List of Plans of abandoned Mines ... ... Report of Mines	Dr. C. Le Neve Foster.

Greenwich Observations	Lords Commissioners of the Admiralty.
Cape Catalogue	
Cape Meridian Observations	
Picturesque Devonshire and Cornwall	Messrs. Netherton & Worth.
Borough of Southport Meteorological Observations ...	Mr. Jos. Baxendell.
Redruth Parish Registers	Mr. T. C. Peter.
Journal of Central Australian Exploring Expedition ...	South Australian Branch of Royal Geographical Society of Australasia.
,, Elder Scientific ,, ,, ...	
Maps accompanying Journal	
Proceedings Royal Geographical Society of Australasia	
Handbook of instructions for the guidance of officers of the Elder Scientific Exploring Expedition	
The Nullabor Plains	Mr. W. H. Teitkins, F.R.G.S.
Portrait of Sir John Maclean	Lady Maclean.
Biology of Spœricum Cornecum	Mr. H. Crowther.
Illustrations of Cornish Fossils...	Mr. J. H. Collins.
Copy of Translation of Penzance Borough Charter ...	Mrs. Wade.
Occurrence of Tellurium in oxidised form with gold ...	Dr. Rich. Pearce.
Guide to Edible Cornish Fishes...	Mr. E. W. Rashleigh.
Mémoires du Comité Géologique, St. Petersbourg ...	The Russian Government.
Bulletins ,, ,, ,, ...	
,, ,, ,, ,, supplements	
Publications of the Geological Survey of U.S.A.... ...	The Government of the United States of of America.
Annalen des K. K. Naturhistorischen Hofmuseums ...	The Austrian Government.
Papers read before the Devonshire Association	Mr. R. N. Worth.

BOOKS PURCHASED.

British Petrography—(Teall).
Geology, 2 vols.—(Prestwich).
Manual of Palæontology, 2 vols.—(Nicholson & Lydekker).
Annals of British Geology, 3 vols.—(Blake).
Darwinism—(Wallace).
Report of Scientific Results of Voyage of Challenger.
Story of the Heavens—(Ball).
Treatise on Chemistry, 3 vols.—(Roscoe & Schorlemmer).
Fragments of Science, 2 vols.—(Tyndall).
Study of Sociology, 2 vols.—(Spencer).
Manual of Geology—(Phillips).

Great Ice Age of North America—(Wright).
Symons's British Rainfall.
Ancient Holy Wells of Cornwall—(Couch).
Atlas and Gazetter.
Nature.
Zoologist.
Knowledge.
Directory of Truro.
Monograph of Palæontographical Society.
,, ,, Ray Society.

EXCHANGES WITH OTHER SOCIETIES.

Academy of Natural Sciences of Philadelphia	Philadelphia.
Anthropological Institute of Great Britain and Ireland	London.
Bath Natural History and Antiquarian Field Club ...	Bath.
Belfast Naturalists' Field Club...	Belfast.
Berwickshire Naturalists' Club...	Cockburnspath.
Birmingham Natural History and Philosophical Society	Birmingham.
Boston Society of Natural History	Boston, U.S.A.
Bristol and Gloucester Archæological Society	Gloucester.
Bristol Naturalists' Society	Bristol.
British and American Archæological Society of Rome...	Rome.
Cambrian Archæological Society	London.
Canadian Institute	Toronto.
Colonial Museum of New Zealand	Wellington, New Zealand.
Colorado Scientific Society	Denver, Colorado, U.S.A.
Cumberland and Westmoreland Association for the Advancement of Literature and Science	Carlisle.
Geological Survey of New South Wales	Department of Mines Sydney,
Der K. Leop-Carol Deutschen Academie du Naturforscher	Halle.
Devonshire Association	Tiverton.
Eastbourne Natural History Society	Eastbourne.
Elisha Mitchell Scientific Society	Chapel Hill, U.S.A.
Essex Field Club	Buckhurst Hill.
Geologists' Association	London.
Geological Society of Edinburgh	Edinburgh.
Geological Society of Glasgow	Glasgow.
Geological Society of London	London.
Greenwich Observations	Greenwich.
Liverpool Literary and Philosophical Society	Liverpool.

Liverpool Engineering Society	Liverpool.
Liverpool Naturalists' Field Club	Liverpool.
Liverpool Polytechnic Society	Liverpool.
London and Middlesex Archæological Society	London.
Manchester Geological Society	Manchester.
Meriden Scientific Society	Meriden, Conn. U.S.A.
Mining Association and Institute of Cornwall	Camborne.
Mineralogical Society of Great Britain	Cambridge.
Missouri Botanical Gardens	Missouri, U.S.A.
Natural History Society of Glasgow	Glasgow.
New York Academy of Sciences	New York.
North of England Institute of Mining and Mechanical Engineers	Newcastle-upon-Tyne.
Nova Scotian Institute of Natural Science	Halifax, Novia Scotia.
Penzance Natural History and Antiquarian Society ...	Penzance.
Philosophical Society of Glasgow	Glasgow.
Plymouth Institution	Plymouth.
Powys-land Club	Welshpool.
Quekett Microscopical Club	London.
Rochester Academy of Science	Rochester, New York, U.S.A.
Royal Astronomical Society	London.
Royal Cornwall Polytechnic Society...	Falmouth.
Royal Dublin Society	Dublin.
Royal Geographical Society of Australia	Adelaide.
Royal Geological Society of Cornwall	Penzance.
Royal Geological Society of Ireland...	Dublin.
Royal Society of Antiquaries of Ireland	Dublin.
Royal Institution of Great Britain	London.
Royal Irish Academy	Dublin.
Royal Physical Society of Edinburgh	Edinburgh.
Royal Society of Edinburgh	Edinburgh.
Seismological Society of Japan	Yokohama.
Smithsonian Institntion	Washington.
Society of Antiquaries, London	London.
Society of Arts	London.
Société Mineralogique de France	Paris.
Somersetshire Archæological & Natural History Society	Taunton.
Sussex Archælogical Society	Lewes.
Wagner Free Institute of Science	Philadelphia.
Y Cymmrodorion Society	London.
Yorkshire Geological and Polytechnic Society	Halifax.
Zoological Society of London	London.

Dr Mr. A. P. Nix, Hon. Treas., in account with the Royal Institution of Cornwall. Cr.

		£	s.	d.
1894.				
July 31st.	To Balance...	75	17	11
1895.				
July 31st.	,, Interest on Deposit Notes	30	9	0
	,, H.R.H. Prince of Wales	20	0	0
	,, Subscriptions	134	4	0
	,, Visitors' Fees	9	0	6
	,, Sale of Journals...	12	6	6
	,, J. D. Enys, Chair Fund	5	0	0
	,, Sundry Receipts...	3	10	0
	,, Sale of Journals	2	0	0
		£292	7	11

		£	s.	d.
1895.				
July 31st	By Curator	75	0	0
	,, Fire Insurance	2	14	0
	,, Taxes	1	12	2
	,, Printing: Books, &c.	25	7	2
	,, ,, Journal	41	14	1
	,, Magazines, &c.	4	4	6
	,, Renewals and Repairs	32	0	2
	,, Museum Expenses	11	16	6
	,, Fuel, Gas, and Water	4	13	5
	,, Caretaker	5	0	0
	,, President's Chair	19	16	4
	,, Sundries	9	10	3
	,, Excursion	14	4	9
	Balance	44	14	7
		£292	7	11

Summary of Meteorological Observations at Truro, in Lat. 50° 17′ N., Long. 5° 4′ W., for the year 1895, *from Registers kept at the Royal Institution of Cornwall.*

TABLE No. I.

1895.	MONTHLY MEANS OF THE BAROMETER. Cistern 43 feet above mean sea level.																	
Month.	Mean pressure corrected to 32 deg. Fahr. at sea level.			Mean of monthly means.	Mean correction for diurnal range.	True mean of monthly means.	Mean force of vapour.	Mean pressure of dry air.	Corrected absolute maximum observed.	Day.	Corrected absolute minimum observed.	Day.	Extreme range for the month.	Mean diurnal range.	Greatest range from 9 a.m. to 9 p.m.	Day.	Greatest range in any 24 consecutive hours.	Between which days it occurred.
	9 a.m.	3 p.m.	9 p.m.															
	ins.	ins.	ins.	ins.	in.	ins.	in.	ins.	ins.		ins.		ins.	in.	in.		in.	
January	29·716	29·705	29·715	29·712	·004	29·708	·182	29·530	30·441	30	28·741	15	1·700	·134	·61	3	·64	11 & 12
February	30·023	30·005	30·005	30·011	·003	30·008	·145	29·866	30·401	17	29·354	10	1·047	·074	·23	9	·48	9 & 10
March ...	29·766	29·759	29·772	29·765	·007	29·758	·244	29·521	30·403	15	29·010	28	1·393	·100	·31	24	·57	23 & 24
April ...	29·897	29·877	29·893	29·889	·004	29·885	·263	29·626	30·423	12	29·308	25	1·115	·092	·29	6	·63	5 & 6
May	30·090	30·077	30·086	30·084	·003	30·081	·288	29·796	30·601	2	29·650	31	·951	·064	·27	1	·43	1 & 2
June	30·072	30·068	30·378	30·072	·001	30·071	·354	29·718	30·453	23	29·593	30	·860	·060	·24	2	·33	19 & 20
July	29·893	29·910	29·905	29·902	·002	29·900	·380	29·522	30·293	5	29·349	20	·944	·077	·30	2	·60	1 & 2
August ...	29·909	29·903	29·916	29·909	·004	29·905	·407	29·502	30·301	25	29·419	3	·882	·087	·23	1	·36	5 & 6
September	30·114	30·114	30·133	30·120	·004	30·116	·427	29·683	30·551	20	29·778	30	·773	·079	·48	5	·54	5 & 6
October	29·857	29·852	29·864	29·857	·006	29·851	·276	29·581	30·411	17	29·135	8	1·276	·093	·32	7	·61	7 & 8
November	29·819	29·795	29·826	29·813	·004	29·809	·309	29·504	30·303	17	29·090	10	1·313	·155	·51	16	·74	9 & 10
December	29·803	29·776	29·797	29·792	·003	29·789	·253	29·539	30·276	27	29·100	16	1·176	·116	·29	12	·60	11 & 12
Means ...	29·913	29·903	29·932	29·910	·004	29·906	·294	29·615	30·404		29·210		1·119	·094	·34		·54	

REMARKS.—The Barometer used is a Standard, made by Barrow, and compared with the Standard Barometer at the Royal Observatory, Greenwich, by Mr. Glashier. The corrections for Index Error (+0·008), Capillarity (+0·103), height above sea (43 feet), and temperature, have been applied.

TABLE No. 2.

1895.	MONTHLY MEANS OF THE THERMOMETER																								
	9 a.m.		3 p.m.		9 p.m.		MASON'S HYGROMETER.									SELF REGISTERING.						ABSOLUTE.				
Month.	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.	Mean of Dry Bulb.	Mean correction for diurnal range.	True mean of Dry Bulb.	Mean of Wet Bulb.	Mean correction for diurnal range.	Mean temp. of evaporation.	Wet Therm. below dry.	Mean dew point.	Dew point below Dry Therm.	Mean of all the Maxima.	Mean of all the Minima.	Approximate mean temp.	Correction for the month.	Adopted mean temp.	Daily mean range.	Maximum.	Day.	Minimum.	Day.	Range.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					
January	36·9	35·0	40·2	37·7	36·6	35·2	37·9	0·4	37·5	35·9	0·3	35·6	1·9	32·2	5·3	43·3	34·0	38·6	0·1	38·5	12·7	53	18	16	29	37
February	34·1	31·4	36·9	33·1	33·7	31·3	34·9	0.7	34·2	31·9	0·5	31·4	2·8	26·8	7·4	39·7	28·1	33·9	0·1	33·8	11·6	55	28	19	12	36
March ...	45·1	42·7	48·7	44·6	42·7	40·8	45·5	1·0	44·5	42·7	0·6	42·1	2·4	39·6	4·9	52·2	38·0	45·1	0·2	44·9	14·2	66	22	28	11	38
April ...	49 5	46·2	52·3	47·5	47·3	45·5	49·7	1·6	48·1	46·4	1·3	45·1	3·0	41·7	7·4	55·8	42·3	49·1	0·1	49·0	13·5	61	17	30	1	31
May	57·6	51·5	60·5	52·9	51·5	48·8	56·5	2·3	54·2	51·0	1·4	49·6	4·6	44·1	10·1	65·6	43·2	54·4	0·8	53·6	22·3	75	29	32	3	43
June	64·2	56·6	65·5	57·5	57·8	54·5	62·5	2·9	59·6	56·2	1·7	54·5	5·1	49·5	10·1	70·3	50·1	60·2	0·3	59·9	20·1	82	24	36	17	46
July	63·0	57·2	64·2	58·0	58·9	56·1	62·0	2·1	59·9	57·1	1·2	55·9	4·0	51·4	8·5	67·3	54·5	60·9	0·3	60·6	12·7	77	8	45	6	32
August ...	62·3	58·1	64·5	58·8	59·0	56·5	61·9	2·0	59·9	57·8	1·2	56·6	3·3	53·3	6·6	67·4	54·5	60·9	0·3	60·6	12·9	75	18	40	25	35
September	64·5	59·7	67·9	61·7	58·8	56·4	63·7	1·7	62·0	59·2	0·9	58·3	3·7	54·6	7·4	72·2	50·6	61·4	0·2	61·2	11·7	83	27	38	14	45
October	50·8	47·8	53·1	48·9	47·7	45·8	5·05	0·8	49·7	47·5	0·6	46·9	2·8	42·8	6·9	56·2	42·7	49·5	0·4	49·1	13·4	72	1	28	24	44
November	50·6	48·8	52·4	50·0	48·8	46·9	5·06	0·6	50·0	48·5	0·5	48·0	2.0	45·9	4·1	55·0	42·8	48·9	0·1	48·8	12·1	61	16	28	18	33
December	45·6	44·2	47·4	45·3	45·2	43·3	46·0	0·2	45·8	44·2	0·3	43·9	1·9	40·7	5·1	49·0	40·1	44·5	0·2	44·3	8·9	56	31	24	21	32
Means ...	52·0	48·2	54·4	49·6	49·0	46·7	51·8	1·4	50·4	48·2	0·9	47·3	3·1	43·5	6·9	57·8	43·4	50·6	0·3	50·3	13·8	68		30		37

The Thermometers are placed on the leaded roof of the Royal Institution in a wooden shed, through which the air passes freely. The Standard Wet and Dry Bulbs are by Negretti and Zambra, and have been corrected by Mr Glaisher.

TABLE No. 3.

1895.	WINDS.																											
Month.	E.			S.E.			S.			S.W.			W.			N.W.			N.			N.E.			AVERAGE FORCE.			
	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	Mean.
January	0	1	0	4	4	2	2	4	1	1	0	1	0	0	0	6	6	6	3	8	3	4	5	5	0·9	1·1	0·8	0·9
February	12	15	11	3	2	3	0	0	0	0	0	0	0	1	1	0	1	2	1	2	1	9	7	4	1·3	1·2	1·0	1·2
March ...	0	0	0	2	3	0	2	4	1	6	6	10	1	2	4	10	10	9	2	6	2	1	0	0	1·3	1·3	1·0	1·2
April ...	2	4	3	2	4	2	3	0	1	5	10	8	1	1	1	5	4	5	3	6	3	4	0	2	1·2	1·3	0·9	1·1
May ...	3	3	0	8	7	2	2	2	2	0	0	0	0	0	0	8	8	7	4	9	5	2	2	0	1·1	1·1	0·6	0·9
June	1	0	0	7	6	1	0	1	0	5	4	4	1	1	1	9	10	5	2	3	4	3	3	1	1·0	1·1	0·5	0·9
July	0	0	0	3	1	2	1	3	0	9	8	9	3	3	3	11	10	8	3	4	2	1	1	0	1·3	1·2	0·8	1·1
August ...	1	0	1	4	6	1	5	2	2	11	9	8	6	5	4	3	4	4	0	0	0	0	0	1	1·1	1·1	0·8	1·0
September	6	7	1	10	10	1	1	3	1	3	2	0	3	2	1	1	2	4	0	1	0	1	0	3	0·9	1·3	0·3	0·7
October ...	2	4	4	5	2	2	0	1	0	4	4	3	3	2	6	5	14	9	3	0	1	2	3	2	1·0	1·1	0·9	1·0
November	0	2	1	4	6	7	4	1	0	11	9	9	1	5	2	1	2	3	1	0	0	4	3	3	1·2	1·3	1·0	1·2
December	3	3	2	4	3	4	0	0	0	5	4	4	6	8	5	6	6	7	0	0	0	4	4	2	1·4	1·4	1·1	1·3
Total	30	39	23	56	54	27	20	21	8	60	56	56	25	30	28	65	77	69	22	39	21	35	28	23	13·7	14·5	9·7	12·5
Means ...	30·6			45·6			16·3			57·3			27·6			70·3			27·3			28·6			1·1	1·2	0·8	1·0

The force of the Wind is estimated on a scale from 0 to 6, from *calm* to violent *storm*.

TABLE 4.

1895.	WEATHER.																		
Month.	AVERAGE CLOUDINESS.				RAINFALL.				Mean weight of vapour in a cubic foot of air.	Mean additional weight required for saturation of the air.	Mean humidity of atmosphere.	Mean elastic force of vapour.	Meanweight in grains troy of a cubic foot of air.	Total hours of Bright Sunshine.	No of Days on which the sun shone.	Average Daily sunshine.	Dry.	Wet.	REMARKS.
					Rainfall in inches.		Greatest fall in 24 hours, Truro.												
	9 a.m.	3 p.m.	9 p.m.	Mean.	Truro.	No. of days in which rain fell.	Depth.	Date.											
					in.		in.		grs.	grs.		in	grs.						
January	5·1	5·2	4·6	5·0	6·47	26	1·18	12	2·1	0·5	83	·182	541·2	66·7	22	2·15	70	23	Fog, 5, 14, 18, 22. Snow 5. 10. 12, 25, 26, 27, 28, 31. Hail, 1, 2, 3, 5, 17, 25, 27, 28. Frost, 2, 6, 7, 8, 9, 10, 11. 14, 15. 18, 22, 23, 26, 27, 28, 29, 30. 31.
February	5·3	4·8	4·5	4·8	0·10	3	·02	24	1·8	0·4	82	·155	545·8	88·0	22	3·14	83	1	Fog, 23. Snow, 10. Frost, 1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26. Gale, 9, 10, 14. Aurora Borealis, 28.
March ...	5·3	4·1	4·0	4·5	2·86	16	·62	26	2·8	0·5	84	·244	533·3	166·0	28	5·35	82	11	Fog, 11, 21. Snow, 3. Frost, 5, 7, 11, 12, 13, 14. Lunar Rainbow, 2. Aurora Borealis, 22.
April	5·9	4·9	4·5	5·1	2·32	14	·78	22	3·0	0·8	79	·263	530·0	169·3	27	5·64	81	9	Hail, 1. Frost, 1, 13. Lunar halo, 7.
May	3·2	2·1	2·4	2·6	0·24	4	·15	19	3·3	1·4	69	·288	522·6	290·0	31	9·35	92	1	Frost, 3. Lightning 2, 8. Swifts arrived, 1.
June	2·8	3·6	2·4	2·9	1·25	9	·44	1	4·0	1·6	71	·354	517·2	296·6	30	9·88	82	8	Mist, 23.
July	4·9	4·9	5·0	4·9	2·92	14	·50	23	4·3	1·3	76	·380	517·0	177·6	27	5·72	79	14	Thunder, 19, 21.
August ...	5·7	4·4	3·5	4·5	2·26	17	·42	8	4·6	1·0	82	·407	516·8	185·0	30	5·96	82	11	Thunder, 4. Thunder and Lightning, 5,
September	3·7	2·7	1·9	2·8	0·19	4	·10	6	4·7	1·5	77	·427	513·7	208·5	28	6·95	89	1	Fog, 17, 23, 24, 25, 28. Lightning, 24. Thunder and Lightning, 7.
October...	5·2	5·0	4·4	4·9	6·69	22	1·16	8	3·1	0·9	79	·276	527·8	97·3	27	3·13	70	23	Fog, 24, 28, 30. Snow, 26. Hail, 25, 26, 27, 29, 30. Lightning, 26. Thunder, 29. Tnunder and lightning, 25.
November	5·4	5·7	4·5	5·2	6·37	24	1·13	10	3·5	0·6	86	·309	526·5	54·3	17	1·73	65	25	Fog, 3, 8. Frost, 18, 19. Lightning, 11. Gale and heavy rain, 10. Lunar rainbow, 30.
December	7·0	7·3	6·2	6·8	8·88	29	1·65	25	2·9	0·5	85	·253	532·2	31·8	16	1·02	54	39	Fog, 10, 29, 31, Hail. 6, 7 12, 18. Frost, 12, 17, 20, 21, 22. Lightning, 6, 18.
Means ...	4·9	4·5	3·9	4·5	40·55	182	·67		3·3	0·9	79	·294	527·0	152·6	305	5·00	77	13	

Cloudiness is estimated by dividing the sky into ten parts, and noting how many of these are obscured. The sunshine is taken by a Jordan's Photographic Sunshine Recorder, presented by the President J. D. Enys, Esq., F.G.S. The rain guage at Truro is placed on the flat roof of the Royal Institution at about 40 feet from the ground.

SOME REMARKS ON THE PELAGIC LIFE OCCURRING IN AND NEAR FALMOUTH HARBOUR, WITH ADDITIONS TO THE FAUNA OF THE DISTRICT FOR 1894.

By RUPERT VALLENTIN.

The year 1894 will long be remembered as one of the most unfavorable we have experienced for many years. The uniform low temperature of the sea during the spring and summer of that year, had an appreciable effect both on the quantity and variety of those forms of life which are usually to be obtained in and near Falmouth harbour. In spite, however, of these drawbacks many interesting forms were observed, and on several occasions animals new to the district were secured.

Perhaps the most striking feature during the past year was the absence of Aurelia aurata from this district. During every spring for the past five years, Ephyræ have always formed one of the most prominent larval forms in tow-net gatherings; and later, during calm summer evenings, the adult medusæ can be seen drifting almost motionless in the tide-ways. I have been unable to discover whether the absence of this species has been recorded elsewhere during the past year. At any rate, on the Essex coast during last August these Medusæ, according to Mr. H. C. Scorby,[1]* occurred in "countless thousands," and at Plymouth they seem to have been equally as abundant.

Noctiluca miliaris was also absent from tow-net gatherings during the whole year, although repeated efforts were made after easterly winds to capture them; and as a natural consequence the autumnal displays of phosphoresence were not observed as on previous years.

On the 5th April a single specimen of Rhizostoma pulmo was detected being carried up the main channel of the harbour by the flowing tide. After that date these Medusæ steadily increased in numbers, till during August and September they attracted the attention of even the most casual observer. In

*These numerals refer to Bibliographical list at end.

many of the sheltered corners, with which Falmouth harbour abounds, the common sea-weed, Chorda filum, flourishes during the summer months, the long filaments of which extend to the surface of the sea at high-water, but form large tangle-beds when the tide is out. Whenever these medusæ happened to drift within the reach of these filaments they became hopelessly entangled and after a time slowly decayed. During that time one had no difficulty in observing a dozen or more specimens in all stages of decay in places where these weeds abounded. The last specimen of Rhizostoma pulmo noticed in this district was on the 25th of October.

I will now pass on and make extracts from my note-books recording the various forms of interest collected in tow-net gatherings, and also gathered during low-water in various places in the district.

April. When I recommenced my observations on the 2nd, I found that the Gelatinous alga had already re-appeared, and by the 9th it was so very abundant that tow-netting was almost impossible. During this time the surface temperature of the sea remained very uniform, being the same as on previous years, namely 52°F.

Frequently during this month specimens of Campontia cruciformis were caught in the tow-net, but all my efforts to trace the further developmental stages of these larvæ were as unsuccessful as in former years. On the 26th, Evadne nordmanü and Centropages typicus were noticed in the surface-net gathering for the first time.

May. During this month the weather was very unsettled, and as the prevailing winds were from the north, the surface gatherings were neither very rich nor very varied. Again the surface temperature of the sea remained almost unchanged, being 52°F on the 2nd and 52°9 on the 29th.

On the 15th after a brief calm, large numbers of Hormiphora plumosa were detected in the sea along the outer edge of the Eastern breakwater, and in the gathering of some of these a very interesting medusa was secured. At the first glance I was inclined to imagine that this specimen was mature, but closer examination shewed that the gonads were not visible, and so the

individual was in an immature condition. Being unable to identify this specimen by any of the books in my possession, I wrote to my friend Mr. Garstang, who kindly replied as follows: "Your specimen is either a young Pelagia perla Slabber, or the Pelagia stage of our common Chrysaora, probably the latter. Our specimen is exactly like your drawing and is without any trace of gonads." Be this as it may, the medusa in this stage is rare, for we have only each secured a single specimen up to the present time. I may, in conclusion, mention that my specimen measures 14-m.m. in diameter.

By the 21st, the Gelatinous algæ had almost vanished, and so tow-netting could again be resumed.

Owing to the continuance of northerly winds surface-netting was abandoned, and the tow-net was worked three feet from the bottom in the main channel in the harbour with some success. In the gathering made that morning, Podon intermedius and Evadue nordmanü occurred in profusion. Attached to the umbrella of a species of Leptomedusa was a parasitic larval actinian, which serial sections clearly shewed to be identical with that figured and described by Prof. Haddon.[2] This specimen measured 3-m.m. in length. From that day till the 18th of the following month I secured on different occasions about twenty additional specimens, and in addition to examining the structure of some, by means of serial and optical sections, I made attempts to raise a few to the adult condition. These efforts were, however, unsuccessful,—for, being unable to obtain any Leptomedusæ after the end of June, I tried to feed them with raw meat, but could not induce the actinians to eat it, and so the specimens miserably perished without undergoing any material changes whilst I had them in my possession.

June. During the early part of the month, examples of Bolina hydatina occurred in abundance in the harbour; some of the specimens measuring upwards of 5·4 c.m. in length. On the 4th the only form of interest collected by the surface-net was a single Tira octona, Flemming. On the 7th a single Bouganvillia Britannica was noticed in the surface-net gathering made that morning. A dead specimen of the same species of Radiolarian —A. Elastica—which occurred in such profusion in this district

last year, was detected in the gathering made on the 13th. The next day while drifting in my canoe during a brief calm, I noticed Sarsia gemmifera in abundance beneath the surface of the calm sea. On the morning of the 18th, while dipping medusæ from the sea along the inner edge of the northern breakwater, I observed a single gonozoid of Cladonemma radiatum swimming in its peculiar manner beneath the surface. Hitherto this species has only been observed in small pools of water near the dry-docks when left uncovered by the tide; and to find a specimen swimming freely in the sea and in a locality where the water was between three and six fathoms in depth was interesting. Since then I have noticed several more specimens of the same species under similar circumstances in various places in the tidal docks. During the morning of the 21st a single living example of Saphenia mirabilis was captured in the tow-net. My friend, Mr. Cunningham,[3] captured large numbers of this species of Leptomedusa on the night of the 16th of July, 1891, in the neighbourhood of the Eddystone lighthouse. The same species has also been observed in the Firth of Forth by Dr. Shethill Wright in 1859. These specimen measured an inch in diameter; those secured by Mr. Cunningham "were not so large, the largest being only about 12-m.m." in diameter; and my single individual measured 14-m.m. across the umbrella. After having made a careful drawing of my specimen, I placed it in a jar of sea-water, through which a slow current of water continuously passed, with a view to study its further development; but I was unsuccessful, for after two days confinement it died, and since then I have not been fortunate enough to capture any more specimens. On the 25th the following forms were detected in the surface-net gathering made that morning:—Willsia stellata and Sarsia prolifera, occurring in profusion, and with them a few examples only of Bolina hydatina. Prof. Edward Forbes gathered considerable numbers of the first-named species in 1836 in Penzance Bay. Sarsia gemmifera was also noticed in shoals, but on the other hand S. tubulosa were only sparingly present. In the gathering made with the net, worked three feet from the bottom in the deep water in the main channel of the harbour on the same morning, a charming specimen of Saphenia dinema was discovered; it measured 5-m.m. in height and

3-m.m. in diameter. Mr. Garstang[4] records the capture of this species at Plymouth, and Prof. Forbes secured it on the coast of Cornwall during 1846. I think the species is rare, for I have not met with any more individuals before or since.

July. On the 1st, after some very unsettled weather, I started at 4 a.m. to make some surface-net gatherings in the bay. The first gathering was made across the rising tide from near the Black-rock to the Lighthouse. In this gathering Sarsia prolifera and Cyphonantes occurred in abundance, a fair number of the medusiform stage of Obelia gelatinosa were also present. Copepods were very sparingly present, but the larvæ of various species of decapod crustacea were fairly numerous. The next gathering was made one and a half miles south-east of the lighthouse at 5.30 a.m., with the following results: Centropages typicus, Clausia elongata, and Dias longiremus were fairly numerous, but only a few of the preceding forms were observed.

On the 19th, in the gathering made three feet from the bottom in the main channel in the harbour, Corycæus anglicus, Muggiœa atlantica, Evadne nordmanü, and Podon intermedius were noticed; a few dead specimens of Acantrometra elastica were also observed. On the 25th, examples of Corycæus anglicus and Podon intermedius were captured in the surface-net. The surface temperature of the sea on that morning was 60·9 F. On the 30th, large numbers of Corycæus anglicus covered with the frustules of a species of diatom, which I have been unable to identify, occurred in the bottom tow-net. Dr. Murray[5] records a similar instance in the surface-net gathering made near Hawaii, but does not mention to what species of copepod these diatoms were attached. I have, on several occasions during the winter months of previous years, detected examples of the same diatom attached to the various appendages of Clausia elongata; but in those cases the diatoms were hard to view, owing to their being so few in number and not covering the individual "like quills upon the fretful porcupine" as in the present instance.

August. On the 2nd, an example of Corycæus anglicus with ova attached was secured in the surface-net. On the 7th, Evadne nordmanü and Podon intermedius occurred in profusion in a surface-net gathering made three miles south-east of the

lighthouse, and several examples of both species were noticed to have the single large winter egg in the brood-pouch. Hitherto, these winter eggs have invariably appeared about the end of September, and at Plymouth Mr. Bles[6] records the capture of similar examples "about the middle of September." Possibly the early appearance of these winter eggs was an indication of the exceptionally severe weather we were to experience later. Both these species vanished from the tow-net after the 10th of October for the year. A few Monstrilla rigida, Oithonia spinifrons, and a single specimen of Muggiœa atlantica were found in the same gathering. On the 18th, Actinotrocha, the beautiful larvæ of Phoronis, were abundant in the surface-net, and they continued to form one of the most prominent objects in tow-net gatherings during the present and following months. In the same gathering quantities of a species of Peridinium were taken. From a careful examination of numerous specimens I am of opinion that these were P. tabulatum. This species along with Prorocentrum micans can be usually obtained in profusion during the early part of the autumn in the upper portions of Truro river and Penryn creek. Curiously enough, the cuirass of the latter species was often found in abundance in the stomach and intestine of oysters from both places, together with the remains of diatoms and other rubbish. The larvæ of various species of decapod crustacea were very abundant in surface-net gatherings during this month. On the 19th a surface-net gathering was made outside the harbour at 5 a.m. A single Pilidium was the only interesting form observed in that gathering The next day, an opportunity occurred for an expedition to the neighbourhood of the Black-head. The first gathering was made near the Manacle buoy, and in the bottom tow-net Muggiœa atlantica occurred in shoals. Strange as it may appear, in a surface-net gathering made about five miles south of the Black-head no forms of life could be detected. The net was towed immediately beneath the surface of the sea for twenty minutes and then hauled on board, and the contents of the tin at the extremity emptied into a large glass jar and examined. As I was unable to discover any rents in the silk net, I concluded that surface life in that locality was practically nil. Off Helford river, on my return, the rare larva of

Amphioxus lanceolatus was secured in seventeen fathoms of water. This single specimen measured 3-m.m. in length and was furnished with fourteen gill-slits. In the same gathering a very singular veliger larva of a gasteropod mollusk was detected. The velum was divided into four distinct ciliated lobes, and near the extremities of each were patches of red pigment, which may have served for visual purposes. In addition to these pigmented patches, the eyes were well defined at the base of each of the tentacles. A larva of a gasteropod mollusk almost identically like mine is figured by Professors Korschelt and Heider.[7] This illustration is copied from a paper by Mr. J. P. McMurrich,[8] which, however, I have not had the opportunity of consulting. Unfortunately, this is the only specimen of this larva I have been able to secure. During this time the larva of an interesting species of Terebellidæ, inhabiting a transparent tube, was observed very frequently in surface-net collections.

September. This month was exceptionally fine, but the pressure of other work prevented my devoting much time to the study of marine life, and so my remaining observations are very fragmentary. On the morning of the 11th, the surface temperature of the sea was 60·3 F, and on the 27th, it was 59·9 F. During this month the pluteus stage of various species of Echinoderms proved abundant. Copepods and other forms appeared to be more plentiful than in previous years in surface-net gathering, this perhaps being due to the high temperature of the sea during the month. Muggiœa atlantica continued to be fairly abundant till the end of the month.

October. On the 2nd, at 6·30 a.m., the surface temperature of the sea had fallen to 57·9 F. In the surface-net gathering made at that hour, a great increase was noticed in the specimens of Corycæus anglicus, the females in numerous instances having ova attached. On the 4th, a few examples of the infusorian Perdinium tabulatum were observed in the surface-net gathering made on that morning. On the 10th, the surface temperature of the sea was 58·9 F. In the surface-net, specimens of Sagitta were very numerous. The last surface-net gathering for the year was made on the 23rd. In this gathering Corycæus anglicus, Muggiœa atlantica, Sagitta, Cyphonantes,

Centropages typicus, and Calanus finmarchius were all fairly numerous. Amongst the rarer forms may be recorded one advanced larva of Actinotrocha, and a single specimen of Monstrilla rigida.

Protozoa. In the early part of May I filled a large collecting bottle with mud and water from Penryn creek, and on examining some of the sediment the next day with the microscope, I was pleased to detect some of the finest examples of the common Amœba I have ever seen.

Nemertines. Early in July a fisherman, whom I occasionally employ, brought me a specimen of Lineus marinus, which measured fourteen feet in length. This specimen had been found in a mass of Laminaria and other weeds which were growing on the buoy which supported his mooring chain. Hitherto I have only found this species underneath stones which were exposed at low water, and to find a specimen in such an unusual place and where the water was never less than twelve feet in depth, seemed to me exceptional and worth recording.

Annelids. In addition to finding numerous specimens of Phoronis attached to the shells of dead oysters, I found a very fine colony of these worms, during July, occupying a small area of the vertical granite wall at the base of the Eastern breakwater. Myxicola steenstrupi was very abundant on a small patch of mud exposed at low-water spring-tides in front of my hut. On the mud flats at Helford this species is exceptionally abundant during the spring and summer of every year.

Polyzoa. Clusters of Bowerbankia imbricata were unusually abundant on the under surfaces of the beams of timber with which the eastern breakwater is built. Fine specimens of Bugula flabellata and Pedicellina were dredged, during July, in the main channel of the harbour.

Mollusca. During my shore hunting expeditions and dredging trips to various places in the district, I have been particularly struck by the absence of Nudibranchs during the year. Not more than six specimens of Æolis papillosa have been seen during this time; and the sides of the coal-hulks, which I have found in previous years such excellent collecting grounds, have been practically deserted by these mollusks. On

the 19th of June, quantities of Goniodoris nodosa, ranging from 2-4 m.m. in length, were dredged in the main channel of the harbour. On the 2nd of May, two large Aplysia, measuring 10 and 13 c.m. in length respectively, were secured with a landing net from a bed of Zostera ; and, on the same day, four specimens of Doris johnstonii were found by me while shore hunting. A few specimens of Aplysia were dredged, during June, in the main channel of the harbour, but these were small, the largest individual not measuring more than 2-c.m. in length.

Early in the spring, during the exceptional tides, large quantities of oysters were found attached to stones in various parts of the harbour; a clear indication that an exceptional heavy fall of "spat" had taken place during the previous year.

Pisces. On the 7th of May, on the under surface of a large flat stone exposed during low-water, a mass of ova deposited by Gobius niger was discovered. These ova were spread over a large area, measuring 16 by 12 c.m., the eggs being crowded together. Microscopical examination shewed that the embryos were in an advanced stage of development. Two adult fish of the same species were found in a small pool of water which had been covered by this stone, so perhaps these fish were guarding their eggs, after the fashion of the fifteen-spined stickleback.

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FURTHER KILLIGREW MSS. RELATING TO THE KILLIGREW PYRAMID OR MONUMENT AT FALMOUTH, AND OTHER MATTERS.

By HOWARD FOX, F.G.S.

In the third volume of your Journal, 1871 (pp. 269—282) Mr. R. N. Worth gave some particulars of the family of Killigrew, and the "principal portions" of a manuscript history written by Martin Killigrew, in 1738.

In 1884, Mr. Walter H. Tregellas published in his "Cornish Worthies," (vol. ii, pp. 115—195), a graphic account of the "diplomatists, warriors, courtiers, and poets," for whom the family of Killigrew were famous.

In the ninth volume of your Journal, 1887 (pp. 182—216) Mr. H. M. Jeffery, F.R.S., your then Vice-President, gave a series of valuable papers "On the Early Topography of Falmouth, Budock, Mylor, and the river Fal," illustrated by maps of different periods of time; a "Notice of Arwenack House;" "References to Glasney College;" "Tables showing the Pedigree of the three branches of the Killigrew Family," together with the completion of a manuscript of which Mr. Worth had given an abstract. Mr. Jeffrey also added a copy of a second manuscript, reprinted from the Western Daily Mercury of Nov. 21, 1878.

I have, through the courtesy of Mr. John D. Mitchell, resident agent of the Earl of Kimberley at Falmouth, been allowed to see a packet of letters written by Mr. Martin Killigrew in London during the years 1736—1738. These letters are, with one exception, addressed to Mr. Abraham Hall, at Falmouth, who succeeded Martin Killigrew in the stewardship of the Arwenack Estate in 1735.*

Mr. Worth's article gave one of these letters, viz.: the one dated '16 Aprill, 1837,' in full, and some characteristic sentences from a few of the other letters. The paper on which these

* Martin Killigrew was steward during the years 1700—1735.

letters are written is, in some cases, crumbling to pieces with age, and some of them are consequently imperfect. I have copied out such portions of their contents as appeared of sufficient interest, for publication in your Journal.

The letters are mostly written by Martin Killigrew's amanuenses, one of whom, his clerk Snoxell, left London "with his wife and boy servant" in March, 1737-8, on a vessel called the "Rice," for Falmouth, to become landlord of an Inn belonging to the estate. Martin Killigrew, in a letter to Mr. Hall, dated 14 March, 1737-8, thus refers to their departure.

"The Col° ("Col. West") and youngest daughter showed their Condescending Civility to Come a Sunday morning to wish 'em a good voyage, and invite 'em to Lodge at Arwenack" * * * "and in putting them to sit with you in Arwenack Seat at Church, you will find theire behaviour in Nothing to disgrace You, and Oblidging them beyond a feast, for that without ever hearing them Cant a word of Religion, you will finde 'em truley silently pious, and the Wife (as a rarity) to have no Will or inclination but her Husband's; a man in figure more like the Clerke of a parish then Innkeeper, but hath a foundation of Common Sence, wch I shall hope (by your assistance) will Carry him his business."

Martin Killigrew evidently revised the letters after they were written, as there are occasional corrections in the spelling, and frequent additions and postscripts in his own very small but clear handwriting.

The letters throw much light on various matters; for instance, Mr. Killigrew writes to Mr. Hall on Nov. 12, 1737:

"On Tuesday the 8th was agreeably Surprised with the Sight of Mr. Laroche, who from Mr. Elliott's ("Port Eliot") to Bristol, Cross a terrable country, and Staying with his Brother there two Days, made this Town (London) in 8 Days, wch looks more like flying than rideing, But he is a light Weight."

Mr. Killigrew records the "marryage" of his great niece Mary at Lainston (Hants) on the 14 July, 1737, to Mr. Merrill "an Auckward Country Squire at first Sight, yet upon Examination, Nothing to be Objected to his Person: But his Intulects are Charming, And in all respects, much to my Likeing, as I am

sure he will be to yours : University and Temple Education : You must Magnify his having Studyed the Law, to give your people an aufull impress^{n} of him."

In a letter written at this time, Martin Killigrew thus describes his own health :—

"As to my health, it is without Alteration, as good as Can be Suposed at 71. I cañot say my firmness at the Hour of Death will Exceed that of others in the Like Case; But at present, the thoughts of Leaveing this World, are farr from being Disagreeable to me, relishing nothing in it; and yet Affected with Disagreeable Insidents happening, So that when the time Comes of your hearing of my being released, your friends^{p} must make you rejoyce at it; Still with all my resignation I submitt to my Doctor and few friends Solicitation, In going to Plow every Day, to sup̃ort, a Wretched Life, that is, at 3 a Clock I go 3. miles to Kingsinton garden ; In Extent 3 Miles round, wch I Compass with the help of two restings, At an Amuseing Book ; A Progression of 9. Miles 6 in a Coach, and 3 on foot ; my Mornings I Dedicate to my friends and business, more then you can Suppose, of other peoples, I still cheerfully Undergo."

Perhaps the most interesting sentence in any of the letters occurs in one dated 25 August, 1737, as follows :

"I am Upon Leaving behind me Somthing Historically of the ffamily, the Memory of wch So Dear to me ; And before the Days Grow too Short, If you will give Your Selfe the trouble of takeing Pen, Inke, and Paper, with you, Some Sunday in the Afternoon to Budock Church, And take from the Monum^{ts} in the Chancell, the Necessary, You will Oblige me, And in return Expect a Duplicate of what I so make out, Composed of Incidents, which Otherwise, You must Live and Dye Ignorant Off."

On Feb. 11, 1737-8, he writes

"Tell Mrs. Hill that if her Son the Seaman be inclined to the Church of Roome, I will Use my interest for making him a Cardinal."

The letters, however, are mostly about matters connected with the Estate and accounts. He instructs Mr. Hall how to resist the encroachments of the Corporation ; when and how to

present to that body his (Martin Killigrew's) resignation of the Recordership of Falmouth, &c., &c. His instructions about the erection of the Killigrew Monument or "Pyramid," as he called it, are of peculiar interest.

On the 29 March, 1737, after giving minute instructions as to the foundations for the Pyramid, he writes—

"Without having my foolish Vanity Exposed, I may tell you, that in having this projection Carried into a just Execution, as it ought and I hope will be, I pretend to Insist that from the sheltered position and Durableness of the Stone (Manual Violence Excepted) the thing may stand a beauty to the Harbour without Limitation of time, and You and your Posterity have the honour of the Architecture."

On the 19th of the following month, April, he refers to the pyramid as "a darling thing I am never to See, but Shall have much pleasure thereby in liveing to ye being duly informed of its being raised and finished to perfection according to ye Modell and my directions."

Again on July 16 of the same he writes—

"I have already Charged you in the most Special mañer and must now repeat it, and Shall rely on your Care therein, that there be no Inscription in or about the Pyramyd or the whole Grove No, not so much as the Date of the Year: Hoping it may remain a beautifull embellishment to the Harbour, Long, Long, after my Desireing to be forgott, as if I had never been."

To complete the reference to the Pyramid, I must quote one from Mr. R. Thomas's "History and Description of the Town and Harbour of Falmouth," (J. Trathan, 1827, p. 109, note) as follows:

"The following concerning this pyramid appears in a manuscript written in 1736.

"This Pyramid as it is termed, but rather ought to be Monument for that I understand it was put up in honour of the Harbour; the original and still nursing Mother of the town, and by her alone supported from its infancy against the mighty. And likewise in honour of the great Sir Walter Raileigh, who sometime about the latter end of Queen Elizabeth's reign, by stress of weather, being put into the harbour and elegantly

entertained at Arwenack by the late Sir John Killigrew, the only house then standing upon the place; saying that the goodness of the Harbour was such, as to be defective in nothing, but the want of shelter for seafaring men; and put Sir John upon building to such purpose, as in which he and his posterity had the well known success."

The Pyramid or Killigrew Monument was originally built in the Grove adjoining Arwenack House, it was removed in 1836, to the top of the hill towards the Bay, and in 1871 was again taken down and erected in Arwenack Green, opposite Arwenack House, where it now stands.

Mr. Mitchell has kindly furnished me with the following account of its final removal, which is copied from a book now at the Manor office.

"A Document relating to the Killigrew Monument was written on parchment and sealed up in a bottle, and then built into the interior masonry of the said monument (about half way up) on its erection on Arwenack Green opposite the Manor office on the 19th July, 1871.

The Document read as follows:—

The Killigrew Monument.

"This Pyramid was originally built in the Grove near Arwenack, A.D. 1737—1738 from the design and at the cost of Mr. Martin Killigrew (son-in-law of the second and last Sir Peter Killigrew) who was sometime Recorder of Falmouth, and for several years Steward of the Arwenack Estate; His original name was Lister,—he was born in 1666 at Liston, Staffordshire, and whilst a Captain or Lieutenant at Pendennis Castle, under John Earl of Bath he became acquainted with the Killigrews, and upon his marriage, with Ann, Sir Peter's youngest daughter, he took the name of Killigrew; He survived all the members of the Arwenack family with the exception of his grand nieces, through the younger of whom, the present and first Earl of Kimberley, inherits the Arwenack Estate. The object in the erection of this Pyramid does not appear very clear unless—(which is not improbable) it was intended as a family monument of the Killigrews; Mr. Martin Killigrew in several letters to Mr. Abraham Hall, the then Steward at Arwenack, gave full

instructions in detail as to the manner in which the Pyramid was to be built, but said nothing of the object he had in its erection, except what is contained in the following extracts from his letters,—viz." [here follow the extracts already given from letters dated 29th March, 1737, 19th Aprill, 1737, 16th July, 1737.]

"The original cost of the Pyramid, including its erection under the superintendence of John Ragland, mason, was £455. 1s. 11½d., as appears by the following extract from "Mr. Ab^m Hall's account with Martin Killigrew Esqre from Ladyday 1738 to Lady Day 1739." "By the gross cost of the Pyramid erected in the Grove at Arwenack as per an account thereof sent said Mr. Killigrew, and by his Order here charged in one article £455. 1s. 11½d."

"The entire height of the Pyramid is 40 feet, and its base 14 feet square. It remained in the Grove from the date of its erection there until 1836, when "(during the Stewardship of Mr. John Pollard) it was removed for the purpose of making room for building the row of houses known as 'Grove Place;'—at the same time the Grove of fine Elm Trees which formed avenues radiating in all directions from the Pyramid, except towards the Harbour, was swept away.—The Pyramid was then erected under the superintendence of Mr. Josiah Devonshire, Builder, near the top of the hill towards the Bay, in which position, however, it never showed to advantage. Since its erection on that site the feature of the neighbourhood has entirely altered—the Cornwall Railway has been constructed close to its base. Public Docks have been formed only a short distance off, a carriage drive has been made around Pendennis Castle, and buildings have sprung up on every side. In carrying out the latter, the apparent height and importance of the Pyramid were considerably diminished—it became almost entirely hid, and obstructed the view from the windows of the houses in its immediate vicinity, more particularly those belonging to the house built by Capt. Saulez, R.N. (Lansdowne House) on the site of whose back garden it stood until June, 1871, when by order of the Right Honourable John First Earl of Kimberley, it was removed to Arwenack Green in front of the Old Manor House, where it

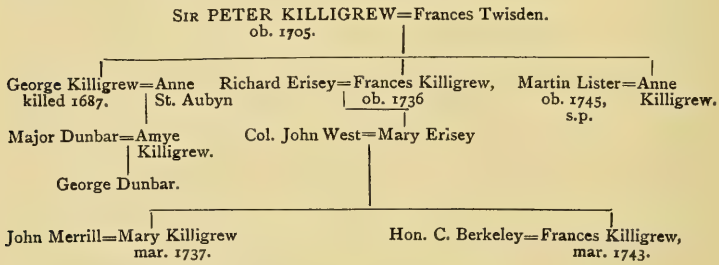
is now being erected by the said Mr. Josiah Devonshire, during the Stewardship of Messrs. Smith, Roberts, and Paul, Solicitors, of Truro.

JOHN J. SKINNER,
Resident Agent.
JOSIAH DEVONSHIRE,
Builder.
JOHN D. MITCHELL,
Manor Bailiff.

Dated Manor Office,
Arwenack, 19 July, 1871."

If ever this Pyramid is again taken down, a second bottle will be found containing the names of the workmen who erected it in Arwenack Green. These workmen did not see why they should be outdone by their masters, so they collected some foreign coins of small value and put them in a bottle with a paper, on which their own names were written. This second bottle was built into the Pyramid higher up than the first one, and no mention was made of it by the workmen until the Pyramid was completed.

The following extracts from Mr. Martin Killigrew's letters will be better understood by the reader, if he is familiar with that portion of the Killigrew pedigree given below.



LIST OF M.S. LETTERS.

1736, 7 Oct. Instructions how "to prevent y^e Incroachm^t of y^e Corporation.

1737, 29 March. Minute instructions as to the foundation, &c., of the Pyramid, "the thing may stand a

beauty to the Harbour without Limitation of time."

,, 16 April. Instructions as to reception of Col. West and party at Arwenack.

,, 19 April. Instructions touching the erection of the Pyramid, "a darling thing I am never to see," Architect's usual charge, &c.

,, 26 April. "Preferableness of Moore Stone to Portland Stone for ye Pyramid."

,, 3 May. This letter is missing.

,, 2 June. Re Col. West's visit to Arwenack, erection of Pyramid, &c.

,, 25 June. "I value not my being loaded with Curses."

,, 12 July. Surrender of Recordership to the King, should have been to the Corporation.

,, 16 July. "No Inscription" to be "in or about the Pyramid." "As to my health, &c." Mr. Merrill "An Auckward Country Squire to be Marryed ye 12th" to Mary Killigrew.

,, 19 July. "Y^e^ Marryage of your Mrs. and Landlady Mary to Mr Merrill" took place "on ye 14th Curr^t^." "No person has yet fixed on" for the other Daughter Frances.

,, 6 Aug. Touching the Pyramid. Dishonest practises of Jews with Bank Bills.

,, 25 Aug. "Can Do without the Use of a Banker." Touching a Mapp of the Estate "I am upon leaving behind me Something Historically of the ffamily." "Expect a Duplicate of what I so make out."

,, 30 Aug. Touching a successor to Mrs Bowne an outgoing tenant.

,, 1 Sept. The promising tenant "may bogle at the Distance." Re Merchants Keyage Bills, &c. Re Mr Hall's future Salary.

,, 6 Sept. Touching a Bodmin Man as tenant for Mrs Bowne's House, under a landlord who never refuses to do every thing for the Accommodation of a Reasonable Tenant,"

,, 30 Sep. "Custome" to be expected at Mrs. Bowne's House, "the Signe" of which to be "the Spread Eagle to the Vulgar" "yet in fact ye Killigrew Armes." Work on the Pyramid to be discontinued during the Winter. "Salt board Order for the shiping ffish at St. Maws." "Do not you bless yourselfe that You are not Sadled with a Wife."

,, 18 Oct. Touching Mr Laroche's visit to Falmouth. "Between you and I, Mr. Agent behaves like a right Raskell."

,, 22 Oct. Mr Laroche at Arwenack.

,, 3 Nov. "Signe of Pearces Taverne" to be "the King's Arms." "Preposterous" of Ragland to raise the scaffolding of the Pyramid "up to 50 foot high."

,, 12 Nov. Mr Laroche's journey from Port Eliot to London in 8 days "more like flying than rideing." Men still employed on Pyramid "to hold on from morning till night without going to dinner."

,, 19 Nov. Touching Mr Hall's Mother's "Indiscreet bableing." "Check the nonsense" of the workmen about the Pyramid.

,, 3 Dec. Re furnishing "Pearce's Taverne."

,, 24 Dec. Re "War wth Spain." "Christmas Coynage Tin, &c."

1737-8, 21 Jan. The word "Sterling" out of use. Has recommended Mr Hall to Mr Merrill as a Suitable Steward, Snoxell to succeed Mrs Bowne.

,, 11 Feb. "Tell Mrs Hill that if her Son the Seaman be inclined to the Church of Roome, I will Use

my interest for making him a Cardinal." "I am a Great Enemy to the showing of Teeth; ever lett yours be felt before they are seen."

,, 18 Feb. Touching the presenting to the Mayor and Corporation his Resignation of the Recordership of Falmouth. The middle of "ye next Month May" be "proper to proseed on ye pyramid."

,, 4 Mch. "The Noyse of Warr, wth Spain," "brave News for Falm^o"

,, 14 Mch. Snoxell and wife left the Thames for Falmouth, Col. West and daughter saw them off. They are to sit in the Arwenack Seat at Church. Snoxell to be Steward for Mr Laroche who "is the person pitched upon for ye Office as Recorder."

,, 21 Mch. Snoxells safe at "Cows in ye Ile of Wight." "Y^e Cornish Bill is thrown out by a majority of 10" in the House of Lords.

The first letter of the Series is in Martin Killigrew's own very small hand-writing. It appears to have been written to someone acting as Steward during Mr Hall's illness.

"Sir,

After acknowledging ye fav^r of yours of ye 28th past, I have only to trouble you with ye Enclosed. It was from my being pressed in point of time, that I instructed M^r
concerning this forfiture without Consulting you tho of wch you have since been Advised * * * * * * *

Mr Hall is down with ye Ague, But as he hath had it before I hope it will not hold him long.

If it be true what I hear by chance, that Cap^tt Culverden Comes in Maire of ffalm^o this year: It is to be observed that tho he be a quiet and no enterprising man, yet he happens to Inhabit a House from ye circumstances whereof an Eye ought to be had to his behaviour, or rather to that of others. The House hath been ever deemed to bē halfe in ye Corporation, and

ye other halfe in ye parish and so Taxed and Rated. But ye Street Dore uncontestedly without and beyond ye limitts of ye Corporation. If ye Sergents carrying the Maces into ye House, and out of it on occasions ye Corporation will from thence claim ye privelege of ye Street Dore, &c. In wch case, however improbable it may be (?) should happen ye attempt Mr Hall ought to be cautioned to have an Eye thereto, and if Necessary to place himselfe and ye other Constable with their Staves in ye Street Dore, as of their right and to prevent ye Incroachm^t. This I could not justify to myselfe ye being Silent on to you, but to Mr Hall shall be Silent. Still if you have not a Care, by a few such Steps as these you will soon git as bad a Name at ffalm^o as I have had, But insist that all ye cause given by me hath been from my having had a closer Eye to ye Estate, then in former times, and in consequence to ye Corporation, whose interest will be found diametrically opositt to ye Interest of ye Estate.

I am Sir,

Charles Street, St. James's, Your most humble Servt,

7 Oct.^o, 1736. MART. KILLIGREW."

"Mr. Ab^m Hall.

Since my Last of the 10th past, * * * *

Now again as to the Pyramid; fearing I shall tire you with my tedious Instructions in the case: But to proceed in such an affair as one ought requires previous thought and necessary provitions: Your objection to the Carrs breaking up the ground ought to be provided against: As thus: You provide old shipe planke of the thickest; You lay a platforme of it, of about Six foot wide, and square about the Bassis of the Pyramid, fastened down to two Sleepers, at each End of each Square Side; The Said Sleepers in the ground, so that the planke may rest flatt upon the ground, the Sleepers to bear no weight, only to keep the planks together: Upon wch platform the Carr will easily be got about the Pyramid, as you want to lay the Stones: from the working shed, to the S^d Platform, with the same sort of plank you make two gutters, not above one Inch or two wider then the thicknesst of the Wheels, with a Ledge on Each side to keep in

the Wheels, Near upon, but not quite so high as the Axel Tree: Each gutter to be fixed in its place, from being Carried aside, by Driving Stakes in to the ground of about a foot Long, and within two feet of Each other: W^{ch} method will greatly felicitate the motion of the Carr, with the greatest weight; you minding that you have Iron Boxes in the Wheels, as for your Sand Botts: you mentioned a Bassis of Cliff Stones, But how you can lay a plain even table of Such Stones, I cañot understand, and hold it uñecesary you first raming the ground over and over mighty well for the Bassis of the Pyramid, whereby you will see you have a good Solid Foundation: you gitting home from gillinvase some Loads of that Sand, the courser the better, then sift it, lay by the finest for after Use in the Morter as I shall Direct: the Courser of the Stones you cover with them the Levell'd foundation before you begin to Ram, then beat them well down into the ground, Ditto, a second and third Coat of the same wch will produce you a fine even Solid Table, whereon to lay your foundation of the Pyramid: you gitting a Large heavy Rammer made for ye purpose and buy two or three Several Scives, Courser and finer, for use of Lime as well as this Sand; so soon as you have the Model, and with Ragland you are Masters of putting it together, and taking it to peices, you will have those you Contract with for the Stones to Inspect it, And take the Several Numbers and Dimentions of the Stones, Up to the height of the Seat Inclusive, in Order to his providing them in the rough so much of the worke, And so on from time to time, you having the Carr and Sheds ready for Use, And Contrive matters so as the worke may not be, at a stand in any respect whatever. Without having my foolish Vanity Exposed, I may tell you, that in having this projection carried into a just Execution, as it onght and I hope will be, I pretend to Insist that from the sheltered position and Durableness of the Stone (Manual Violence Excepted) the thing may stand a beauty to the Harbour without Limitation of Time, and You and your Posterity have the honour of the Architecture; Should the Workmen know my Designe of painting it, they would Depend thereon, for Covering their Defects by puttee and paint wch I would by all means avoid. * * * * * *

One Word more on the Pyramid, It is necessary to Note that if you Suffer the Workmen or any other to make any the Least Variation in the Dimentions of the Stones from the Modell, my projection must thereby be entirely laid aside And the Modell of no longer Use, but the worke Carried on without Book, of wch you ought to have a Special regard in your Contract with the Stone Cutters. * * * * * *

St. James's, Yours,

29th March, 1737. MART. KILLIGREW."

Although the following letter, dated "16 Aprill, 1737," is given verbatim both by Mr. Worth and by Mr. Tregellas, it will save the reader the trouble of reference and make the letters complete to insert it here in the due order of its date. It is written by Martin Killigrew personally in his own very small hand writing.

"Mr Ab^m^ Hall.

Yours of ye 28th past fully to my Satisfaction came to hand in due time * * * * * * *

It is but by guess, I have to tell you, that you are not to expect to see ye Col^o^ till about ye End of ye first week in May, who bringing with him ye young gentleman in question must add considerably to ye flurry you will be put in, from his being a person of great Consideration as I hear, tho I know not so much as his Name, and as Litle any particular of his circumstances; But supose you must be advised by ye Col^o^ as to your providing accomodation for their Returne. Two Bed Chambers for ye gentlemen, you will put in ye best order you can: a Roome for ye serv^ts^ to Eat in; The best Cook your Town affords: Some choise good Hambs and a provision of fatt chicken; Wine you must Leave Mr James to provide: And if any fine green Tea be to be had, you must Secure Some of it as what ye Col^o^ is most nice in, and Drinking much off: Two of ye Largest Tea Potts you can borrow, He using them both at a time: Nice and knowing beyond ye common in providing a Table, So that your Mother will only have to receive his Orders Every Morning on that head: The Stable put in ye best order you can, provided with

Hay and Corne: If I do not greatly mistake, this flurry cañot continue above three weeks, for that their impatience will be greater to git back to Bath, then it is to see ffalm°.

You are Still in time to see that your Closett and Books be put in ye best Order you can, And nothing to be seen there belonging to other peoples business, But only to ye Estate: You will finde ye Col° quick of Comprehention and as ready at figures as can be suposed. At ye same time you observe to them ye Great Sums I have raised from ye Estate, you will do me ye justice to note ye improvem^ts I have made upon it: And that ye times are now dead, as thro out ye Kingdome, yet as they have been good, it may reasonably be hoped they will be so again; And that in the main you doubt not of giving a yearly Demonstration (by ye Rentall) of ye increase of ye Estate. When Diner is over you git back to your closet, and as you see it proper, you return with your pen in your Ear making the Col° Sensible he is wanted above, whereby he may git rid of impertinent Comp^y if such be with him. Nor can I see in respect to time, ye Col° can do more in business then from day to day, giving you orders which you will take in writing and at parting take his hand to them, you giving him a Duplicate.

You will be able to borrow Glasses Llinen Spoons with some handsome pieces of plate, in every thing to make ye best figure you can: and if you can, borrow a better Horse than your own, you ought to do it relying upon ye Col°'s generosity (His greatest fault) you will be nothing out of pocket upon this occasion. As from me, pray your Mother to trouble ye Col° with as Litle of her Conversation as her business will admit off: I thinke enough at a time to a man of your accute parts.

St. James, Yours,

16 Aprill, 1737. MART. KILLIGREW."

"Mr. Ab^m Hall.

Since my last of ye 16th I have yours of ye 11th and 14th both on ye same Sheet: * * * * * but would have you forbear making Oath to them ["accounts for 1736"]; as also to forbear ye remitting me any more Money till you have my Orders so to do, for that though I will not have any

money p^{d} before hand, you must keep your Self in Cash on my account; for ye enabling you readily at all times to pay (as you shall see reasonable) on account of this Pyramid: a darling thing I am never to See, but Shall have much pleasure thereby in liveing to ye being duly informed of its being raised and finished to perfection according to ye Modell and my directions.

I vave my projection of wheel carryage and leave it to you to slide up ye stones and Ragland shall agree and in like your laying a good Basis of Cliff Stones marks in ye Modell for the Cramps in some particulars was not meant as exclusive of ye rest, but only to show you ye manner, for that every Stone must be cramped to ye next, the two upper rowes next y^{e} (?) Capp, to be cramped with Copper, all ye rest with Iron these of Iron when exactly fitt and ready to be fixed into ye stones; you have a pott of hott pitch standing by and with a pair of pinchers for ye purpose dip the cramp in the pitch and lay it in its before the pitch is cold and when you have half a dozen or more cramps so fixed: then you Lead them; ye thickness of ye cramps, I allow to be done, as you shall be advised; the greatest architect, Builder or Undertaker here, never askes more than 5 p^{r} Ct upon ye Gross Cost: A price generally setled, as not to admit of a question, so that my friend Ragland is more than a litle out of the way in his demand; Mr. Laroch offers me his favorit undertaker from Lostwithiell who hath built him Mills and (?) Wears upon the River to great satisfaction; this man you may have at 5 p^{r} C^{t} and 7^{s} a week in respect of his being from home which I shall readily come into if I cannot have Ragland on my owne Terms; such as shall give me absolute Comand over his personal attendance; and laying his hand to all sorts of this work, so long as any worke shall be going on, in ye premises; as well ye giving out from ye Modell Dementions of ye stones, nombring them with Charcole from ye like on ye Modell; seeing ye stones wrote to true dementions and true joynts; conveying em up to ye worke, placeing 'em and cramping 'em, seeing ye labourers do there duty, and minding ye scaffolding that it be strong and proper, from whence you see he must have no business out of town nor attend his other affairs in town, but at hours my people

are not at work; his attending the Stone Cutters at Constantan by your directions or approbation, giving you in every Saturday a weekly acco^{t} inclusive of his own wages y^{e} labourers dues, for your paying them; * * * * * *

You are Silent as to your having planted the new Hedge with quick Setts. Toll from my W$^{m's}$ Tenants must be carryed to my account, and not Sumoned to Arwenack Court.

Yours,

St. James's, MART. KILLIGREW.

19th Aprill, 1737.

Snoxell writes me I shall have him again next ffryday and you must See I want him. M.K."

(Ditto to Ditto 26 Apl.)

* * * * * * * *

"I have a letter from advising ye preferableness of portland to Moore Stone for ye Pyramid Chiefly in respect that I must not expect close and good joynts from ye Latter, and in answer I write that I shall rely on your care and ye Workmen's skill in ye case and shall not go from ye Moore Stone.

Yours,

St. James's, MART. KILLIGREW."

26th Aprill, 1737.

"Mr. Ab^{m} Hall.

Since my last of the 3rd past I have yours of the 9th and 26th of the Same, and for the reason you give me for your silence the same Occasioned mine: But now the Grand Flurry is over, I shall hope to hear trom you as my personal interest may require, &c. &c. * * * * * *

Col^{o} being so communicative have lett you into what passed between them and as sure it must be Charming to Hip and the rest of the Cuñing inward Men, to see so frank and open a gentleman amongst them: Your Sister I was in no pain about but your Mothers loving to have her share of Discourse, made me apprehend for her, But from what the Col^{o} Writt me, and you now, I hope all pas't very well on that head: You are Silent how matters past at Mrs Walmsley's Christening.

* * * * * * * *

The present Duke of Bedford a prudent thoughtfull man possessed of a Large Estate in this Town, wch hath been Leased out, to the Sundry Tenants, ever since Henry the Eights time, Seeing his apparent Interest in the Case, hath now Lately made a Publick Declaration, that he will make no further grants in his S^{d} Estate, * * * * * * and whereof you will have a Provition of Morter ready for use; and it must be with this morter that you make your Liquid Lime of Such a Consistency (and not Less) as will admitt of its Searching and filling all Cavities, and wch filled to Day, will be found sunk to Morrow, and to be refill'd: In this as well as the rest of the worke, Raglands Eye and Judgm^{t} will be constantly wanting, and shall have a Dependance thereon: true joynts, close Laid, with little Lime, and well cramped is what I shall hope to hear from you upon: The taking away the two quarters of Trees next the Sea; I believe I shall come into: but that is a Matter of no haste.

St. James, Yours,
2nd June, 1737. MART. KILLIGREW."

(Ditto to Ditto 25 June 1737)

* * * * * * * *

"The Pyramid not requiring quicker Paym^{ts} shall Content me, And by wch Method you will be in Condition, to make the Col^{o} more or Less, some Remittances from time to time.

* * * * * * * *

I value not my being Loaded with Curses, As to be sure I must be from this, and the restriction upon Lands. But as I am not to know it, you forbear using my Name to Bluet.

You of course advise ye Col^{o} from time to time of your paying me for so you must word it in your acc^{t}.

St. James's, Yours,
25th June, 1737. MART. KILLIGREW."

"Upon Col^{o} West's and Daughters affairs Exclus^{ve} of my own. Mr Ab^{m} Hall.

The Survey Book being Still with me in Order to my parting with it, Compleat to the time of delivery (of wch you

may Expect to be advised) It will be Necessary that you Send me the Littoral Entrys from your Survey Book, of all Leases as well at Rack as ffine, grant'd Since I gave up the Estate.

* * * * * * * *

Ditto the Clause of the Town Charter, showing in Consideration of whome it was granted, as also therein the Kings Acknowledging Sr Peter to be Lord of ye Manour.

The Surrender of my Recordership being made to the King, wch should have been to the Corporation, I have Cancell'd it, and am Desired to forbear, such new Surrender, till next Spring: I suppose with a view of Mr. Merrill Succeeding me therein, of wch you will take your time to Accquaint the Mayor and Gentlemen of the Corporation.

* * * * * * * *

The Col^o^ will have a Copy of this my Letter And it is to him, that you must make answer to it. Being Desirous of no further trouble in such Matters then may be for the Necessary Service, of all parties wch may be relyed on so Long as my poor Capacitys Subsists': and in such Respects shall have much more Capable Successor in Mr Laroche which Intermediation may be more or Less of Use, in respect of its being the Interest of the Estate, that ye Tenants should be kept in the Notion, of the two Lords having but one Mind; wch is Enough on So nice a Subject to a man of your Acute Understanding.

St. James's, Yours,
July 12, 1737. MART. KILLIGREW."

"Mr Ab^m^ Hall.

Since my last of the 12th Curr^t^ I have yours of the 7th of Same Advising of your having Carried to my Cred^t^ £100:—as part of my annuity to Lady Day 1737 wch I Enter as the third Article of your Debt for the Curr^t^ year: You keep and Charge me in a Particular Acc^t^ for the Pyramid, as you lay out the money, but in our gen^ll^ acc you charge me with nothing thereof, till the Same is Compleat, And then in one Gross Sum̃, from Such Particular Acc^t^ whereby you see I mean nothing but

method; you say the Cramps are putting in, but for want of your Discribing the working the Stones for them, you give me pain for that if you cutt ye proper Cavaties for the Cramps, after the stones are Laid in Morter such working must Loosen the Joynts, never to be repair'd, a matter of the greatest consequence in the Building; Nor do you say, you pitch the Cramps at laying inn, to prevent rust; I leave it entirely to your Discreasion the advanceing Money to the Stone Cutters as you see proper, and approve of taking Lead from our Tenant Steel: I have already Charged you in the most Special Mañer and must now repeat it, and shall rely on your Care therein, that there be no Inscription in or about the Pyramid or the whole grove No, not so much as the Date of the Year: Hoping it may remain a beautifull imbellishm^{t} to the Harbour, Long, Long, after my Desireing to be forgott, as if I had never been. * * * * * * * * * As to my health, it is without Alteration, as good as Can be Suposed at 71, I cañot say my firmness at the Hour of Death, will exceed that of others in the Like Case, But at present, the thoughts of Leaving the World, are far from being Disagreeable to me, relishing nothing in it: and yet affected with Disagreeable Insidents happening, So that when the time Comes of your hearing of my being released, your friends^{p} must make you rejoyce at it; Still with all my resignation I submitt to my Doctor and few friends Solicitation, In going to plow every Day, to Suport, a Wretched Life, that is, at 3 a Clock, I go 3 Miles to Kingsinton Garden; In Extent 3 Miles round, wch I Compass with the help of two restings, At an amuseing Book; A progression of 9 Miles 6 in a Coach, and 3 on foot; my Mornings I Dedicate to my friends and business, more then you can Suppose, of other peoples, I still Chearfully undergo.

* * * * * *

Fryday the 8th both families went down to Lainston Mr Merrills House, there to be Marryed ye 12th as was proposed and I hope was performed accordingly, tho' as yet I have no advice of it: In proper time you will have Direction from the Col^{o} or me, for your writeing Mr Merrill, an Auckward Country Squire at first Sight, yet upon Examination, Nothing to be objected to his

person: But his Intulects are Charming, And in all respects, much to my Likeing, as I am sure he will be to yours: University and Temple Education: You must magnify his having studyed the Law, to give your people an auful impress^{n} of him.

St. James's, Yours,
16 July, 1737. MART. KILLIGREW."

(In M.K's own hand.)

"Mr Ab^{m} Hall.

Since my Last of ye 16th Curr^{t} I have ye two paquetts with your Acc^{ts} and considering your being in Cash, and to be further in Cash from my Annuity for answering ye Expence of ye pyramid &c. I should be glad you would (as soon as you can) Remitt Messrs Hoare and Arnold for my Acc^{t} The amount of ye Ballance of your Acc^{t} or there abouts; w^{eh} will be ye more agreeable at this time, In respect of my being got about £:200: in my Said Bankers Debt: occasioned by my meeting with a Security to my Liking Somthing above my present Ability.

By this post I have a Letter from ye Col^{o} of ye Marryage of your M^{rs} and Landlady Mary to Mr Merrill, being had and consumated on Thursday ye 14th curr^{t} whereby you have got a New Master, I hope for your joynt lives: He about 4 years younger then you are: The Col^{o} proposes ye staying at Lainston to ye 30th curr^{t} to call at my Dore ye 31st at night, and ye next Day for Bury: Next post I shall write him, when I will desire him to Instruct you by letter; How and in what mañer, you shall make your first address to Mr Merrill, As what I know ye Col^{o} will better like Should come from him then me. The Scripture is point blank against you, and indeed Mr Hall's temper and good Sence will be all but necessary to Suport your Station of Serving two Masters. Mrs Merrill ye mothers way of thinking and mine, seems to square better than hers and ye Col^{o} and I dare promis for her Son in your favour. The other Daughter to be marryed Sooner or Later before it be Long is probable, tho no person as yet fixed on: She is a young woman of admirable good sense, and from a particular circumstance, Under special obligation to me, and rely upon it I will have a

Close Eye to your Interest with such Husband: Not forgitting that ye Col^o hath a greater value for you then myselfe if juditiously speaking that can be.

St. James's, Yours,
19th July, 1737. MART. KILLIGREW."

"Mr Ab^m Hall.

Since my last of the 19th past * * * *

Ragland must trim a thin Board, just to the thickness of the Lime in the joynt between the Stones, then two stones put together, with that Board between, the Stone cutter workes his Cavity for the Cramp: then gitts a cramp to fitt it: And by that one Cramp he makes Cavities in all the rest of the Stones, of the same row all round, still the Board between as he cutts, then he gitts the whole number of Cramps, made exactly to that one, the Stone Cutter worked by: By wch means you have all your Cramps and Cavities ready at once, before you begin to Lay the Row, that is four square; I pay for the Squareing the Core or inward Stones, And shall be glad you will make me Sensible, that reasonable Close Eye is had thereto, for that otherwise, I shall pay for what I have Not, And moreover be at much more then Necessary Charge, in filling up with Liquid Lime.

We have Jews here, Imployd by the like Honest Men in Holand, to buy up at Discount, Bank Bills Clandestinly got, and send them over, perhaps to the Same person, who returns them back to the Defrauder here: In the name of his Correspond^t the Dutch Merch^t He Demands Paym^t at the Bank, where he is put to Answer, how he came by the Bill, who Answers, He had it from his Correspond^t in Hollond, and Produces his Letter Not knowing more of the Matter: The Stop Continues, And the Merch^t in Holand, is put to Answer upon his Oath, Who Swears that he took it in Trade, and Paid a Valuable Consid^tn for it, but cañot remember of whome; Now how trifleing So ever this Answer is, Yet it must be Accepted, And the Bill Paid, Not only in Holand, but also here amongst our Selves to wch the Bank readily comes into, for that otherwise, Bank Bills, could not have

a general Currency; from whence you See, how much more Care ought to be taken of Bank Bills then Bills of Exch^{e} or promissary Notes; the Meritts hath been often Determined both at Law and in Equity, the Possessers Oath Still Clearing the Matter.

* * * * * * * *

So much hath been said in your fav^{r} to Mr. Merrill, as well by the Col^{o} as me, and knowing the young Man and his Mother as I Do, I have not the Least apprehentions to y^{r} Prejudice. They will be in Town (as usual) some time in October for the Winter: you make ready a Rentall for 1737 for Mr. Merrill, But Directed for Mr. Laroche, who for a Day or two at most, you may Expect to see at Arwenack, about the end of ye next Month, I hearing the Col^{o} Invite him to lye at y^{r} House.

I must not Omitt to tell you, that the Col^{o} Expressed himselfe to me in very Strong Terms, the Years Rent being Compleatly Due at Lady Day, ought to be as Compleatly got in by Midsum^{r}: To which I Replied, that in the most florishing times, I neve could Do anything like it, And from thence, the more Doubt your performance, in these Distressed times; which Hint is sufficient, for y^{r} Writing the necessary on the Subject, when you see proper, Not forgitting to mention that as an Att^{r} it Lyes in your Way to be Vexatious to Tenants in Arrear, but as such Methods may be Detrimental to the Estate, Upon List of Arrears sent Up you shall hope for Special Orders from time to time in ye case.

St. James's, Yours,
6th Aug., 1737. MART: KILLIGREW."

"Mr. Ab^{m} Hall.

Since my last of the 6th Curr^{t} I have yours of the 13th of the same: And in Answer I shall begin on the Subject of my Bankers: you say you have their Voucher for the last Remittance, you made them on my acc^{t} so that you can Suffer Nothing by having had to Do with them, nor have I any Cause to Complain of them, as Bankers, but as they still grow great and Considerable in their Business; I take it in my head, that such

trifleing Customers as I am now become, must be treated with inward Contempt wch being so or not is not Matterial, Since I see by the help of Snoxell I can Do without the Use of a Banker: So that for the future, however remote the time may be, You will make me Remittances Directly to my Order.

* * * * * * * *

The Mapp you have rec^{d} I hope in good Condition, with the Copy here, Exact and more beautifully Done on Vellum, Cost Col^{o} West near five pounds; and at the Col$^{o's}$ Cost, You must Carefully gitt it Laid upon a Dry Slit Deal Back, well glewed together, tack't on with very Small Tacks, Framed in a black Moulding, with two good Rings for hanging it up, and to be taken Down with Safety wch I know must be the often practice: You Observe Breast Works thrown up at Gillanvase and the Swan Pool head, wch were Occationed from the Apprehentions of the Spanish Invation wch was attempted in 1588. As also this Mapp makes a great Complement to Penryn.

I observe what you Write of Mrs. Bowne's quitting at Lady Day * * * You will in the first place make the Agent Sensible, that the Lords of the Estate, will expect that the Post Office be not removed from the House, Unless he hath a mind to give them and himself trouble in the Case: In the next place I shall be in hopes you may Secure Mr. John Russel's Interest for my House; not Doubting but that you and Mr. James will Exert yourselves in the Matter all you Can, for the finding out a Promising Tenant; You from friendship, and he from his own Interest: By Advertisem^{t} and otherwise, You may be sure I will not be Idle here; But as yet, those I have Moved in the Matter treat the projection, in respect of Distance; as going to the West Indias: I have in Mrs Erisey, a Steady friend at Plymouth, where perhaps or at the Dock, things not being so florishing as they have been, Some Proper Person may be found: I Shall Write to her this Post About it, refferring to you in the Matter.

I am Upon Leaving behind me Somthing Historically of the ffamily, the Memory of wch is so Dear to me; And before the Days Grow too Short, If you will give your selfe the trouble of takeing Pen, Inke, and Paper, with you, Some Sunday in the

afternoon to Budock Church, And take from the Monum^{ts} in the Chancell, the Necessary, You will oblige me, And in return Expect a Duplicate of what I so make out, Composed of Incidents, which otherwise, you must Live and Dye Ignorant off.

St. James's, Yours,

25th Aug., 1737. MART. KILLIGREW.

Mr. Merrill writes me that his Wife dayly improves in her health upon Marryage: On or about ye 3^{d} of ye Next month, They propose ye being at Bath for six weeks."

(This P.S. is in M.K.'s hand-writing).

"Mr. Ab^{m} Hall.

Since my Last of the 25th Curr^{t} I am in hopes I have mett with a very proper Man and Wife to Succeed Mrs. Bowne: The Man from his Youth bread up as Botler in great ffamilies, where good Eating and Drinking was the Chief Business: His Wife a Cook in the like, and the same ffamily, where She ever Brewed, and is Mrs. of the Art, As well as Cookery, Both in the Prime of their Age and from Wales.

Now in Order to the proceeding with them, I must pray you will be at the trouble, of going over the House with Mr. James Carefully Viewing it in all its Circumstances, then retire to Mr. James's House, and whilst things are fresh in your Memories Set Down the Number of Rooms in it: Distinguishing how many Bedd Chambers, And those again, better and worse, for the providing Bedds accordingly: Stable roome for how many Horses, what Laught for Hay and Straw, with particulars of the Several Sorts of Household Goods may be Wanting. In all wch you will much oblige me, And I shall hope with the Soonest: And as Bear and Ale Cannot otherwise be had ready for Dra^{t} at their going into the House Mr. James in his sloop, may git it, and bring from Exeter, of both Sorts, brewed with Dochester Malt.

Mr. Laroche had lately a Letter from the Col^{o} wherein he mentions, that he Designed to Write me, so soon as he heard from you; Sure You are not backward in Writing.

As you are fully impowered to pay, And I being Contented with Such distant times, I shall expect that in your next letter after Michaelmas Day, you advise me of your having Credited Me in acc^{t} for the Second Hundred Pounds of my Annuity due at Ladyday last past.

St. James's, Yours,
30th Aug., 1737. MART: KILLIGREW."

"Mr. Ab^{m} Hall.

Since my last of 30th past, I have reason to Apprehend that the Promissing Tenant, and his Wife Especially, may bogle at the Distance, so that you can have no Dependence on them: Of wch I hold it proper you Should know with the Soonest that your Industry in the Case may not Slacken.

I should have been glad, that in Appraising the ffish Utensils, those belonging to the Markett might have come in your mind, pray let me know what they are, and their Value.

If you have not sent the Col^{o} the grosse of the Merchants Keyage Bills, I hold it time you Should do it; And Considering Mr. Merrills Interest Commences not till Midsummer, Should you not Oblige Such Merch^{ts} to pay home to that time: It will Save you trouble in Makeing out your Acc^{ts} for 1737. In Consid^{tn} of your having the trouble, of transacting with Distinct Interest in the Estate, I shall take upon me to propose, their each of them allowing you £20 salary.

St. James's, Yours,
1st Sept^{r}, 1737. MART: KILLIGREW."

"Mr. Ab^{m} Hall.

Since my last of the 1st Curr^{t} I have yours of the same Date by this Post; * * * * * * *

In Case Mr. Laroche Should send you over the Bodmin Man, to see the House, I pray You will be at the trouble of going with him, showing him, that you aske no More Rent, then Mrs. Bowne pays, who, now, would be glad to Stay at the Same

Rent, Under a Landlord, who never refuses to do every thing for the Accomadation of a Reasonable Tenant.

St. James's, Yours,
6th Sept^{r}, 1737. MART: KILLIGREW."

"Mr. Ab^{m} Hall.

Since my last of the 6th Curr^{t} I have yours of the 4th and 22^{d} of the Same and thank you for being so particular as to Mrs. Bownes House without wch I could have had no Notion of the Matter: * * * * * * * * *
The Town Custome cañot be Sup'osed Considerable to this House, I own, And as for the Passengers to and from Lysbon and Spain, My friend Wm Richards hath Undertaken, that none of them Shall ever Enter our House: Your Great Men the Like, As to all Masters of Ships, And the Agent Secured the Post House to M$^{rs.}$ Bowne: Punch and Drams, however Comon in every other House, If my Tenant attempts the least thing that Way, he shall directly be sadled with the penalty of the Law, besides other oppositions as opportunity offers innumerable;
* * * * * * * *

Desire Ragland by Guess of Eye, to give you the Dimensions of M$^{rs.}$ Bowne's Signe, and let me have it: If you have no objection, I intend, my Signe shall be the Spread Eagle, To the Vulgar, apparently such, and nothing Else, yet in fact y^{e} Killigrew Armes, wch will but only imbellish the Spread Eagle, and send for the Dimentions, Designing to have it done here, more Durable and to advantage, then with you nor can I enter into the Notion of your getting Bear and Ale Brew'd at Home for opening the House, But must desire Mr. James will think ot helping us out in this matter, by gitting it in the Spring from Exeter, and to be now speedily Brew'd: good as can be made at such price, as the Retailer may git something by it; Upon condition of his being the Tenants only Wine Merchant * *
* * * * * * * *

Cap^{tt} Steel seems well acquainted with my Weakside, and so I pray you will tell him: So long time as a year and a halfe, He had a price in £12 and refused and then you —nd Lays out

the best part of One Hundred Pounds upon the Tenem^{t} and now Condesends to Comply with such my Demand, when most Landlords, in like case, would near Double the ffine upon him: But tell him that the Raskally fellow, that he hath heard so much off, and never seen, or like to see, Will accept of his Twelve Pounds, so that you may forthwith Draw him a new Lease, * * * * * * * *

That your Stone Cutters should worke as most for their advantage, I have nothing to object, But besides the Dead Winter being no proper time to rear the Worke: The imploying so many attending Labourers in the very short, wett, darke Days, I cannot come into it: (?) ould have the pedestal now raised to its full height with the soonest: filled chocks with Liquid Lime, then covered with straw with some stones to keep it fast: the Scafolding Struck and laid up till Lady Day against which time (if they please) the Stone Cutters may be ready to put up the Pyramid: and flatter myselfe you cañot in point of good sense, contradict me in what I supose: You never told me to what height you raised the scaffolding.

You ought to try at getting a copy of the Salt board Order for the Shiping ffish at St. Maws, and send it the Col^{o} with y observations thereon, without wch nothing can be said to it.

In seeing Mr. Heams behaviour, do not you bless yourselfe that You are not Sadled with a Wife, Sure you may: Somthing more of the Sort to Divert, will be obligeing, Hopeing to hear from you every other week: How goes Punch and Draming in your Town, Where I am apt to believe No Notice is taken of the prohibition.

Mich^{mas} Day being past I shall count in proper time, of an additional credit with you for £150. I shall be glad to see a List of my arrears to Lady Day 1737. Hopeing it may not be Great.

St. James's, Yours,

30th Sept., 1737. MART: KILLIGREW."

(In M.K.'s own Handwriting).

"Mr. Hall.

By this post I have your paquett of ye 13 Curr^{t} But not at Leasure to say a word in Answer to it, being obliged to referr

to my next. The present Cause of this is to enclose to Mr Walmsley,* wch I would not delay for his Encouragm^t who it seems shares with you in ye ill qualities of ye people you are placed amongst, tho I think affecting his meak Speritt more than yours.

By what I understand from Mrs Laroche, Her Husband doth not set out from Bodmin for ye West till ye 20th from whence I am in hopes that ye Letter I sent you to meet him at ffalm^o of ye 11th and should come to your hands ye 15th He will finde with you on his Arrival at Arwenack; a Letter very fully Instructing him for his behaviour with ye Agent on my behalfe: We are certainly in time, And I will not neglect your hinte of preventing a Surprise upon ye Post office here: Between you and I, Mr. Agent behaves like a right Raskall, in using ye pretence of ye opposition of ye Town, when in varying ye question, He would be very angry, Should any one pretend ye thing is in ye Diposal of ye Board here or be any waye influenced by an Interest from ye Town: you will Instruct Mr Laroche if this Letter comes in time, concerning this shuffle of ye Agents, who must show him ye Agent, That he makes a poor figure in ye pretence; that we do not value ye opposition and that should it come to that, He may chance to see it disposed off, Independent of him; Have a New Dwelling to Seek, and perhaps some arrears of Rent to pay, more then he may think off: And that upon such sham opposition, we shall look upon him to be at ye bottome of it, and must be Expected to be treated accordingly.

St. James's, Yours,
18th Oct^o, 1737. MART: KILLIGREW."

"Mr. Ab^m Hall.

By this post I have yours of ye 17th curr^t, Whereby I hold my Selfe to be fortunate in having my Letter hit Mr Laroche so patly at Arwenack as it did; and own my being to blame in not writing it sooner tho I thinke he hurryes to git out of ye country sooner, then he told me he thought he should * *
* * * * * * * *

St. James's, Yours,
22nd Oct^r, 1737. MART: KILLIGREW."

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* Incumbent of Falmouth.

"Mr. Ab^{m} Hall.

Yours of the 13th Curr^{t}" (? past) * * * "are all before me:" * * * * * * * *

(After instructions as to the furnishing of Pearces Taverne cheaply he writes)" As Also that the Signe Shall be the Kings Arms: But Quere, whose is the Signe Post."

"I note what you Write of the Pyramid: and shall long to hear of its being cover'd up for the Winter, much fearing that Mr. Ragland Computes the Greater Expence, the more his profit, for that otherwise he would not have done so preposterous a thing as to raise scaffolding Up to 50 foot high, before ever he laid a Stone, and all in the Way of the Worke instead of Use; and Defy him to show where it was ever done faster than the Building required. The Surveyors here say I must Expect to hear of its falling down; for that it could be put up so precipitately with no other view, then the Having it twice to put up, And I Supose, Boarded all the way up to the top: In proper time I shall take Notice to him, of such his Doing, But would not have you take any Notice to him of what I say; But as from yonr Natural reflection: And begg you will let me have a Line of the going on of the Worke Every week till you shutt it up.

His Draught of the Proposed Building at Pearces, I have had under Consideration, and I shall keep it before me, till better at Leasure to observe to you thereon; And thanke you for the hint of Stone Worke And have a Notion, We may raise Stone in Trevethan Beaken ffields, such as will Work within two foot thickness * * * * * *

Be silent as to ye Signe, Least we be forestalled in it, and a word will be acceptable, How Mr. W. supports in ye pulpit, ye Attacks made upon his Doctrine.

St. James's, Yours,

3^{d} Nov.^{r}, 1737. MART: KILLIGREW."

"Mr. Ab^{m} Hall.

Since my last of the 3^{d} Curr^{t} &c. * * * *

On Tuesday the 8th was agreeably Surprised with the sight of Mr Laroche, who from Mr Elliotts to Bristol, Cross a terrable

Country, and Staying with his Brother there two Days, made this Town in 8 Days, wch looks more like flying than rideing, But he is a light Weight: and at first Word without my asking a question or he knowing any thing of my haveing ordered the Pyramid to be shut up, He run Out upon the Surveyor (Ragland) for not putting a Stop to the Worke a Month Since; protesting with firmness. that the day men attending the Work cañot Earn 4^d^ a Day. I begg you will be a Little round with Ragland in the Case, and for the Little time they have still to Worke, see that they hold on from morning till night, without going to Dinner.—From Curiosity and to see how far the thing was worth accepting Mr. Elliott of Port Eliot got a particular of the gross and Nett Produce of the Office, from the late officer his Kinsman, wch Mr. Laroche Saw and Examined And amongst the other outgoings, he Noted a Yearly London journey Chargeing for it only £10: * * * * * * *

Snoxell the Copyer of this Letter, hath £30 a year upon it, by My Will, Yett Sitts Easey in the thing.

* * * * * * * *

When You know them you will not be Uneasey at the Contents of my Letter to Your Mother, Purely Calculated for y^r^ Service; wch having no Effect upon her, I know how to push her further, and shall do it, if necessary: Such Wildness of behaviour not being to be Endured.

* * * * * * * *

Since ye above Mr Laroche tells me That by ye Last post ye Secretary to ye Post Masters writt ye Agent a posetive Injunction, Not to remove ye post office from ye House, As what I supose ye Agent desires.

St. James's, Yours,
12 Nov^r^, 1737. MART: KILLIGREW."

"Mr Ab^m^ Hall.

I am again to Aske your Pardon for my Writing So Strongly to your Mother, but realy and in truth without prejudice, Necessary, whose Ungovernable and Indiscreet bableing must

hurt you more or Less: And Shall be glad to know how farr, what I do Write, makes Impression upon her.

Since my last of the 12th Curr^t I have yours of the Same Date, * * * * * * * *

I am glad to understand You like the Stonecutters performance, Hopeing the Seat about Pyramid is also to y^r liking, and have Nothing to Object against y^r advancing them thirty pounds more on their men shutting up the work, and soon after X'mas ten pounds more, if you hold it Safe. But to carry on the Worke now, they cañot pretend it to be reasonable.

In the general, as you have, and are like to have to do with Workmen it will Lye with you to Distinguish and check their Nonsense, when offered, and the pretence of the Tackle is grossly of that Sort, for that tho' the use thereof be Necessary the fixing of it from height to height, as the scaffolding is carry'd up, is all that is ever Done.

This Pyramid and other Charges lately come upon me, will make it convenient to me the putting off the proposed New building to another year; Besides the Consid^tn that every piece of Timber, Sparr and Board in the Scaffolding, will be of Use in Such new Building. * * * * * *

Without being at the trouble of a Cover, when you have only a Single Sheet to send, Direct to Mr. Laroche: who will soon be familiar with y^r hand and Seal: But in case of his Opening Such y^r Letters, his So doing can have no ill Consequence Either to You or Me.

St. James's, Yours,
19 Nov^r, 1737. MART: KILLIGREW."

(Ditto to Ditto Dec, 3, 1737 touching Pearce's Taverne &c.)

(POSTSCRIPT.)

"Since Closeing the foregoing, I have yours of the 28th Past Unopened: In Answer, Mr. Ragland hath Learned to talke, of his Neighbour Vivian; However you make me Easey In what you Say of the Pyramid. I note what you say, of Mrs Read's Goods to be Sold, The Tenant's Answer is, That there is little to

be hoped of a Bargain from Such a Woman as I represent her: ffeather Bedds Duly Examin'd to be good Especially Tickens, 10d a Pound down to 6d a Pound, According to their Several Goodness: Good London-made Pewter at 2d-hand he can have here to his Likeing at 10d a Pound; It is at most 4. Bedds he would have of Hers: And if She will do any thing to the purpose She must forthwith Sett about makeing out an Inteligent Inventory of Her Goods, Discribeing Each Particular, Charging the Same with the Lowest Penny She will take for them in particulars, So that the Tenant in Sight thereof, will have only to mark with his Pen, what he will have, Wch Method if She will Come into, Pray Send me the Inventory, with the Soonest * * * * * * *

Yours,

MART: KILLIGREW."

(In handwriting of a fresh clerk).

"Mr Abm Hall.

Since my last of the third current &c.

* * * *

You have herewith Receipt and Duplicate for my year's Annuity to and Ending at Lady Day, 1737 to which I Refer, and which not in form to Your Liking, upon your transmitting me a more proper Draught it shall be mended.

My Tenant's Back is up again, upon your saying the best bed Chamber is short of 7 Foot High. I tell him he must put his best bed in the 2nd best Chamber which is nine foot, but he wants the Dimensions of this Second best Chamber and if a Chimney and how many Windows.

It may be sometime before Mrs Read's Son in Law finds out that, this Juncture, he may as Easily git to be an Admiral, as a Leiftenant: And as for a War wth Spain or any Nations whatever, I much fear our Circumstances are Such, as that no provocation can Induce unto Action wch I write from the notions of those who ought to know more of the matter than I Do; But as War is what your people have Reason to Long for, You will not Discourage their hopes from what I write.

* * * * * * * *

By the Last Post I had a Letter Duble from Mr Walmsley, to whome I now Answer, that for the future, if he Delivers any letters to you for me you have a Method of Sending them Post free. Mrs Bowne being moved shall be glad to know what right she may have to Remove the Signe Post, If She hath or does so; and if left, whether sound and of substance to carry a Valuable Signe, and as High placed as the Wall of the house will bear.

I must also pray you will remind me again about Tinships, vizt as to the preferable, and the probable time of their being up wth the Christmas Coynage Tin:

The tenant tells me that I may Count on his being Compleatly ready for the Voyage by the Middle of February."

(In M.K.'s own and small hand.)

"By ye way, have you yet got a Clerke: You see by this Letter I have got a Second, present business requiring two, This in merrym^{t}

St. James's, Yours,
24th Dec., 1737. MART: KILLIGREW."

"Mr Ab^{m} Hall.

Since my last of the 24th past, I have yours of the 29th of the same and 12th Curr^{t} Wth Mr Col^{tr} Pye's Ex^{a} of the 10th Curr^{t} at thirty Days in your Favour upon the Comiss^{nrs} of Salt Duties for Thirty five Pounds fourteen Shillings Endors'd to me, and Value by you paid ye said Mr Pye: wch S^{d} Bill is Accepted, and Carry the Amount to your Credit, as if I had rec^{d} the Money. The said Bill Imports the old, and out of use here, word *Sterl^{e}* wch is Amendedly Supplyed by Saying, the Sum of; wch I only Note to you for your Amending your Own Stile.

I have Deliv^{d} ye Draught to Mr Merrill for his power to you, wch you may Expect from him Engrosed and Executed, but as it is to pass (probably) through my hands you will Do well to send me, Between Mr Merrill and you, The like Articles as you Gave the Lady's on your having their power; My Niece Merrill came into me the Other Day, making the figure of a Ship under a full Main Sail, She Reckons for Aprill, and when up proposes the

going again to the Bath, where her husband is to leave her and go on to you, from whence you Cannot Expect to see him till towards Midsomer; How the Col^{o} may stand Disposed in the case I know not, who is Expected in Town in a few Days.

By Mr Merrille's Discourse I rather Guesed than understood that our Friend Webber had found means to Attack him, by way of Mr Kallard his Attorney, hinting as if his Intrest at ffalm^{o} might require a Steward of Consum̃ate Experience amongst the people, wch I Answer'd on your Subject in Demonstration, I believe Something beyond w^{t} you would have Done yourself; I mean from your Modesty, Not Otherwise; and having had some Insight into Mr. Kallard I undertook the Young Gentleman on his Subject, whom I obliged to own that ever since his Father's Death Mr K. by his behaviour had made his Mother very uneasy especially on the Article of coming to Acc^{t} wch she could never (no not to that Day) bring him to, well then says I, is not such a man's Character of others to be suspected; upon the whole he went away well Satisfied on your Subject.

Since you did not claim 3^{s}-4^{d} in ye case of the Ship, as your Master out of a Question would, to whom could it be so Justly Due ye remaining Money as the Tenant.

I note Mrs Bown's foolish Attempt about the Post office, and thank you for your Diligent Care in the thing; on wch you ought to make Mr Agent a Civill Speech from Mr Leroche and me. But by the way, you seem not to reflect on the Severall Occasions wch may require My having Money in your hands, p^{r}ticularly in regard to the New Tenant who will carry wth him an unlimited Cred^{t} from me, upon you; so that I Desire you will not think of remitting me any more Money, till we see farther w^{t} Occasions you may see for it at Home, to my use; I must hope Cap^{tt} Steel had Assured his lost Sloop; have still humanity Enough left to be really sorry for his loss in the life of the Unfortunate poor Young Man, having no thurst after Money by such means, and Considering his loosing his Children so Young, why should he not wait a little to see how the Infant in question thrives, for that I should, in his case: but for coming into a future provisional Bargain in case of Mortality within 2 years, I must pray to be

Excused; I must own my general practice was such to a Greater Extent of time, and without Exception from the year 1704. W^th^ Judith Wickham as in fol^o^ here 304, down to your time full thirty years, and that without giving any tenant Cause to Complain of my Shuffling wth them in the Matter; And though I never had the least thanks from any one Tenant so benefitted my having (done so) sitts easy wth me, but now am Grown too heavey for such Volatill out of the way practice, Conclude

St. James's, Yours,
21st Jan^ry^, 1737.* MART: KILLIGREW."

[* It must be remembered that prior to 1752 the year in England was considered to begin, not on the first of January, but on the 25th of March.]

"I must not make a Secrett of it to you that Snoxell succeeds Mrs Bowne. His wife to be bread under my Wife and Sisters care from her being 7 years old; Mistris of ye french Tongue, Having lived several years in that Kingdome and travelled it over from North to South up to Savoy: good sober and modest as your Sister wch is saying all with ye advantage of knowing more of ye World."

"Mr Ab^m^ Hall.

Since my last of the 21 past, * * * * * * * Especially the Title wch I think ought to run thus; Acc^t^ Curr^t^ from Lady day 1736 to Lady Day 1737, Exclus^ve^ between A. Hall the Accomptant, The Honble Col^o^ John West, for and on behalfe of his Daughters, Mrs Mary Killigrew, since Wife of John Merrill Esqr and Frances Killigrew; The next Line under, you say the S^d^ A. H. D^to^ and on the other side, p^r^ Contra Cred^tr^ so that one sheet of paper will still do the thing: * * * * * * * *

Tell Mrs Hill that if her Son the Seaman be inclined to the Church of Roome, I will use my interest for making him a Cardinal, And for Serving him in the Paquetts is as much out of my power, and at best a poor affair: But if he aims at coming to anything in his profession he ought to Stick to the Turkey Trade. * * * * * * *

It is judging right of their interest, wch Induces the Col^{o} and Mr Merrill, their being fond of new Coñers, to Setle at ffalm^{o}: and you will do well to be large to them on his subject, in respect of his substance, practice and ffamily.

I am a Great Enemy to the showing of Teeth; Ever lett yours be felt before they are seen; Webber will give you frequent opportunities to wrap him over the fingers, in your way of practice, Especially in your keeping a good Understanding with Russell, from whence, if the Man be not Voyd of Coñon Sence, he must see, you are lett into the Secrett of his base and Underhand behaviour towards you.

* * * * * * * *

St. James's, Yours,
11 ffeb^{ry}, 1737. MART: KILLIGREW."

"Mr Ab^{m} Hall.

Since my Last of ye 11th Curr^{t} I have y^{rs} of ye 9th of ye same and now write y^{u} so soon again Chiefly in regard to ye Inclosed Resignation wch you will manage at your own discreation, by Showing it to those you most Confide in before you present it to the Mayor, or not: or first tell ye Mayor you have Such a wrighting, But as it is directed to him and the Body, you hold y^{r} Self Oblidged to pray he will call a hall, for your presenting it, previously makeing privat interest for their petition it's being deliver'd you to send up, you will Show the Inclosed petition of 1680 without saying how y^{u} came by it, as a President for a new one if they think fitt. The question Lyes how I came by it, as thus, upon ye Death of ye then Recorder Mr Rogers, Predisessor to Mr Cocker and his Master governing ye Town as s^{d} Cocker since in your time for ye afronting Sr Pet^{r} Killigrew sent the s^{d} Petition to a soposed Enemy in ord^{r} to his getting himself appointed Recorder, who had genorousity enough to Desist and Send it to Sr Pet^{r} who got himself Appointed Recorder, at presenting my Resignation, you present Mr Merrille's Service as by his ord^{r} Intimating that upon ye Coming up of ye Petition he intends to do himself ye Hon^{r} of praying their Approbation By a Letter, of his using ye proper-means for his succeeding as Recorder, I now Mr Pye if not moving for sending the Petition

to M Edgcombe, He will Insist on a delay for ye haveing his directions in ye Case, But however impertinent, as a thing of not the Least Value, we have been beforehand wth him that way.

As you soposed, Rice arrived before your Lett^{r}; Snoxell has seen him who said he would come and view ye goods next week and Could not Speak to the Carrying them till he had seen them; wch hath something of an air of Stoutness; If you Cane Conveniently gett ye Names of ye Lond^{n} Traders coming yearly to falm^{o} I shall be very glad to have them.

I agree wth you, In that the midle of ye Next Month may be proper to proseed on ye pyramid, and Believe you will as readily agree wth me to the posability; as a parting kick of the Britch, those great men may object to ye Resignation for want of Forme, Stile, or Seal, to All wch we must submit, and informe You self from them so as to send me a Dra^{t} of their Worship's pleasure in ye Case.

St. James's, Yours,
18th ffeb^{ry}, 1737. MART: KILLIGREW.

Upon discoursing Mr Merrille since ye above, perhaps it may be thought advisable here to desire Mr Laroche to Stand Recorder, so that you may forbear naming Either, only promis a Letter to them for their approbation of ye intended Recorder; Mr. Laroche gos on with vigor and hopes of success as to ye Assizes at Bodmin."

"Mr Ab^{m} Hall.

* * * * * * * *

The Abstract of 1736 wth proper title, and Closed inteligably Specially Showing ye Nature of ye Ballance inclusive of Arrears, will Satisfy the Col^{o} wth all your sending a Draught of wch his Daughter frances and Self must Signe to ye duplicate. The quarters Rents to Midsomer Last 1737, Mr Merrille agrees to his non intrest. With this if not before, the Noyse of a Warr wth Spain must reach you wth the Suposition that France will come into it; brave News for Falm^{o} in wch Case Oake's house would not stick at £200 but am willing to Let ye house go to John Givin in One hundred and Forty pounds, provided he Close's wth you

befor the Warr is proclaimed, and of what his Spare Cash shall be Short (if you approve of it) I shall be Contented wth his Single Bond but wth Cõmon Interest from the Delivery of his Lease, He to take on from next Lady day."

* * * * * * * *

(In Mart. Killigrew's own very small writing as follows:)

"I have got a Kinsman of Coll. West's for a Clerke in Snoxell's place, very young and Raw in business; but shall hope to make him sufficient for mine. * * * * * *

St. James's, Yours,
4 March, 1737. MART: KILLIGREW."

"Mr Ab^{m} Hall.

Since my last of ye 4th Curr^{t} I have Yours of ye 6th of ye Same, and shall begin in Answer on ye Subject of Snoxell; who wth his Wife and boy Servt were Shipt Board Rice last Sunday in Ord^{r} to fall down the River Early Next Morning ye Wind Standing N.E. I compute it may take up three days to Tide it down so as to Clear the North foreland, and from thence about two days to reach Falm^{o}. From whence there is a posebility you may see him before this Lett^{r} reaches you; tho as posible I may be wide in my Computation; The Col^{o} and youngest daughter showed their Condescending Civility to Come a Sunday morning to wish 'em a good Voyage, and invite 'em to Lodge at Arwenack till they could get a Bedd up at home, wch with thanks I excused for them, * * * * * * *

* * and in putting them to sit wth you in Arwenack Seat at Church, you will find theire behaviour in Nothing to disgrace you, and oblidging them beyond a feast, for that without ever hearing them cant a word of Religion, you will finde 'em truley silently pious, and the Wife (as a rarity) to have no Will or inclination but her Husband's; a man in figure more like the Clerke of a parish than Innkeeper, but hath a foundation of common sence, wch I shall hope (by your assistance) will Carry him hi[illegible]siness. * * * * * *

You turn over all the Tenants in the Late Edward Pearce's Tenem^{t} of Houses to Jno Laroche Esqr to whome I make over y^{e}

same, From that time; Transferring from my name to his, In ye Arwenack at the same time acquainting the Te (?) nants Laroche Hath appointed ye said Snoxell his Steward you haveing from thence nothing more to do therewith, and Also acquainting the Town Officers of such my making over.

* * * * * * * *

I was Surprised to see the petition Come up so readily, a good worke over, ye rest will ly wth us, and shall not forgett ye Engagm^t you are under of a Lett^r to the Mayor &c. for their approbation of a Recorder wch you may expect by the first Convenient Opportunity, not Mr Merrill but Mr Laroche is the person pitched upon for ye Office and presume ye Boldest amongst you will not Except against him; but this hint you keep to yourself: * * * * * * *
I agree wth my Friend Mr Pye, a Recorder without a Deputy is a meer useless ud and a Matter will not be forgot * * * * * * *
* * But you not still so Easey in the office wth out advantage yet I from the first projection calculated that you must be Easey in being made sensible that the office would be a great means of afferming you in your Stewardship for Life; wch you must be sensible I have much in my minde. You will be so good as to Consider how much Snoxell ought to give Lanxon For his trouble of Looking affter ye office for ye quarter: *
* * * * * * * *

St. James's Yours,
14th March, 1737. MART: KILLIGREW."

(In M.K.'s own hand writing).

"Mr Ab^m Hall.

By this post I have yours of ye 16th Curr^t, and however not well at Leasure to answer it by this day's post; yet in regard to ye probability of J^o Gwin's bein in haste as to his proposition, I answer in ye Case, that his Secrett shall be safe with me,
* * * * * * *

I have a letter from Snoxell of ye 18th advising that after some bad weather they were Safe at Anchor, and his wife on Shore at Cows in ye Ile of Wight, and as ye wind stands and blows hard, must conclude 'em still there : * *

* * * * * * * *

I have showed what you write about Mason and Penwarne to Mr Merrill wch he seems to take in good part, But believe from what I know of my friend Kallard, it will not be an Easey mater to Acomplish anything that way.

As to ye Lodging Snoxell and wife on their arrival must referr to my Last of ye 14th Curr^{t}.

As I formerly advised you, this day ye Cornish petition comes on in ye Upper H wch if comitted for a Second reading, is all that can be hoped from ye days worke, And yet if so carryed, I am Strongly of opinion ye Bill will be thrown out, So flagrantly notorious are private view and interest taking place of ye most apparent publick good.

What I have to add on ye Subject of Leasing, shall be in few words ; I have ever observed a difference from 10, to 15 P^{r} C^{t} between concluding off hand and delays ; Duties, Heriots, and raising rents a small matter upon reversionary Leases naturally must come easy ; That ye Lords are not willing to grant in these dead times, is a good showing horne to raise a ffine from such as you finde really disposed to take. And more I shall not trouble you with at present.

St. James's Yours,
21st March, 1737. MART. KILLIGREW.

Is Emmett and wife got home again, of wch I make a doubt. M^{r} W^{ms} ye Admin^{tr} when in Towm made me Sensible of their being but poorly used by their own Soliciter, your friend.

Just now I have word that ye Cornish Bill is thrown out by a Majority of 10. So as that poor Mr Laroche is released from any further trouble in that matter wch hath been very great to him and some Expence."

THE EXPLORATION OF CARN BREA.

By THURSTAN C. PETER, Member of the Council of the Royal Institution of Cornwall.

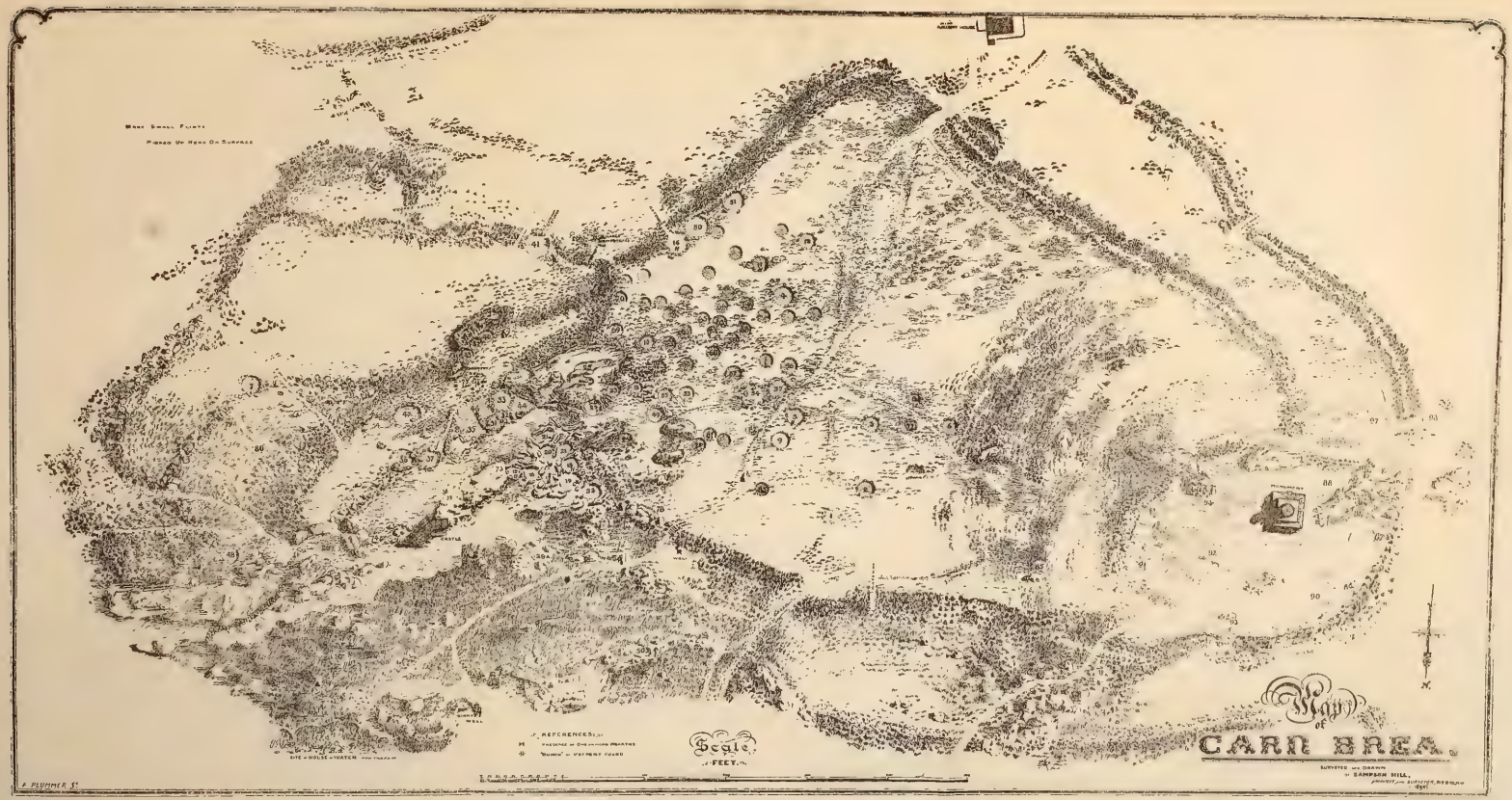
The *surface* of this fine Cornish hill* has been described by Borlase, who found traces of Druids there (as everywhere else), also by Sir J. Gardner Wilkinson, whose Essay on the Hill in the Transactions of this Institution (1860) is well known to most of us, and whose map of the hill is on the Museum Walls; but it was not till 1895 that the surface was broken by pick and shovel with a view to finding what relics of antiquity lay beneath. Had this been done before so much of the surface had been destroyed by seekers for tin, the results would, doubtless, have been even richer than they are.

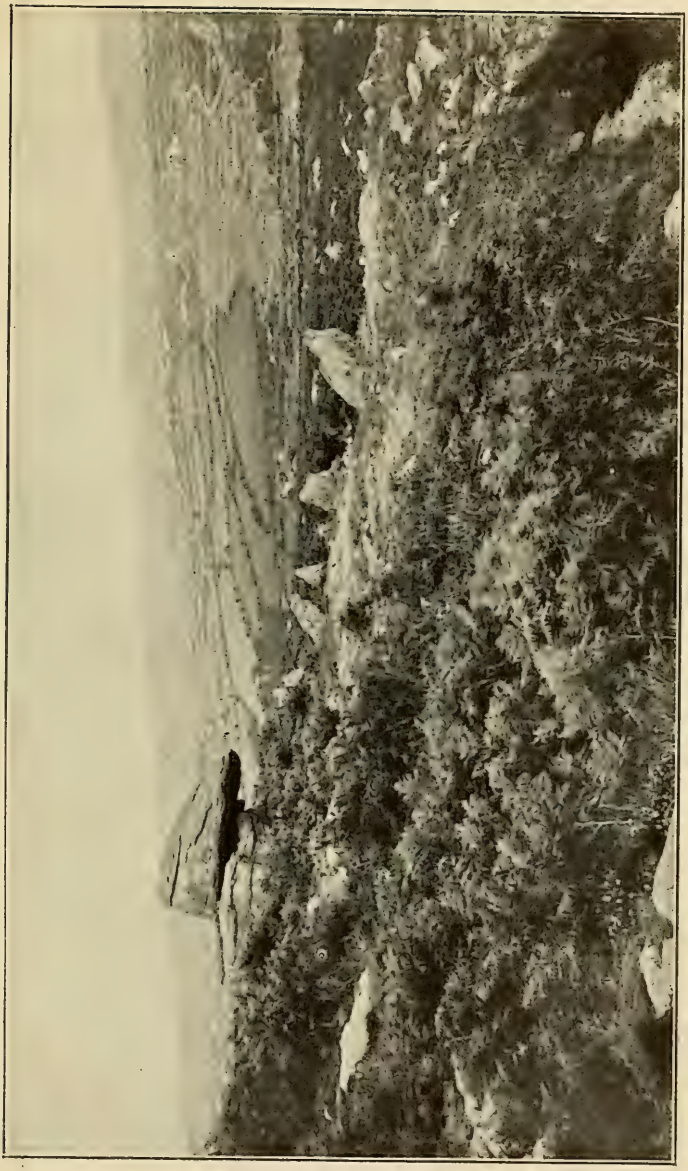
The exploration and excavations occupied from March to October, 1895. About 100 diggings were made in different parts of the hill, the majority on the summit at the eastern end. This portion of the hill has been carefully planned, as we proceeded, by Mr. Sampson Hill, of Redruth, and photographs of the various points of interest have been taken by Mr. J. C. Burrow, of Camborne, and myself. I purpose, when I can find leisure, to print copies of these photographs and insert them in a volume, together with a written Diary of the Exploration, which will, I think, be of value as a record for future reference in the Royal Institution of Cornwall Library. The map, too, will be handed to the Institution.

It is also my pleasing duty to hand over to your Museum (with the consent of Mr. Basset, by whose kind permission the exploration was made), the collection of celts, flints, pottery, and other "finds" brought by me from the hill. These are not yet completely sorted, but I hand you to-day† a considerable number, and shall send others as and when I have the leisure necessary for their arrangement, an operation that takes much time owing to the necessity for washing, and to the quantity of "waste" flints with which they are mixed.

* With coins, bronze celts, &c., found in it.
† 26 Nov., 1895.

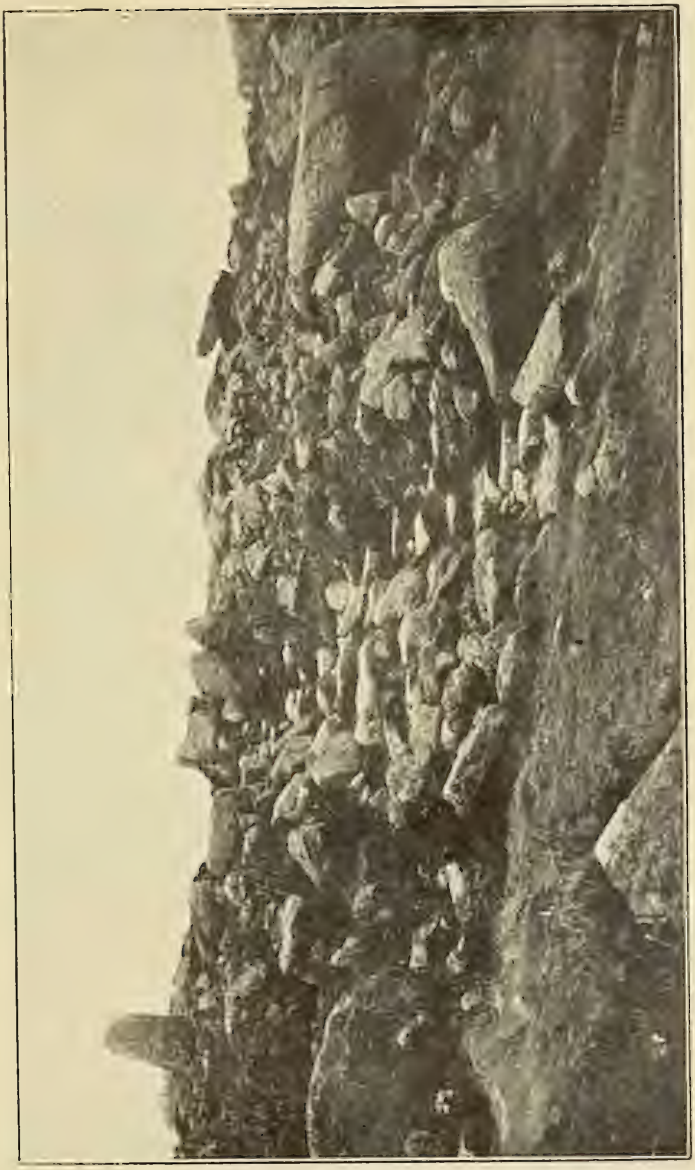
HOUSE
94
92
91
65
C


Map of
CARN BREA.
Scale
FEET.
REFERENCES
CASTLE
WELL
SITE OF HOUSE & WATER
N.
SURVEYED AND DRAWN
BY SAMPSON HILL.
F. PLUMMER Sc.



"JUDGMENT SEAT," AND PART OF WALL.

From photo by T. C. Peter.



From photo by J. C. Burrow.

Part of North Wall.

It will be observed on the map that there are on Carn Brea two separate enclosures—one around the present mediæval castle, and the other extending from just west of the castle to just west of the monument—the latter area itself being subdivided at its western end by a wall running, roughly, north and south, and enclosing what is still known as the "Old Castle." These walls appear also in Sir Gardner Wilkinson's map in the Institution's possession, and it is worth remarking that though Mr. Hill and myself have included many things in our map that do not appear in Wilkinson's, and differ slightly from him in the arrangement of the southern walls, yet, where the maps have the same thing marked, there is nowhere a variation in position amounting to more than about one foot—a practical testimony to the correctness of both maps.

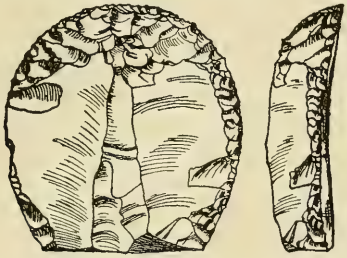
The walls bounding the eastern enclosure are of varied construction—sometimes of small stones piled, sometimes of stones from 18 inches to 3½ feet fixed on end, and fairly close together, and on the north side for the most part of small stones placed between the large earth-fast rocks, which, at this point, drop vertically for several feet. In the illustration, of what Dr. Borlase calls the "Judgment Seat," a part of the wall is shown. These upright stones are what he calls "pillars." It will repay the trouble to compare this illustration with that contained in the learned Doctor's "Antiquities of Cornwall." Within this enclosure are several very interesting interboulder huts—*i.e.* huts, two or more sides of which are formed of naturally placed boulders, with a suspicion in one or two cases of their having been slightly "slewed" round into a more convenient position. The divisions between the huts of the main cluster are rows of low stones which do not show above the surface, and were only found by observing the patches of dried grass after the heavy frost of the winter of 1894-95. These interboulder dwellings mostly had in them hearths or cooking-holes, or both. In No. 17 hut was a neat cooking-hole with a covering stone lying close by. In No. 24 was a very beautiful specimen of a cooking-hole, which I have removed bodily for the Museum. Three sides are formed each of a single granite stone—the south side is built of smaller ones. The only stone in it

[illegible] behind formed the bottom, and is a granite rock of [illegible] origin, earth-fast. For this, I have substituted another flat piece of the same kind. The wood-ash in [illegible] was of oak, birch, hazel, and alder. Close by, and [illegible] (34) were remains of what I suppose to have been the [illegible] covering-stone, but it was so broken by the force of the [illegible] the western enclosure falling on it, that it was impossible to be confident. In an earthboulder dwelling to the [illegible] the main group (No. 71 on the map) was a very pretty two-[illegible] usually roomy dwelling, the back of which was [illegible] backed in Wilkinson's original having a natural basin [illegible] side the living [illegible] the other a single large [illegible] and the floor [illegible] paved with granite flags. The "finds" in this [illegible] were very numerous and good, including [illegible] a grand [illegible] and [illegible] Decanter of A.D. 70, the whole showing a [illegible] and the legend was carried [illegible] the people—the [illegible] showing [illegible] on prow of a ship, holding a [illegible] TER TR. POT. ([illegible] The pottery is [illegible] of the roughest, [illegible] to be wheel-made [illegible] domestic, and some [illegible] allowed to recognize [illegible] ral, was mostly found [illegible] western slope of the hill [illegible] to 37 (except 34) and [illegible] divided by rows of [illegible] stones into plots of different [illegible] and sizes, but all roughly rectangular. Flints and potsherds were found all over its surface, but the pottery principally [illegible] under the stones in the angles, which in two cases [illegible] fenced in by a semicircle of small stones of 4 to 7 inches, [illegible] a foot from the point of the [illegible] at the angle. In no case did we find charred wood with this pottery. Whether these enclosures are graves or huts, I do not venture an opinion. Still further south, between Nos. 7 [illegible] are similar divisions (*not* shown in detail on plan) but [illegible] of pick and shovel here were practically *nil*.

CIRCLE NO. 4.

From a photo by J. C. Burrow.

The most interesting of the interboulder huts was No. 25—on the very summit of a boulder group, and to which our attention was called by a long patch of dead grass. This proved to cover a flat rock-table, around which were scattered several pounds of flint-chips, while in one pile were found nine perfect and apparently unused grattoirs or scrapers, and an



Scraper from Circle No. 25. (Actual size).

incomplete one; in another, some good flakes suitable for cutting, and, in a third, some not very good arrows. From this hut, too, comes a very beautiful gabbro celt. The pottery consisted of only two or three very minute portions. There were in the hut two depressed hearths containing charcoal, and a triangular cooking-hole. From the discoveries I am inclined to think that this was a *factory*.

Form of Celt from Circle No. 25, about $\frac{2}{3}$ actual size.

Passing now to the Huts' *Circles*, I would point out that the wall of this enclosure crosses that of the eastern one, apparently passing over it—a fact which, in conjunction with other evidences, makes me think that the eastern enclosure contains the

older settlement, but the evidence is by no means conclusive, and many competent persons who have been on the hill with me, and have critically examined the "finds," entirely discredit such a view.

Many of the circles on Carn Brea are clear and distinct—how much so, may be seen from the photographs of the two illustrated; but the majority were only traced by long and anxious search for the dead herbage covering the buried stones. It will be seen from the map that I have traced about 60 such

Circle No. 11.

Scale $\frac{3}{16}$ of an inch to 1 foot. Stones not shaded are on end. Shaded stones flat.

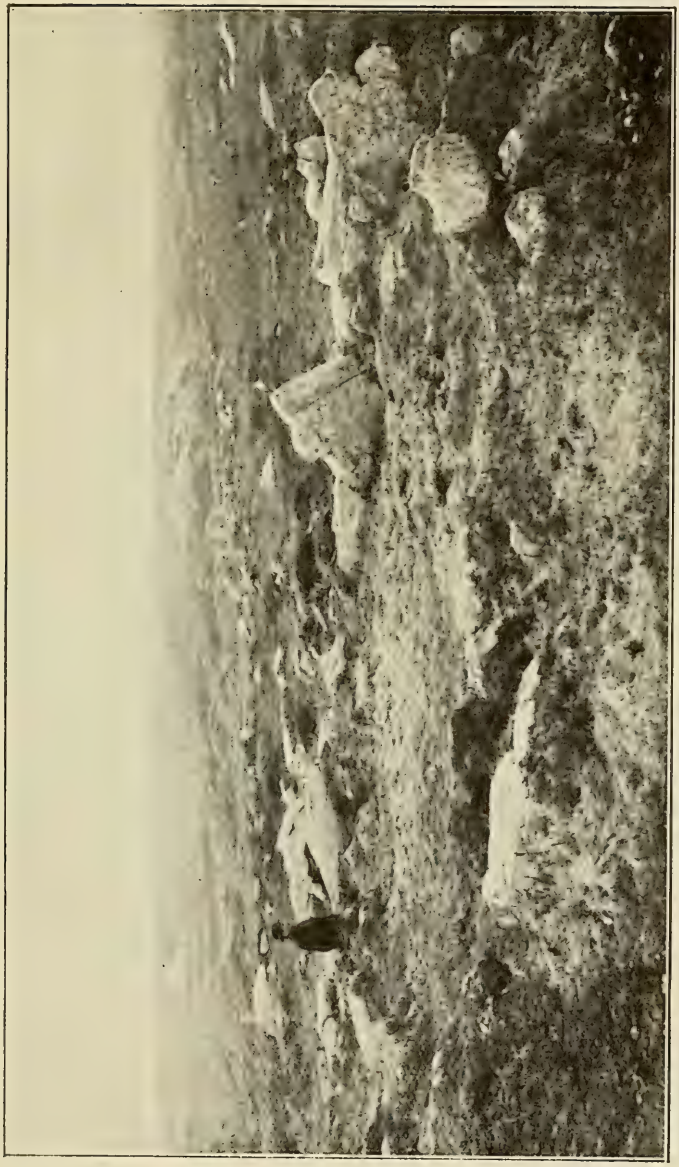
A. Platform 11 inches above floor.

B. Space enclosed by small stones on floor level.

C. Concave hearth in sub-soil hardened by fire, contained charcoal. The cavity is 7 inches deep at edge and 9½ inches in centre.

D. Platform 10 inches above floor level.

E. Double row of stones 8 inches high.



HUT CIRCLE No. 10. LOOKING S.W.

From a photo.

circles, though I have only excavated those where numbers are marked—[Where a number is marked without a circle around it, it merely indicates a speculative exploration which, though it sometimes gave flints and pottery, did not, either by surrounding stones or traces of a floor, show evidence of a circular or other dwelling.]

There appear what seem to me clear traces of a settlement at the far *western* end of the hill. and of scattered huts in *various* parts. These I have not explored at all, having, as already stated, confined my attention to the two enclosures at the *eastern* end.

Of the circular huts which I have explored, very few contained in their structure anything of especial interest. Two of them, Nos. 3 and 8, have walls composed of double rows of stone,—the others are of single rows. In No. 10 is evidence of what seems to have been an approach-passage, similar to those not infrequent on Dartmoor, while the lane in front of it between the other huts, and its position at the corner of some high rocks, suggest that it was occupied by some chief or other person of importance. Circle No. 66 shows evidences of what was either a porch entrance or a smaller chamber, adjoining the main hut.

Circles Nos. 11 and 14 showed evidences of very thoughtful arrangement. Of these, I send plots that I prepared at the time, and which will, I think, repay examination. No. 14 is a fair instance of the difficulty of tracing some of the Carn Brea huts. It will be observed that with the exception of a single stone ("h" in plan) there is no stone in the whole circumference. Our guide, in working, was a circular depression which I conjectured (and, as it proved, rightly conjectured) was the result of stones having been pulled up and carried off for hedging, gate-posts, &c. It will be noted that this circle adjoins a gate-way, and it is perhaps no rash conjecture, especially considering its size, to suppose that the structure was once a guardhouse. In the gateway itself, at a depth of 3 to 4 feet, was found a large quantity of charred oak,—the remains, perhaps, of a palisade or gate. (Have not similar remains been found at Castle-an-Dinas?) The hearths and benches of this interesting circle, which I left complete in the evening, were destroyed before 5.30 the next

morning—no doubt by some of those who, fancying that no one could be foolish enough to dig unless he was finding *treasure*, haunted us during the whole summer, and destroyed much that would otherwise have been of permanent interest. One day I

14 31 33 33 25

Flint Arrow Heads from Carn Brea (actual size.)

found they had removed the turf from another circle, for the sake of destroying the cooking-hole—a procedure that almost justifies language that would relight the fire. Except in Nos.

3 25 3

Flint Arrow Heads from Carn Brea (actual size.)

36 31 36

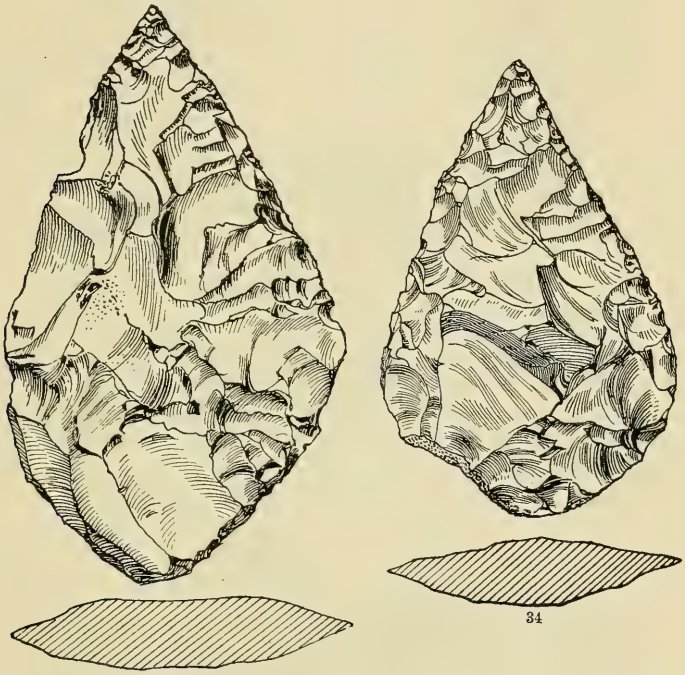
Flint Arrow Heads from Carn Brea (actual size).

5 and 8, the hearths in the circle-huts were little worth notice—mere depressions containing charcoal. In circle No. 8 it was in the centre of the dwelling, oval, 3-ft. 2-in. in length, and 2-ft. in

JAVELIN AND ARROW HEADS FROM CARN BREA.

From photos by T. C. Peter.

width, and faced round with small stones, and floored with clay. In circle No. 5 it was of more elaborate design. From a small hearth, about 3-in. below the floor, a channel runs to a square cooking-hole, 11 inches deep, the walls of the whole being of low stones, their tops level with the floor, with 3 larger ones, rising above the floor-level, in a semicircle at the end of the hearth. (See illustration).



Flint Spear Heads from Carn Brea (actual size.)

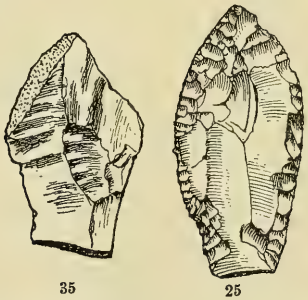
Of the "finds" in these circle-huts and elsewhere on the hill it is unnecessary to speak. I have sent a selection of the best, and they speak for themselves. I would merely draw attention to the great delicacy of the workmanship in most of our Carn Brea flints—especially the scrapers and the arrows, and the almost absolute similarity of the specimens to those which one sees in collections from the *Yorkshire Wolds*, a

similarity in connection with which I may remind you (for what it is worth) that Icknild Street began in Yorkshire, passed through Dorsetshire (whence came our raw material), and ended in Cornwall.

17 10 9

Quartzite and Flint Arrow Heads from Carn Brea (actual size.)

On the card containing four javelin heads, and marked A, can be seen in the first arrow of the third row, and the second arrow of the last row, good specimens of (what is by no means uncommon) arrows that have been broken and reflaked to make them complete again.



35 25

Worked Flints from Carn Brea (actual size.)

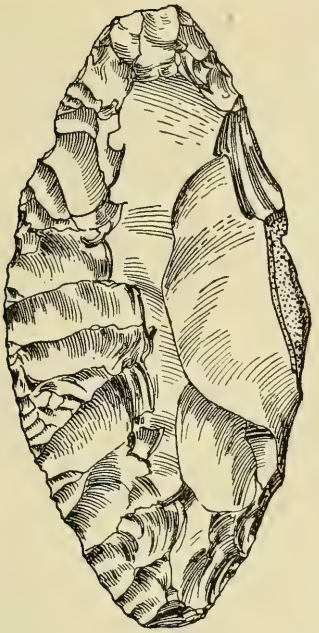
On the card marked B is a neat circular knife (see illustration), exactly suited for such a handle as Lubbock pictures in an example from Nussdorf; and a small flint much abraded at

Cooking Hole in Dwelling 71.

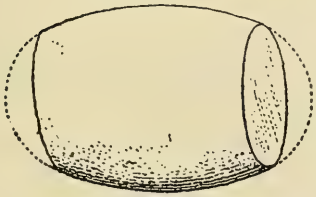
Cooking Hole in Dwelling 24.

Hearth and Cooking Hole in Dwelling 5.

From photos by T. C. Peter.



17
Flint Knife found at Carn Brea
(actual size.)



Small Muller of Grit from dwelling
No. 17 (actual size)

the end, which may well have been set in a horn socket, as was the case with some of the Swiss Lake specimens. But I would especially draw attention to the small piece of *ground* flint from excavation No. 31. Ground flints are not common in England, but it is certainly remarkable that out of the many thousands of specimens we have found on Carn Brea, only two show the slightest evidence of having been ground. The knives, from Nos. 45 and 47, and the fragment of a saw, from excavation No. 34, are also worthy of notice.

On the card marked C are several very pretty things. The little tool to the right of the top line seems adapted for knife, cutter, and scraper ; next is a bronze ring, probably a fibula (apparently late Celtic or Roman), then a ring (from No. 24) which is evidently brass and modern,—then a neat little muller of grit, from dwelling No. 17 (see illustration), well adapted for rubbing pigments—then a neat circular hammer-stone with finger and thumb depressions, similar to specimens of the same from some of the Swiss Lake dwellings.

The spindle-whorls, broken celts, &c., need no explanation.

The pottery I make no comment on, it is a subject on which I am "deeply, darkly, wonderfully" ignorant, and as experts,

to whom I have submitted specimens, are widely divided in their opinion as to whether some of it is or is not wheel-made, and what portions are sepulchral and what domestic, or whether there is any difference, I may well be allowed to refrain from an expression of opinion. I have a large quantity to send, as soon as I have time to sort and arrange it.

Among other interesting specimens is the water-worn scoriaceous nodule, which at first sight appeared to be a highly vesicular artificial slag, but which further examination proves to be otherwise. Query, is it a volcanic stone carried home from the beach, as a charm, by a Carn-Breaite attracted by its curious character?

I would like to add, that the interest the people of Redruth and Camborne and the neighbourhood generally, have taken in these specimens, while on exhibition in my own house, at the Robert Hunt Museum, and when I have taken them and explained them as well as I could in public, convinces me that the County Council might do worse than subsidise the Royal Institution of Cornwall, and so provide them with funds that would enable them to have occasional local exhibitions in the various Cornish towns. The British Museum is always ready to assist by loan collections, and the result would soon be to create an intelligent interest in our antiquities and history, that would do more to protect our ancient monuments from destruction, than can ever be hoped from legislation Once get the public to feel that these things are *theirs*, and they will themselves protect them.

NOTE.—The drawings of the implements are by Mr. Worthington G. Smith, the blocks being kindly lent by Mr. R. Burnard, of Plymouth, whose property they are.

The numbers under them refer to the map, and indicate the position where found.

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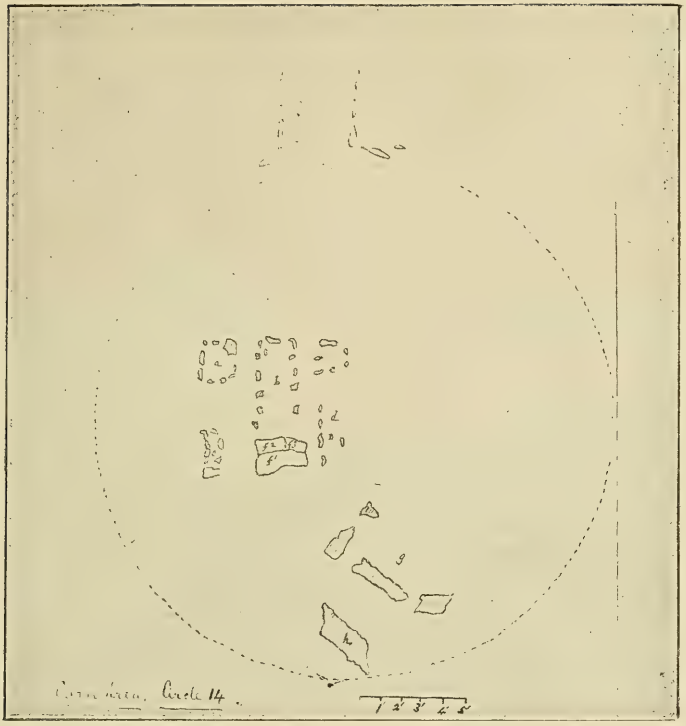

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PLOT OF CIRCLE, NO. 14.

(a.) Platform 10 inches above floor.

(b.) Space enclosed by stones—level with floor on East, and sloping to 3 inches below floor on West.

(c.) Concave depression, 6 inches deep in centre; contained charred wood.

(d.) Level with floor; contained charred wood.

(e.) Wall of small stones, 10 inches above floor.

(f.) Platform, of which f^1 14 inches above floor, and f^2 and f^3 about 10 inches above floor.

(g.) Charred wood here, but no signs of fire on floor or stones.

(h.) Stone, part of hut's circle.

NOTES ON ANCIENT COINS.

By J. D. ENYS, F.G.S., Vice-Pres. R.I.C.

On a Numidian Coin found at Carn-Brea. Date, Second Century B.C.

Mr. Howard Fox of Falmouth placed a bronze coin in my hands in 1894, which I took to the British Museum to be identified.

After some time spent in examination, it was found to be a coin of Micipsa, King of Numidia, B.C. 148-115.

The special interest of this coin to the Royal Institution consists in the fact that it was found on Carn-Brea some years since, and, as Numidia was a colony of Carthage, the coin is classed as a Phœnician one, and, as far as I am aware, it is the first coin of the kind found in Cornwall.

Mr. Howard Fox has presented it to the Museum at Truro, and I have had a photograph taken of it at Bodmin under the superintendence of the Rev. W. Iago, who has kindly sent me the following particulars of King Micipsa and his country :—

"Numidia,—situate on the Northern Coast of Africa,—is about midway between Phœnicia and Cornwall.

According to the late Sir William Smith, LL.D., we find the name of the region thus given :—(*Νουμιδία, ἡ Νομαδία,* and *Νομαδική,*—Numidia ; *Νομάς,*—Numida ; plural *Νομάδες,* or *Νομάδες Λίβυες,*—Numidœ : *Algier.*)

Its boundaries were, on the north, the Mediterranean ; on the west, the river Malva (dividing it from Mauritania) ; on the east, the River Tusca (dividing it from the territory of Carthage) ; whilst it extended south, indefinitely, towards Mount Atlas. The fertility of the region invited to agriculture. It was early taken possession of by wandering Asiatic tribes, called, from their occupation as herdmen (here, as elsewhere by the Greeks), *Νομάδες.*

This term Νομάδες (*Nomads*) originated the name of the country *Numidia.*

As these Nomads assumed a more settled character in the district they first appeared in Roman History as two great tribes, forming 2 monarchies which were united into one, B.C 201, under King Masinissa On his death, in B.C. 148, his kingdom, by his dying directions, was divided,—by Scipio, then a Roman Military Tribune, in Africa, (to whom he looked for the friendly regulation of his affairs)—between his 3 sons, *Micipsa*, Mastanabal, and Gulussa.

The possession of Cirta, the capital of Numidia, and the financial administration of the kingdom, fell to the share of Micipsa, and ere long, through the deaths of his brothers, he obtained the undivided sovereignty which he held till his death, B.C. 118.

Micipsa left his kingdom to his two sons, Adherbal and Hiempsal, and to their adopted brother Jugurtha. This last usurped the throne, and on his being defeated in B.C. 106, the country became virtually subject to the Romans. The family of the late Masinissa, however, were still permitted to govern it with the Royal title, till B.C. 46, when King Juba (a partisan of Pompey) was defeated by Julius Cæsar, and Numidia was made a Roman Province.

It underwent various divisions later, its capital being Cirta (Constantineh). In its restricted limits the country became known as "New Numidia," or "Numidia Proper."

The terms Phœnicia and Phœnician seems to have been extended to the region of Carthage and other localities beyond the country of Phœnicia itself by Palestine.

The Numidians were celebrated in Military History as furnishing the best light Cavalry to the Armies, first at Carthage, and then of Rome.

It will be noticed, as merely a curious coincidence with respect to this last statement, that the coin of King Micipsa found in Cornwall, bears on the reverse the figure of a prancing horse, very spirited in attitude. There seems to be no connection between the two facts, for such a device is common on coins belonging to other districts, and the horse, as a symbol, had a different meaning. It is sometimes used as an attribute of Poseidon or Neptune. There

is traceable, below the horse, what has been said to be a Phœnician letter, but it is probably a five-pointed star,—often associated with the horse device, on coins of certain cities, and a very similar device was imitated in British coinage.

Amongst antique coins bearing a horse and star on the reverse, were those of the towns of Arpi, Beneventum, Nuceria, &c.

In the case of the last-named, the star appears below the horse, as upon the coin of Micipsa found at Carn-Brea."

Mr. Iago adds :—"Those interested should also examine Dr. Borlase's remarks, and his plates of Carn-Brea coins."

On a Coin of Cyprus found near Truro.

Date, First Century, B.C.

Mr. J. C. Daubuz has recently handed me, for identification, a silver coin of a Ptolemy, found about 2 miles from Truro, towards Perran-Porth. It has been pronounced, by the British Museum authorities, to be a coin of about B.C. 80. It represents a King of Cyprus who was the younger brother of Ptolemy Auletes King of Egypt, and like him a natural son of Ptolemy Lathyrus, King of Egypt.

Dr. Smith has stated that the Ptolemy before us (whose coin has now been found in Cornwall), was acknowledged King of Cyprus when his brother obtained the throne of Egypt in B.C. 80. On account of his having offended Clodius, the latter procured that Cyprus should be declared a Roman province. Cato had to carry out the decree, and warned Ptolemy, for his personal safety. But the King refused favourable offers, and put an end to his own life in B.C. 57.

The legends on the coin, in Greek letters, are equivalent to "[The coin] of King Ptolemy," and also "3rd year," and "Pa [phos]" the name of his capital city.

The head upon the obverse is of bold design, as is also the eagle with thunderbolt on the reverse.

On a Rare Silver Penny of King Stephen's 1st Coinage (type of late coinage of Henry I), about 1135-36.

This coin was discovered on the south side of St. Michael's Mount, and the type will be found engraved in Hawkins's silver coins No. 268.

Mr. J. Rashleigh of Menabilly describes it as follows:—

"*Ob.* ✠ STIEFNE Full face, crowned, with Sceptre, bust to edge of coin.

Rev. ----NE:ON:L the name of the Moneyer and mint imperfect, probably ALWINE:ON:LVN. Cross voided throughout, within a tressure fleury, the fleurs-de-lis pointing to angles of the cross.

This coin, *one* of the rarest of Stephen's, is in good preservation, all the coins of his reign having been carelessly struck."

RUDE STONE MONUMENTS ON BODMIN MOOR.

By A. L. LEWIS, F.S.A., Treasurer Anthropological Institute.

While the rude stone monuments of the Land's End district, and the "Hurlers" and "Trethevy Stone," in East Cornwall, have been known for centuries, and described very many times, the no less interesting groups of remains on the west side of Brown Willy and Rough Tor*, have attracted but little attention; the Ordnance map surveyors noted them in the course of their duty, but few archæologists knew them, and, although plans of three of the circles were given by Messrs. Lukis and Borlase in their elaborate work on Cornish Rude Stone Monuments, published by the Society of Antiquaries, two others, the Leaze and Stannon circles, and the very extraordinary structure known as "King Arthur's Hall," were not mentioned by them at all. So far as I know, the only plans of any of these yet published, are those which I now place before the Institution by permission of the Council of the Anthropological Institute, which had them photographically reproduced from my drawings a year ago.

The Leaze Circle may be most conveniently reached from Blisland on the one hand, or from St. Breward on the other, by the road which leads to and terminates at the farm marked as Leaze on the Ordnance map. Passing through the yards and an enclosure or two, the visitor will find the stones,—ten standing and one fallen, besides four or five fragments, three of which are buried in a fence which cuts the circle in halves.

The diameter of the circle appears to have been 83½ feet, but its south-eastern segment is wanting; the stones are from 3 to 4 feet high, and 1 to 2½ feet in width and thickness. A little way from the circle, about 10 degrees east of north from it, are three

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*The names of Brown-Willy and Rough-Tor are not supposed to signify either "Brown" or "Rough," although in modern spelling they appear to do so. Their old Cornish titles "Bryn-whella" and, perhaps, "Rudh-tor," (similar in sound to Brown-willy and Row-tor) were expressive of "Hill-highest," and "Ruddy-prominence;" the latter being equivalent to Rouge-mont. With regard to Rhud, however, there are other adjectives worthy of consideration.—W. I., Co-Editor, R.I.C.J.

stones which may have formed part of a cist, and there are also about half a dozen stones, which may be the remains of another circle, a short distance to the north-west, beyond which, about half-a-mile from the Leaze circle, is

"King Arthur's Hall." This remarkable structure* consists of a bank of earth, the present breadth of which varies from 12 to 20 feet at the base, and its height from 5 to 7 feet; this bank encloses an oblong space, 159 feet long, from north to south (within 5 degrees to west of north), 64 feet wide at the north, and 68½ feet wide at the south. Twelve stones stand or lie in line inside the north end of the bank, eighteen inside the east side, six inside the south end, and nineteen inside the west side; they seem to have formed a kind of retaining wall to the inner side of the bank, but are mostly pressed inward and in many cases nearly buried by its gradual wearing away, it is indeed probable that many stones are quite covered, and that the lines, if not quite continuous, were originally much more complete than they are now, but this can only be ascertained by digging or boring; the largest stones remaining in position are about five feet high. The middle of the enclosure is a foot or so lower than the ground outside, and in wet weather is full of water, which finds an outlet at the south-west corner. All the corners of the embankment are more or less broken and rounded, and it is lower at the north and south ends than at the east and west sides, but there is no appearance of any special entrance, the angles of the lines of stones being well-defined, except, perhaps, at the south-west corner.

The Stannon Circle is a mile and a half north (slightly west) from "King Arthur's Hall," and will be most readily found by getting to the position where Rough Tor is due east *by compass*, about a mile and a quarter away, and the three highest peaks of Brown Willy are just visible over the ridge, as shown in the sketch on my plan. The circle consists of about

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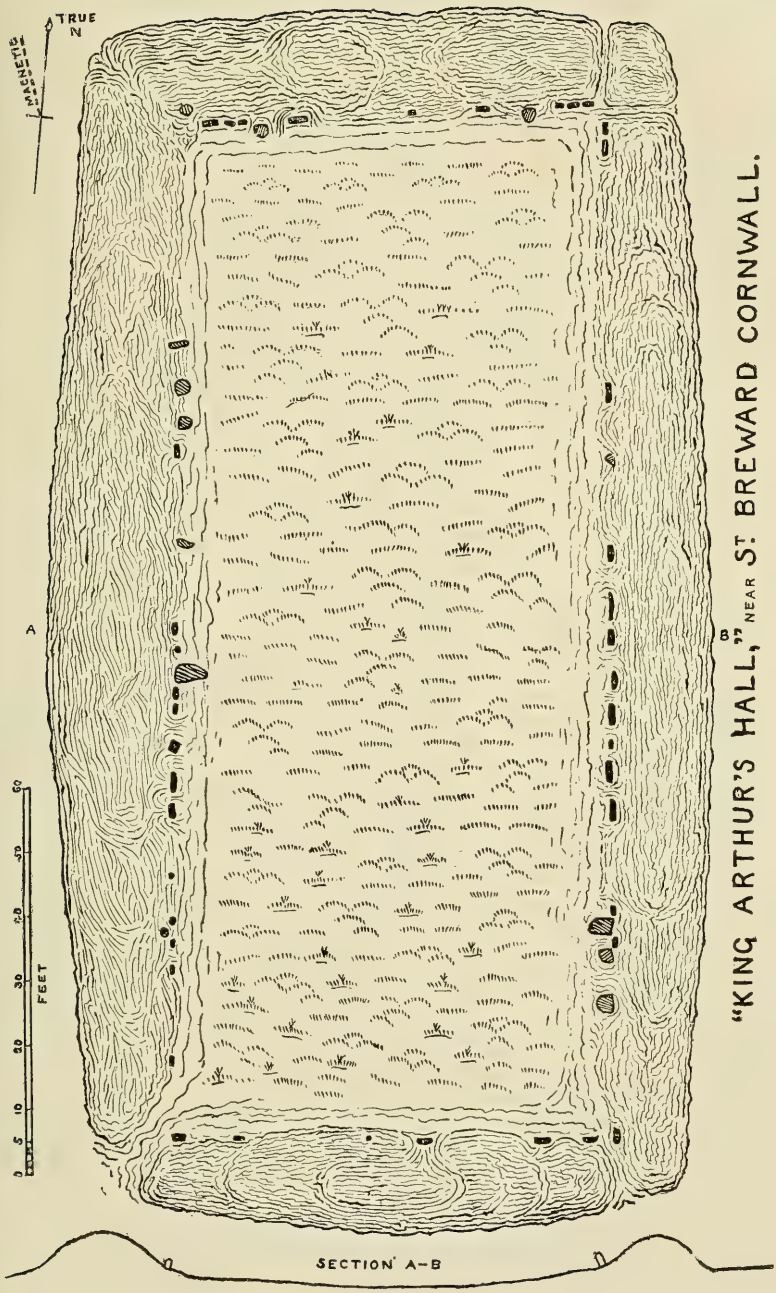
* The members of the Royal Institution of Cornwall visited Arthur's Hall, Roughtor, Brownwilly, and neighbouring stone-remains, in the course of their Annual Excursion, 1887. It has been conjectured that Arthur's Hall may have been a great cattle-pound, a place of assembly, or an earthwork occupied by a small detachment of Roman troops.—W.I., Co.-Ed.



"KING ARTHUR'S HALL," NEAR ST. BREWARD CORNWALL.

70 stones and fragments, of which 33 are upright, but none of them exceed five feet, and some of them are not more than two feet in height. The diameters are 138 feet from east to west, and 125½ feet from north to south, there being a peculiar flattening of the northern side, in which respect it resembles Long Meg circle in Cumberland.

On measuring the distances between four out of the five circles on Bodmin Moor upon the level surface of the six-inch Ordnance map, a remarkable result is obtained, those distances being (within a working error of one per cent.) in the following proportions:—2, 3, 7½, 8, and 8⅛, and working out into even numbers of an Egyptian or Royal Persian cubit of 25·1 inches, as do the diameters of the circles themselves. These latter (after correcting Mr. Lukis's errors in plotting his own measurements), are:—

Fernacre ..	146—7 feet	=70	cubits of 25·1 inches.	
Stannon ..	138 feet east to west	=66	,,	,,
	125½ ,, north to south	=60	,,	,,
Trippet Stones	104½ ,,	=50	,,	,,
Stripple Stones	146—7 feet	=70	,,	,,
Leaze	83½ feet	=40	,,	,,

The distances between the circles are, as nearly as can be ascertained from the six-inch Ordnance map:—

Trippet Stones to Stripple Stones	4180 feet=1998½ (practically 2000)	cubits of 25·1 ins.	
Stripple Stones to Fernacre	15730 feet=7520 (practically 7500)	,,	,,
Fernacre to Stannon ..	6275 feet=3000	,,	,,
Stannon to Trippet Stones	16400 feet=7840 (for 8000, 2 per cent. error)	,,	,,
Trippet Stones to Fernacre	16880 feet=8070 (for 8125)	,,	,,
Stripple Stones to Stannon	16850 feet=8055 (for 8125)	,,	,,

It must not be forgotten that the above distances are measured as on the level, while the ground is very irregular. But if measured over the surface without regard to its irregularities the apparent errors, which with one exception, are all

short measurements, would be largely reduced. The one exception is in the distance between Stripple Stones and Fernacre which thus measured would be in excess of the proportion above stated ($7\frac{1}{2}$). The conception of such a proportioned arrangement and the measurements necessary to carry it out, even with the degree of accuracy attained, would seem only possible for someone accustomed to the works and ways of a higher state of civilisation than that of the people who lived in the stone huts, and probably erected the stone circles, but the use of an oriental measure would indicate intercourse with a more civilized people, and the fact that the 25.1 inch cubit does not, so far as I know, appear in connection with any other circles, seems to suggest that that intercourse may have been of a casual rather than of a frequent character. It may therefore not be unreasonable to suppose that someone from some country bordering on the Mediterranean may have visited Cornwall, perhaps three thousand years ago, as a merchant, explorer, or refugee, or possibly as a slave carried there for sale, and that, being there, he was employed by the local chief in the construction of his public works, and made use of a measure which he happened to have with him. Still, as all these coincidences of measurement and proportion may be accidental, I do not wish to build any theory upon them, but I think it will be admitted that they should be recorded.

There are, however, some other facts regarding the positions of the circles relatively to each other and to the hills around them, concerning which I have formed a very decided opinion.

It will be seen from the Ordnance map, and can be verified on the spot, that the Stripple-Stones circle, Garrow-Tor, the Fernacre circle, and Rough-Tor, are all in a direct line, nearly due north and south ; and that the Stannon circle and Fernacre circle are in a direct line with Brown-Willy, at a right angle to the first line, that is nearly due east and west, while the Trippet Stones circle and Leaze circle are in a line with Rough-Tor, 11 to 12 degrees east of north. A difference in the situation of any of these circles, of one or two hundred feet, would put them quite out of these lines, but there is no apparent reason why they might not just as well have been put anywhere round about as

on the particular spots they occupy, indeed, I think a better site might have been found for most of them, therefore I cannot imagine that these three lines of circles and hills can have been formed accidentally in placing only five circles; in other words, I see no escape from the conclusion that each of these circles was placed on the exact spot it occupies, because that spot was in a certain direction from the hills I have mentioned. I say from the hills rather than from the other circles, because the only circles that are visible from each other are the Stripple Stones and Trippet Stones.

In support of this conclusion I may add that I have found a similar relation between circles and hills elsewhere. At the Meinieu-Hirion circle near Penmaenmawr two large stones in the valley, now prostrate, but probably once upright, direct the eye toward a hill in the line of the Midsummer sunrise. A straight line drawn in the same direction, from the Mitchell's-Fold circle in Shropshire, to the "Hoarstone" or Marshpool circle, passes over Stapeley Hill, midway between the two circles, and terminates in a group of three low hills to the north-east of the "Hoarstone." At the Swinside circle in Cumberland a straight line may be taken in the same direction from the top of Black-Combe, the most prominent hill near it, through the circle to a group of three low hills to the north-east of it. The circle near Keswick in Cumberland is so placed, that Skiddaw and Blencathra, the two highest mountains round, are, respectively, 34 to 35 degrees west and east from north of it, Blencathra presenting the appearance of a triple summit; these are too far north to have any connection with the sunrise, but would direct attention to the revolution of the Great Bear round the pole-star.

The relative positions of the circles and the hills, as stated above, are facts which anyone may verify, either at the circles or from the Ordnance maps. As to the meaning of the facts, it is open to everyone to form his own opinion. The relation of the "Friar's Heel," and, indeed, of the whole structure of Stonehenge, to the rising sun at Midsummer is well-known, and it is my opinion that, while outlying stones were used as skymarks on flat horizons like that at Stonehenge, the hills themselves were used as skymarks in hilly countries. It is true that hills

may be found in directions which do not appear to have any meaning, as well as in those which have, but, although the circle-builders could not remove those hills, they could ignore them, and their presence would help to conceal from the uninitiated (as it still does) the selection of those hills on which the gaze of the worshipper was to be fixed.

To pursue the subject further in its general bearings would extend this paper beyond its proper limits, but I may mention that in Egyptian theology we have the Eastern Solar Mountain, where the sun rises, and where he is saluted by the powers of the East.* Other particulars as to the connection between circles, hills, and the sun, may be found in the Archæological Journal, Vol. XLIX, p. 136. With regard to the Bodmin Moor circles, I may say, in conclusion, that the line drawn due north through the Stripple Stones and Fernacre circles was probably intended to point to the polestar, and that the line due east through the Stannon and Fernacre circles to Brown-Willy, evidently was meant to indicate the equinoctial sunrise, while hills due south (of which there are instances here and elsewhere), were kept in view as directing attention to the sun at noon. The sun shining between the granite peaks of Rough Tor, as it must at some time in the year, would present a very impressive appearance to anyone viewing it from the Stannon circle; and the triple peak of Brown-Willy, seen from the same spot, as shown in my sketch, may be compared with those in other places mentioned previously. Garrow is in the line of midsummer sunrise from the Leaze circle, and three smaller tors are in the same line from the Stripple Stones. The lines of direction from the Trippet stones and Leaze circle to Rough-Tor are probably in connection with some star or stars, being too far north for any reference to the sun. Rough Tor is the only one of the hills which is visible from all the circles on Bodmin Moor, and may therefore be considered to have been the sacred hill of East Cornwall, though not quite so high as Brown Willy. There are no hills of any great note to be seen on the west side of these circles.

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* P. Lepage Renouf (President) in *Proc. Soc. Biblical Archæology, Vol.* 18, *page* 7.

I am not aware that any interments have been made in any of the circles, but, if any have, they would not have precluded the use of the circles for other purposes, any more than burials in churches have prevented their being chiefly used as places of worship.

NOTES ON THE EFFECTS OF A DRY SUMMER, ON TREES.

By J. D. ENYS, F.G.S., Vice-Pres. and Ex-Pres. R.I.C.

A short time since I sent a paper to the Penzance Natural History Society on the above subject, and now repeat what I then wrote, with some additions.

The dry summer of 1893 had a damaging effect, as far as my observations went, on Holly-trees throughout Devon, Dorset, and Cornwall; indeed had it not been for the wet summer of 1894 a much larger number would have died.

The hill on the Falmouth and Truro Road opposite Killiow shews the effects of the drought in a marked manner,—many of the hollies have died, and all shew scant foliage, though this is gradually getting thicker.*

The Ash trees in 1894, with few exceptions, had very little foliage, while every Plane-tree I have seen had the foliage cut back. In the case of the Plane-trees, I think the effect was caused by the early frost of January 4th, or the late frost after the leaf had broken forth.

The dry summer of 1893, however, had been good for the Oak trees, and resulted in a large crop of acorns, whilst in 1894 there were scarcely any; but the amount of seed on the Beeches in 1894, was more plentiful that I can remember before.

Again, the frost of Jan. 4th caused the loss of nearly all, if not all, the Eucalypti globosi, or Australian Blue Gums. Some indeed are shooting up again, such as the fine tree at Penmere, near Falmouth. This tree, about 70 feet high, which has produced good seed, is now a brown stem with shoots coming out of it some 20 or 30 feet up the trunk, and though it may recover, it can never be the tree it has been for the last 30 years or so.

*The Hollies now, in Feb. 1896, shew the full effect of the damage done, and, except that most of them have a thick lot of shoots at the bottom, are not likely to recover their former beauty for a long time.

Between Marazion and St. Erth a similar amount of damage can be noticed.

On the high ground in the Parish of Mawnan the long shoots of the Hazel were all cut back at the time of the frost and east winds of 1895.

A large number of the Dracena, or Cabbage trees, have also been cut down, or cut back for some distance. One Dracena Australis, grown from seed sent home by myself from the South Island of New Zealand, in the year 1861, which was about 17 feet high and had numerous heads, has been cut back half way. I have been told that tying the heads together so as to protect the centre from the frost saved many of them from destruction; this seems reasonable enough, as it is the centre which first suffers from frost. In the year 1862 a heavy frost occurred in the South Island of New Zealand and thousands of these plants were killed, the centre of every shoot having been caught by the cold, and the plants looked as if something had eaten out the heart of each head.

In the early part of 1895, the Loe Pool near Helston, was frozen over so as to bear, and even at Tresco in Scilly, the Abbey pond was also frozen over.

The Benthamia, or as it is now called, the Cornus, has suffered much, and in some places the specimes have been killed, but those that escaped are full of seed.

REMINISCENCES OF DR. L. H. POTTS, ONE OF THE FIRST SECRETARIES OF THE ROYAL INSTITUTION OF CORNWALL.

By Mr. HAMILTON JAMES, Member of the Council R.I.C.

The list of Cornish Worthies is a long one, and there are others, who had made Cornwall their temporary home, that have left the imprint of their footsteps on the Cornish sands, and amongst them stands prominent the name of Lawrence Holker Potts, M.D., one of the first secretaries of this Institution, as well one of the most active of the originators of the Society.

I had hoped that I might have obtained much original matter from some of those still living, who were his contemporaries,—not knowing or not realising at the time, that it is now sixty-seven years since the Doctor left Truro,—for in my early youth his name was quite a household word; and now because of man's forgetfulness, and that his memory may be green amongst us, I have gathered together such facts as I have been able, from such meagre references as are to be found in our early reports, but more largely from an able article in the Mining Almanac for 1851, by Mr. Hyde Clarke, (compiled from various sources, mostly scientific), Mining and Herapath's Journals, Parliamentary Reports, West Briton, and other papers.

He was born in Pall Mall in 1789, the son of a medical man destined for the same profession, and was happily placed with the celebrated surgeon Brodie. He joined the Hunterian School of medicine, then enjoying the highest reputation, and, with his abilities, having such opportunities, it is not surprising that he attained a considerable reputation for his skill.

His first connexion with our county began in 1812, on his appointment as full Surgeon to the Royal Devon and Cornwall Miners' Militia, but while thus engaged, he did not neglect his studies, and although he attained such eminence in his profession, his heart was often in his workshop or laboratory; I quote from Mr. Hyde Clarke's article, "he was not one of those men who

think that education is to be got at school or college, and the process of learning left off on quitting the guidance of a master, he thought that all that was good is to be learned at all times, and usefully employed. On the other hand his application to study was often too severe, and there is much reason to believe that he laid the foundation of future disease, and undermined his constitution by too great exertion, and above all by taking too little sleep."

On the peace of 1814 his regiment being disbanded, his attachment to many friends he had in it, induced him to settle in Truro, and commence practice here, and on the 5th January, 1818, I find his name at the first meeting held for forming this Society, and the important announcement, that Mr. L. H. Potts and Mr. W. M. Tweedy be appointed secretaries;—with two such secretaries, no surprise is felt that our society grew and prospered. The authority I have quoted before, Mr. Hyde Clarke, states, that in 1818, in conjunction with Mr. Tweedy and some other gentlemen, Dr. Potts originated the Royal Institution of Cornwall, which has been the means of doing much good to the county, and in the opening lecture Col. Willyams alluded to his services, and congratulated the county on the chance that had brought Dr. Potts into it.

As much time as he could spare from his professional duties he devoted to this Institution, he delivered a course of lectures on chemistry and natural philosophy, and volunteered gratuitously to analyse any mineral or other matter which might be sent to him for that purpose.

The next reference to him in our Reports, after his appointment as secretary, is in the first list of presents received for the establishment of a Museum, when I notice his gifts are of the most varied character, consisting of a study of heads by Kranack, a viper, a flying fish, shells, horns of a moose deer, corals and corallines, an echinus, a crystal, and various minerals, a silver coin, and ancient pottery; subsequently in 1824 he presents insects and uranite from Wheal Buller, and Mrs. Potts also figures in the list (he having married a Cornish lady possessing probably similar tastes to his own) as she gives shells, asterias, Labrador felspar, jasper and agate.

In 1824 he was re-elected lecturer on chemistry and experimental philosophy, his old instructor Brodie (afterwards Sir Benjamin) being made an honorary member; he also delivered lectures on phrenology.

There are many stories told of the doctor, one is about a ghost, there have been many ghosts in Truro, but this was a particular one in his time, a very common sort of ghost, which annoyed the inhabitants by breaking windows and ringing bells. The Mayor and Corporation could not fathom the mystery. At last a boy at the barracks was supposed to have been frightened into a fit by this ghost, the doctor was summoned, and having his suspicions as well as a great contempt for ghosts, turned up the eyelid of the boy, and finding the pupil sensitive to light (a fact not generally known at the time), the doctor sent for a cane, and applied it so vigourously, that the boy soon roared for mercy and confessed that he alone had committed the mischief supposed to have been done by the ghost, which was eminently satisfactory to the good doctor, but not received with equal pleasure by our worthy Mayor and those who had given credence to the affair.

He also invented a tube containing reflectors, with a hole in the side, on looking through this hole, what was taking place on the other side of an eminence could be seen, and I have been told that nervous people in the next street, engaged at their morning toilets, were rendered uneasy, with the knowledge of the existence of such an instrument, and complained of it. I have seen such an instrument shown by Mr. Robert Hunt at the Polytechnic.

I have reasons for believing that he was on terms of intimacy with members of my family, as well as those of my wife's. I have heard my late uncle, Mr. John James, state that he considered Dr. Potts was the cleverest man that ever came into Truro.

Doctors' prescriptions were in those days kept by the chemist, and I remember seeing an old tea chest, half full of those mysterious productions, most of them having the, then familiar, initials L. H. P.

At Polsue, where my wife's relations resided, there were many reminiscences of the doctor, one was a little wooden model

of a machine for raising water to irrigate the farm, and, showing there was nothing too insignificant for the doctor's ingenuity, a little apparatus for moulding butter (so as to avoid touching with the hand), the print of which was an elegant swan; which I have often seen. In the same house was a puzzling jug, known as the doctor's jug, and presented by him, which was surrounded with holes on the lower part of the neck, out of which the nut brown ale or whatever liquid it contained, gushed over the would-be drinker unacquainted with the secret of of putting his finger on a particular hole; so we may conclude the learned doctor loved a joke.

He was happy in his family; in his children he found great assistance in his pursuits, and when infirmities overtook him, their help was invaluable; his eldest daughter, Miss Ethelinda, has been well-known to many in Truro.

For purposes of study, he rose at 2 a.m.; probably to get through some of the work on which he was engaged and enable him to be free to see his patients.

In 1828 he left Truro for Bodmin, where he continued his researches, and the inventing of applicances for the relief of suffering humanity, having been appointed Medical Superintendent of the County Lunatic Asylum.

Amongst his inventions was a boat propelled by muscular power, which excited much interest on our river; a building he erected at Bodmin for patents, was long known as the doctor's folly; but these, as well as many others of his inventions, were simply in advance of their time.

In 1838 he removed to Blackheath for the purpose mostly (except his health) of developing his inventions, which were assuming gigantic proportions; a list of them would fill a volume. I will only mention one, and that is the pneumatic pile-driving process, the greatest boon ever bestowed on engineering science.

He was a great collector, and continued to enrich our museum long after he had gone to reside at Vanbrugh Castle, Blackheath. A choice cabinet of minerals was presented by him to Prince Albert, who took much interest in his inventions.

Though once possessed of an ample fortune, these vast undertakings in which he indulged exhausted his means, and what was never a robust constitution, was broken down by his life of incessant toil with too little time allowed for sleep, and on the 23rd March, 1850, an end came to his labours, in the midst of hopes of the realisation of many of his most ambitious projects.

To us he will be best remembered as our energetic member; to the world, as an inventor.

A building erected by Dr. Potts in Bodmin, as a gymnasium (it is said) for his children,—and probably for his own use also, in connection with his inventions, (perhaps the "folly" already mentioned) became in course of time a Roman Catholic Church. A Tower was added, and afterwards lowered. It is now St. Mary's Priory, and a new church or chapel has been built, adjoining it on the south-west. This is used by the Canons Regular of the Lateran, Rome, the resident priests of the Priory,—the people of the neighbourhood being admitted to the services.

As I wish but one merit to attach to these few remarks, and that is brevity, I will not add more, but hope it will not be considered that I have exalted Dr. Potts unduly in his connexion with this Institution, as I am fully aware of the splendid services rendered by other members in the past; are we not reminded of them on these walls, and I sometimes fancy they are looking down approvingly on the efforts of even the feeblest amongst us, and it is a matter of regret that Dr. Potts's portrait is not amongst them.

BULBILS AND GEMMÆ.

By FRED. H. DAVEY.

It is a characteristic of the present age that it delights in crisp definitions and clearly-defined distinctions. Distracted at the magnitude of the field of knowledge which stretches before us, we try to minimise our ignorance by pegging out the universe into delightfully small parcels; and foiled in our attempts to solve the mysteries of life, we have commissioned our Huxleys and Spencers to state our difficulties in formulas couched in the most recondite philosophic phraseology. Our eagerness to sum up questions might well suggest to the impartial observer that we hurry so much as to be guilty of constructing a cosmogony without first caring to see whether our pieces have structural affinity. Notoriously is this the case in matters biological. As long as we are dealing with things which can be heard with the ear, seen with the eye, and touched by the hand, we are not likely to go far astray; but, when we grapple with the intangible and have to work largely with the eye of faith, it is to be feared that even the greatest rush to strange extremes.

A school of philosophers has arisen in these later days which has parcelled off the ultimate functions of all forms of life into growth and reproduction, and therefrom they construct remarkable definitions. Albeit the most powerful microscope has failed to warrant the distinction, we are asked to believe that living organisms, whether animal or vegetable, are composed of germ-cells and germ-plasm, and somatic-cells and somatic-plasm. If the facts of the case were corroborative of this nice distinction, it would be of little moment whether or not the microscope has revealed the presence of a plasm which subserves reproduction as distinguished from that which elaborates purely vegetable or animal tissue; but in the light of present knowledge we may gravely doubt, whether, when we talk of the two kinds of plasm, we do not set up a distinction which nature does not recognise. If there be such a clear line of demarcation, it is rather remarkable that under certain conditions the somatic-plasm

will answer all the purposes of reproduction, and the germ-plasm is seized upon to increase the bulk of the individual. May we not rather conclude that, in the vegetable kingdom at least, the ultimate physiognomical expression of certain portions of the "physical basis of life" is dictated by the caprice of environment? For, talk as we may, proto-plasm is but "the clay of the potter," to be moulded, baked, and painted as external conditions shall demand.

On the trend of the vegetable kingdom, since the first speck of naked protoplasm emerged from the cosmical fire-mist, we need not appeal to the philosophies. In this respect nature is her own interpreter. Palæontological evidence, together with what we see in the warp and woof of the earth's present carpet, tends to the conclusion that the one purpose, which has ever dominated the vegetable kingdom, has been the entrusting of the care of the species to a distinctive set of organs. To put it in other words, concomitant with the struggle for self, there has been a mysterious and marvellous stretching-forth to ensure the life of others. And when we compare the perfected mechanism in an orchid or primrose with the reproductive processes in lowlier forms of life, who shall say the struggle has not been a pre-eminently successful one? Long and tedious has been the march to this goal, and possibly even now the climax has not been reached, for as the author of "The Vestiges of Creation" gravely asks whether our race is "but the initial of the grand crowning type," which shall be "superior to us in organization, purer in feeling, more powerful in device and act," so may we query whether our most specially-devised flowers are but the fore-shadowings of a still more perfected set of reproductive organs.

Notwithstanding the foregoing, however, many examples occur, even among plants which rank in the hierarchy of development, of a complete failure to produce seed. Most of the mechanism is present, but, through some apparently slight defect, the end for which the energies of the plants have been converging for untold ages has been signally thwarted. And yet the struggle of plants to perpetuate their species is rarely of no avail, for Nature never tires of variety, and her resources are truly infinite. Let the soil combine with climatic caprices, and

both co-operate with hereditary idiosyncrasies to oppugn the production of seed, Nature still pursues her own course and plants reproduce themselves with none the less regularity. And of all the strange devices she has called into action to ensure this end, none, perhaps, are of a more positive character than bulbils among phanerogams, and gemmæ among cryptogams. Between them and the sexual organs the strongest sympathy prevails, and whether the plant shall produce the one or the other would seem a problem to be solved in the light of the action of environment upon irritable protoplasm.

Passing the more important British bulbil and gemmæ-bearing plants under review, the first notable one to suggest itself will be the Celandine of our wayside, whose charms Wordsworth has enshrined in one of his inimitable idylls. On an open bank where the sun kisses them, the livelong day, one may search the leaves in vain for bulbils, for the simple reason that, under conditions so favourable to the development of seed, bulbils are not required, and so none are formed. On the other hand should the Celandine grow in a shady place the flowers will be few and sickly and rarely capable of developing healthy seed. The foliage, however, will be rank, and to compensate the failure of seed, innumerable bulbils will be formed in the axils of the leaves. For five years the writer has kept in view a small patch of Celandine so situate as to be hidden from every direct ray of sunlight. During this period he has never known a single seed to be developed, while of bulbils he could gather annually enough to fill a pint measure.

Our eastern counties have a congener of the Lady's-Smock of our own meadows, which, as its local name,—Bulbiferous Bitter-cress,—signifies, bears bulbils in the axils of its leaves. By these bulbils alone does the plant reproduce itself, for, interesting to relate, although the plant flowers with comparative freedom, seed are but rarely formed. Here, as with the Celandine, we see that, defeated in her purpose of producing seed, Nature has taken a shorter cut to the same end. The energy which should have been spent on the maturation of the ovary and its ovules has taken an entirely different expression, and the germ-plasm, if there be such a thing, obeys all the laws and fulfils all the purposes of the somatic-plasm, and *vice versâ*.

But perhaps the most pertinent evidence of the sympathy which prevails between bulbils and flowers is furnished by the Lily tribe. Most amateur gardeners may know that the quaint old Tiger-lily, a favourite with our grand-parents, propagates itself by bulbils, and produces seed but rarely; but to what extent the presence of the one is connected with the absence of the other may not be equally apparent. Evidence is not wanting that the old-time ancestors of this lily, bore perfect hermaphrodite flowers, and that the repeated demands of certain conditions of environment have eventuated in the abortion of the pistil in some flowers, and of the stamens in others, the result being that pollen has to be transported from the stamens of one flower to the pistil of another in order to bring about a fertilization of the ovary. Now, if the pollen ripened simultaneously with the attainment of functional activity by the pistil, and its transit to the pistilliferous flower were guaranteed, fertilization would be insured and seed would follow. But, knowing as we do, that a rise or fall of temperature, the absence or presence of certain elements in the soil, and a high or low vitality at the critical time of flowering may ripen the stamens and pistil at periods sufficiently removed to preclude fertilization, we can easily see that the production of seed is a very uncertain affair, and that, oftener than not, none will be formed at all. Considering this, need we ask for weightier reasons for the presence of such purely vegetative organs of reproduction as bulbils?

This same Lily-tribe has other excellent examples of bulbil-bearing plants. The genus Allium alone, which, by the way, furnishes us with such useful culinary herbs as the onion and leek, contains no fewer than five. What in these instances most forcibly strikes the student is that, unlike the foregoing plants, the bulbils in these several cases appear at the extremity of the flower stalk among the flowers, if there are any, which, however, is not always the case. If there are bulbils the flowers are fewer *pro rata*, and again and again does it happen that the entire umbel of flowers is replaced by a head of bulbils. More cogent evidence than this in support of Charles Letourneau's dictum, —"The faculty of reproduction.... is only a simple extension of the nutritive property,"*— it were difficult to find. Elsewhere the

* Biology, p. 30.

same author remarks:—"Growth is only an excess of nutrition, and generation is only an excess of growth. Growth and generation have for cause a superabundance of nutritive materials."*

Among cryptogams the situation is analogous. The fundamental rule is,—many spores few gemmæ; many gemmæ few spores. Take the mosses. Antheridia and Archegonia, the functional equivalents of the stamens and pistils of flowering plants, are the prevailing mechanism by which these lowly types of plant life perpetuate themselves, but, like the stamens and pistils of flowering plants, they are not invariably responsible for reproduction.

Aulacomnium palustre, which keeps company with the sphagnum mosses on our moorlands, in some seasons develop spores by the usual sexual process, while at other seasons spores are left severely out of the question, their purpose being fully met by gemmæ, which are borne on stalks at the extremities of the branches. Lord Justice Fry, himself a very capable muscologist, says—"The question whether the plant shall adopt the one mode of reproduction, or the other, seems to depend, in part at least, on temperature, a high temperature tending towards the production of the gemmæ, and a lower temperature towards spores."†

Orthotrichum phyllanthum, another moss which is tolerably cosmopolitan in its distribution, favours the vegetative method of reproduction to a still more marked degree. Once or twice only has it been found bearing spores, while of gemmæ it produces large numbers at the apices of the leaves.

Leptodontium, *Grimmia*, *Tortula*, *Bryum and Tetraphis*, are other mosses which, either on the midrib, at the apices, or in the axils of the leaves, and in terminal cups bear gemmæ, and on which spores are only occasionally found.

Proceeding to still lower types of vegetation, the relation of gemmæ to the sexual modes of reproduction becomes strikingly exemplified in the frondose liverworts. Repeatedly has the writer noticed that some years are years of gemmæ, while others are years of sexual organs. The two, in short, are never borne in large numbers on one plant at the same time. One kind,

* Ibid, p. 309.

† British Mosses, Knowledge Series, pp. 23, 24.

indeed, (*Lunularia*) perpetuates itself in this country by gemmæ alone, the spore-bearing form never having been found.* On the other hand *Pellia epiphylla*, common on damp banks and by water-courses, bears spores to the entire exclusion of gemmæ.† Incidentally, the writer may mention that his personal observations on the common Marchantia, grown in stove-houses, show that a high and humid atmosphere favours the male form, which under these circumstances is always in excess of the female. This is an interesting supplement to Professor Henslow's assertion—"A relatively high temperature favours the.... andrœcium, while a comparatively lower one the gynæcium."‡

This, then, is the evidence. Like the arms of an octopus, the subject stretches away in other directions, and many subsidiary studies are involved. Indeed it will be clearly seen that an equally great problem lies behind the whole. It is easy, and to a certain degree interesting, to say that, defeated in her purpose of ripening seed and spores, Nature has taken another and shorter cut to the same end by allowing the reproductive energy to express itself in the form of bulbils and gemmæ; but the inquisitive student asks for more. To him it is of supreme import to know how and why nature has been frustrated in her purpose to develop seed; and on other points he raises equally pertinent questions. In a great measure these have been answered elsewhere, and by competent writers, hence it would be without the province of this paper to go into details. The works of Müller, Darwin, Dr. Masters, and Henslow are lucid expositions of the action of environment upon irritable protoplasm. These writers have made it abundantly clear that temperature, soil, and insects are powerful agencies in modifying the structures and transmitting the form and colour of flowers, exacting a change here and another there, and intensifying the whole through succeeding generations until what at first seemed trivial and fitful aberrations from the type, culminate in distinct and fixed variations.

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* *A course of practical instruction in Botany*, by F. O. Bower, D.Sc., F.L.S. 1891, p. 362.

† *Ibid.*

‡ *The origin of Floral Structures*, p. 237.

True to the note struck at the very outset of this paper, and to the striking evidence afforded by a review of the principal bulbil and gemmæ-bearing plants of Britain, we sum up the question. Between the functionally reproductive and the functionally vegetative cells of plants, the closest sympathy is manifested; so much so that when we consider how, under certain circumstances, the vegetative cell is capable of doing that for which the germ cell was destined, we begin to think that if there is such a distinction as germ-plasm and somatic-plasm, the two are so inextricably interwoven as to be capable of giving rise either to a sexually reproductive cell, or a purely vegetative one. Letourneau states the position very nicely when he says—"Vegetal physiology is still so confused, the division of labour in the plant is so ill-distinguished, that it is not easy to mark out therein functions very different from each other. Everything is connected, everything blends, everything forms the link of a chain."*

If it be accounted logical to judge of the properties of a body or organism by the phenomena it presents—and Professor Huxley can be cited for the position—one of two facts must be forced on us by a consideration of the foregoing statements. Either the existence of the two kinds of plasm is a position difficult to maintain, inasmuch as it fails to meet many exigencies of plant life, or the two under the influence of environment are capable of more than one physiognomical expression. Of the two, the former carries greater conviction. After all that has been written, we cannot forget that the germ-plasm is a purely hypothetical quantity. No one, not even those who hoped to have explained many of the deeper problems of life by it, has at any time been fortunate enough to have ocular demonstration of its existence. Postulated to account for the phenomena of heredity, the two distinct plasms cannot be maintained when one has under consideration many of the reproductive contrivances to be found in the vegetable kingdom.

* Biology, p. 89.

NOTES ON GEOLOGY AND MINERALOGY.

BASALTIC COLUMNS IN WEST DEVON.

By THOMAS CLARK, (Associate of the Royal Institution of Cornwall).

This peculiar structure, I believe, has not hitherto been recorded as having been found in England.

The fragment exhibited was discovered by Mr. Collins, The College, Redruth, in a railway cutting between Marytavy and Tavistock, on the London and South Western Railway. He says, the columns are irregular hexagonal prisms, and are about two, or two and a half feet, across; they are dipping south, at an angle of about 20° from the perpendicular; and are found near the junction of the Devonian and carboniferous strata, and with other igneous formations, and intercolated with schistose rocks of a dark shaly character, through which veins of quartz, iron pyrites, and manganese pass.

The minerals, of which this fragment of basaltic column is composed, are sanidine, labradorite, calcite after sanidine, magnetite much changed, hornblende, few needles of apatite, and some serpentineous matter probably after olivine. It is its sanidine felspar which gives it a claim to be placed in the tertiary extrusions, and also the fact of its being found on the lines of the north and south volcanic fissures of that period, the remnants of which are so conspicuous in the Western Islands of Scotland, Isle of Man, N.E. of Ireland, Snowdon, and, now, near Tavistock, West Devon.

This is another link in the chain of evidence connecting the Lizard basic rocks with the Irish and Scotch Tertiary eruptions, and further confirms my former views on the basic rocks of the Lizard district.

SPECIMENS OF TIN-STONES FROM DURANGO.

By J. H. COLLINS, F.G.S. (Geological Gold Medallist R.I.C.)

The specimens of tin-stones from Mina del Diablo, Durango, Mexico, marked A and B, were handed to me for the Museum of the Royal Institution of Cornwall by Mr. Richard Pearce, F.G.S., in the year 1893. They have been called pseudomorphs of cassiterite after hematite and magnetite, but would be more properly described as simultaneous crystallizations; the ferruginous component predominating, in quantity and in crystallizing force. The A variety has been well-described and figured by Professors Genth and Vom Rath, and by L. V. Pirsson.* The B variety presents an entirely different appearance, which I have rudely represented in the sketch which accompanies specimen C. Here it appears that crystals of hematite have been formed in presence of a large quantity of silica, which I believe was at the time in a gelatinous condition; and around the crystals so formed, cassiterite in the radiated and imperfectly crystalline form known as "wood-tin," has been abundantly deposited, so as entirely to enclose the hematite.

* Genth and Vom Rath, *Proc. Am. Phil. Soc.*, 24, 23, 1887; Pirsson, *Am. Jour. Sc.*, 1891, p. 40.

CORRIGENDA, &c.

Page 11, line 13, for "Miss," read "the Misses" Couch.

Page 12, line 28, "bought . . . for a small sum," add, "by a former possessor."

Page 14, line 1 of foot-note, for "word," read "term."

Page 18, line 18, for "Edwards," read "Edmonds." "Paul Tuz," &c., signifies "Men of Paul," &c ; and for "G*w*are têg y*n* guare whêg," read "G*u*are têg y*w* guare whêg,"

Page 21, Annual Excursion : add date, "1895."

Page 22, line 13, for "Trethe*w*y," read "Trethe*v*y."

Royal Institution of Cornwall.

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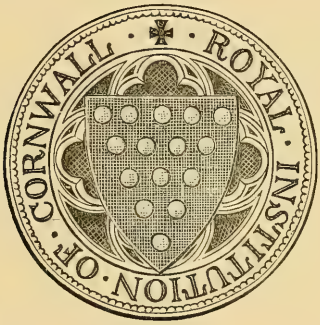

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Royal Institution of Cornwall.

SPRING MEETING.

The Spring Meeting was held in the Museum Buildings, Truro, on Tuesday, 16th June, 1896, Mr. John Davies Enys, F.G.S., Ex-President, in the Chair, (the Right Hon. Leonard H. Courtney, M.A., M.P., the President, being unavoidably absent). Amongst others present were :—The Ven. Archdeacon Cornish, the Revs. Sub-Dean Estridge, Canon Moore, A. E. Crowder, D. Whitley ; Messrs. Richard Pearce, F.G.S. H.B.M. Vice-Consul, Denver, Colorado ; J. H. Collins, F.G.S. ; C. Twite, F.G.S. ; J. C. Daubuz ; G. B. Millett, M.R.C.S. ; E. Sharp, M.R.C.S. ; S. Trevail, F.R.I.B.A. ; Hamilton James, F. A. Cozens, F. H. Davey, W. J. Clyma, B. Williams, J. Osborne, T. Worth, Mrs. Donaldson, Mrs. and Miss James, Mrs. and Miss Share, the Misses Coode, Blenkinsop, Burrell ; Major Parkyn, F.G.S., and Rev. W. Iago, Hon. Secs. ; and Mr. Gregg, Curator.

The Chairman expressed regret at the President's enforced absence ; and then announced that as soon as the forthcoming number of the Society's Journal were issued, the Henwood Gold Medal could be awarded. He then submitted, for the consideration of the Meeting, some notes which he had made, on certain appearances of trees and shrubs, produced by the peculiar character of the recent season. He also offered a welcome to Mr. Pearce, who had once more come amongst his old friends, the Members of the Society.

MR. PEARCE, OF DENVER, ON GOLD IN CORNWALL.

Mr. Pearce said he would show them two or three specimens of minerals from the Cripplecreek district of Colorado—a district lately come into special notice. By the depreciation of silver, mining in Colorado had been reduced to a comparatively low condition, and miners had turned their attention from silver to gold.

One result was the discovery of gold in an entirely new district:—the gold did not occur in native form, but in connection with tellurium. The discovery, as in many other cases, was made by a man who knew nothing about minerals or assaying. He struck on something which he thought might be sent to the assayer, and to his astonishment it proved to contain gold. He (the speaker) had seen granite, which under ordinary circumstances would be thrown away, containing 4-ozs. of gold to the ton; it had in fact been impregnated with gold by thermal waters. Prospectors were just now very busy all through the Rocky Mountains trying to discover, if possible, other Cripplecreeks. Cripplecreek was only five years old, and was already a place of some 15,000 inhabitants with three railways running into it. Its output of gold in 1895 was worth eight millions of dollars. After moving among the miners of Cornwall, he had come to the conclusion that there was plenty of room for prospecting in this county to-day. Thirty or forty years ago he did a great deal of work in hunting up the minerals of Cornwall, and it struck him that, since that time, nothing had been done in the way of making any new discovery, and search had scarcely been made for any deposit in new districts.

It distressed him very much as a Cornishman to hear of the depression that existed; but he thought that if he might be allowed to say so, it was due more particularly to the slow and indifferent habits of the Cornish miners themselves. He said this without the slightest hesitation—they wanted modern ideas and modern systems of working introduced into their mines, to make them successful and profitable. Only on the previous day he went to the bottom of Dolcoath, a depth of 440 fathoms, and there saw what he had never seen before, an enormous vein of rich tin—shewing externally a lode of forty odd feet. They had that enormous lode but hardly any means of getting at it, or of treating it when they had got it. In the Butte district of Arizona they returned 120 tons of copper from 2,000 tons of stuff, every day, from a lode no richer than that which he saw at Dolcoath. It behoved them to introduce more spirit into their Cornish engineers, and to get them to adopt modern ideas and modern systems of working which were so successfully carried out in other countries. Gold had been known to occur in Cornwall,

and it had seemed to him that the conditions should induce them to attempt prospecting for gold; they had in that museum a magnificent nugget from the Carnon streams, grains and nuggets had also been found in other districts, yet no one had ever made much effort to get at gold in Cornwall. He thought Mr. Collins would agree that they had the proper geological conditions for gold. Silver had occurred in large quantities in North Dolcoath, yet they had simply gone on with the ordinary routine for getting tin and copper. He thought Cornish miners would be perfectly justified in going further, to see what this old county was capable of yielding.

Mr. J. H. Collins said he agreed with all Mr. Pearce had stated about Cripplecreek, because, although he had no personal knowledge of the district, one of his sons had inspected a number of mines there. With regard to Cornwall there was a difficulty in the way of Cornish mining which he believed did not exist in any other part of the world. Capital could be got in London, (which was the great mining centre of the world), to any extent, for any part of the world except Cornwall! Capital could scarcely be got in London for Cornish mines, and it was difficult to find the reason why. Perhaps it was because many had been very ready to call attention to any dark shadow on Cornish mining, while there had been few to put forward the bright side. The bright points were, however, easy to find. Every one of our leading mines had a history that would bear investigation. If they compared the amount put into it with the amount got out of it, they would find a result that could hardly be paralleled anywhere else.

Soon, he hoped, there would be a change, but at present that was the reason they could not develop Cornwall as they could other parts of the world. It gave him very great pleasure to come there again, to form one of a trio of old teachers in Cornwall. Mr. Pearce and Mr. Twite were both teaching in Cornwall before he (Mr. Collins) was, and when he came, there was a fourth, Dr. Le Neve Foster. He was glad to know that they had all met with success.

Mr. Trevail, supported the views which had been advanced, and advocated scientific study of the matter. He also congratulated Truro on its being about to possess a Technical College.

Mr. Gregg, the Curator, read the list of presents received for the Library and Museum.

The following papers were then read, but not by their authors :—

"Rude Stone Monuments on Bodmin Moor," written by Mr. A. L. Lewis, F.C.A., Treasurer of the Anthropological Institute.

"Celia Fiennes in Cornwall," contributed by Mr. H. Michell Whitley, F.G.S., Hon. Member.

"Notes on the Bulb-mite," submitted by Mr. F. H. Davey, Ponsanooth.

"Remarks on a Lobster-hatchery," sent by Mr. Rupert Vallentin.

The Rev. W. Iago then made some remarks on "The Destroyed Spire of Bodmin Church,"—also, on "a Killigrew memorial brass,"—and on "A brass in Gloucestershire displaying a crest which represents a miner carrying, by means of a holder, his lighted candle in his mouth."

These were illustrated by rubbings.

Mr. Iago next shewed a diagram explanatory of "the arrangement of Dates in Old Wills and Parish Registers," and mentioned how a lack of this knowledge had recently caused much uncertainty in an Assize case, and had risked the finding of a true verdict, as the dates under discussion seemed to shew that a man had been married before his Banns were out, and had died before the date on which he had made his Will.

The Archdeacon of Cornwall moved, and Mr. G. B. Millett seconded votes of thanks to the readers of Papers, and to the donors of gifts to the Library and Museum.

Mr. Daubuz and Mr. Twite respectively proposed and seconded a vote of thanks to the Chairman.

These propositions were carried unanimously and suitably acknowledged.

AWARD OF THE HENWOOD GOLD MEDAL, 1896.

For the third time, in pursuance of the direction contained in the Will of the late Mr. William Jory Henwood, F.R.S., of Penzance, a former President of the Royal Institution of Cornwall, it became the pleasant duty of the Council to award a Gold Medal—intrinsically worth more than Ten Guineas—to the writer whose contribution to the Institution Journal should, in their opinion, after a consideration and comparison of the papers printed by the society during the three preceding years last past, be most worthy of such a reward, the limitations of qualification being duly regarded.

The prescribed notice having been given, a Council Meeting was specially held in the Society's Library, on Thursday, 6th of August, 1896, which was attended by more than the required number who were entitled to adjudicate. Those present were Mr. Enys, F.G.S., ex-President, who was voted to the chair, The Ven. Archdeacon Cornish, M.A., The Worshipful Chancellor Paul, M.A., Rev. Canon Moor, M.A., M.R.A.S., Mr. F. W. Michell, C.E., Mr. Hamilton James, and the Hon. Secretaries, Rev. W. Iago, B.A., and Major Parkyn, F.G.S.

The papers written by any of those taking part in the award were first excluded, and some other papers were regarded as not being within the rules for competition according to the Will of the Donor of the Medal. Eight subjects only, all relating to Cornwall, were specified as eligible for winning the Medal.

After all had been fully considered, a ballot was taken, with the result that, according to the general opinion, the medal had been pre-eminently deserved by Mr. Thurstan Collins Peter of Redruth, for his valuable Paper on "The Exploration of Carn Brea,"—admirably illustrated, and (with permission from Mr. Basset of Tehidy) accompanied by such of the original relics as were suitable for deposit in the Museum.

Accordingly, the Henwood Gold Medal for 1896, was awarded to Mr. Peter for his paper treating of Cornish Archæology, and thereupon an invitation was sent him to attend the ensuing General Meeting of the Society, in the Autumn, in order that he might receive it, by presentation in due form.

FOURTH JOINT ANNUAL MEETING OF THE CORNISH SCIENTIFIC SOCIETIES, 1896.

The Royal Geological Society of Cornwall, The Royal Institution of Cornwall, The Royal Cornwall Polytechnic Society, and also The Mining Association and Institute of Cornwall, held their associated Annual Meeting at Falmouth, on Wednesday, the 26th of August, 1896, (in connexion with the 64th Annual Exhibition of the Polytechnic) in one of the rooms attached to the Polytechnic Hall. The room was crowded by an attentive audience, Mr. J. D. Enys, F.G.S., being in the chair (in the absence of the President, Mr. Bolitho, M.P.), and the following papers were read:—

1.—"On Certain Rocks in the Falmouth District," by Mr. F. J. Stephens (for the R.G.S.C.)

2.—"The old Religious Houses of Bodmin, and how the people walked in Procession from one to another, when a Cleric had fought a Shoemaker," by Rev. W. Iago, B.A. (for the R.I.C.)

3.—"The Diminished Duty of Cornish Engines and possible remedies," by Mr. W. Sisson, M.I.M.E. (for the R.C.P.S.)

4.—"Notes on Cornish Mining in 1896," by Capt. R. A. Thomas (for the M.A. & I.C.)

Discussions took place on some of the subjects, and with regard to the Geological maps it was agreed, on the motion of Mr. Twite, seconded by Mr. Howard Fox, that the Government be urged to undertake and publish a re-Survey of Cornwall.

By the kind and hospitable invitation of Mr. Howard Fox, F.G.S., the beautiful gardens of his residence, Rosehill, were inspected, many tropical growths and Botanical varieties being examined with great interest.

At 6 p m. the members of the Visiting Societies were handsomely entertained at dinner by their hosts, the R.C. Polytechnic Society, and later in the evening there was a Conversazione in the Polytechnic Hall.

The Members of the Truro Society feel that their thanks are due to the secretary (Mr. E. Kitto) and other members of the Falmouth Society, for the excellent arrangements made, and for the pleasant manner in which they were received personally, and as a Society.

The Papers read at the Meeting have since been issued in the Polytechnic Society's Annual Report for 1896.

THE ANNUAL EXCURSION, 1896.

On Thursday, the 10th of September, 1896, an excellent programme tempted a certain number of the Members of the Royal Institution to set out towards the southern promontory of West Cornwall to investigate a portion of the Lizard district. The weather had been very threatening, and this reduced the number of adventurers below that which had been expected. Nevertheless, a very fine and enjoyable day was experienced. One great attraction, in addition to the beauties of the sea and land and pure breezes, was the fact that Viscount Falmouth had very kindly given permission, and had provided facilities, for the Society to explore, by excavation, an ancient settlement which had been brought prominently into view by the accidental burning of the vegetation which had previously tended to conceal it.

On being informed by Rev. W. Iago that the Council desired an opportunity of examining the spot, Lord Falmouth immediately telegraphed and wrote from Pirbright Camp, in reply, to state that he had no objection, and that he had sent a telegram to the Tregothnan estate office for the purpose of arrangements being made, adding—"I hope your exploration may prove interesting. If I were only free to do so, it would be a great pleasure to me to be present." On being afterwards informed of the day's doing, his Lordship further wrote: "I am very pleased to hear that the excavation of the mounds was a success, and should have been much interested to have seen the huts developed." In addition to this, permission was also kindly given for the depositing, in our Society's Museum, of such relics as were found.

The expedition assembled, in the first instance, at Helston, arriving by train in the morning. There were present Messrs. J. D. Enys, F.G.S., Thurstan C. Peter (to whom was recently awarded the gold medal for his account of the Carn Brea Exploration), Rev. D. G. Whitley, Capt. Bryant and Mr. J. Barrett (Lord Falmouth's agents), Messrs. H. Barrett, J.

Bonython (of Adelaide, South Australia), Cornelius Cardew (Loco. Supt. Madras Railway,—great grandson of the late Rev. Cornelius Cardew, D.D., whose name is so familiar in Cornwall, founder of the Cardew prize at the Truro Grammar School, &c.,) F. W. Michell, C.E , E. G. Heard, E. F. Whitley, J. Osborne, Major Parkyn, F.G.S. (Hon. Sec.), several ladies, and Mr. Gregg (Curator).

A char-a-banc conveyed the party to Gunwalloe Cove.

Gunwalloe Church, amongst the Towans by the sea, is an ancient edifice of considerable interest. Mr. Enys pointed out many of its peculiar features. The church, in A.D. 1291, was mentioned in the taxation. The tower has a pyramidal roof, is low, without pinnacles, and is detached, perhaps for concealment from sea pirates. A writer who was present tells us that "the coves on this part of the coast are conspicuous for their beautiful, firm, yellow sand fringed by jagged rocks at the foundations of bold cliffs facing westward; a fair swell was on the sea, and the green waves tumbled picturesquely on the shore." The bells are of mediæval date, and have Latin legends (see Dunkin's "Church Bells of Cornwall.")

In the churchyard, Mr. Enys said, there is, or was, on a stone, an inscription which rang the changes on the words "We shall *die all*,"...."*Die all* we shall..&c." These words occur in other places also, and we may observe that they were generally placed, as here originally perhaps, in a punning manner, on a sun "*di—al.*" The church of Cury is not far off.

Mullion was next visited. A former Vicar, Rev. E. G. Harvey, who came from St. Mary's, Truro, since deceased, did much to preserve ancient carved bench-ends, &c.

The Rev. J. H. Scholefield, the present vicar, assisted the members of the expedition in the examination of the old remains and the stained glass, &c. It was stated that one of the figures in a window (St. Joseph) has a restored head which is a portrait of the late Vicar, Mr. Harvey. The East Window of the North Aisle is in memory of the late Lord Robartes of Lanhydrock, who owned much land in the parish. There are also some quaint inscriptions, &c. in the church.

Having lunched out-of-doors at Mullion, the excursionists drove to the downs near Kynance Cove, to the spot where the old British hut-circles were to be examined. One who was present thus describes them :—A fire, destroying the thick furze, had occurred about a month before, and had brought into view more than had previously appeared. Two or three of the circles are shewn on the Ordnance Map, but several others are now visible. They are on the waste land of a farm occupied by Mr. Richards. Altogether, the rude walls or enclosures of about 15 huts were disclosed, and there is a great oval or quadrangle with dwelling places, apparently, all round it. Two of the circles were excavated to floor level. Pottery, clearly Celtic, was found, also a piece of iron; several stones not belonging to the neighbourhood, and a great quantity of sea pebbles, were discovered. No hearths or fire-places were found, but excavations may yet reveal them. Few of the huts are really circular, many being oblong. Mr. Thurstan Peter, (of Carn Brea experience), pointed out the characteristics of this village, or settlement, of a remote age.

On reaching the charming Cove at Kynance it was found that the incoming tide prevented a full inspection. Helston was then again sought, and reached about 7 o'clock. A high tea was enjoyed at the Angel Hotel.

Mr. Heard afterwards described the excursion as interesting, useful, and profitable, and said they were indebted to Major Parkyn and his friends for the excellent arrangements. In reply Major Parkyn said that he regretted the absence of his friend and co-secretary, the Rev. W. Iago, who had given his assistance in preparing the programme and by communicating with Lord Falmouth, but, being in London, was reluctantly absent from them that day. They were also much obliged to Mr. Enys, who did much to further the interests of the Institution in many ways. They were grateful to Lord Falmouth for permission to explore the British Village, and to the Agents for assistance.

Mr. Michell, C.E. seconded the expression of thanks to his Lordship, and Mr. Peter was also thanked for his explanations. The party returned from Helston by the 8 o'clock train, to Truro and other destinations, well pleased with the agreeable events of the day.

Royal Institution of Cornwall.

78th ANNUAL GENERAL MEETING & COUNCIL'S REPORT,

AND

3rd PRESENTATION OF HENWOOD GOLD MEDAL.

On Tuesday, the 17th of November, 1896, the Annual General Autumn Meeting, of the Members of the Institution, was held in the Society's Rooms, Museum Buildings, Truro.

Hopes had been entertained that the President, the Right Hon. Leonard H. Courtney, M.A., M.P., might have been present, especially as the Henwood Gold Medal was to be presented, but unfortunately he was not able to attend.

Mr. J. D. Enys, F.G.S., the Ex-President, kindly consented to occupy the chair, and besides the Hon. Secs., Major Parkyn, F.G.S. and Rev. W. Iago, B.A., there were present :—The Right Rev. John Gott, D.D., Lord Bishop of Truro, the Ven. J. R. Cornish, M.A., Archdeacon of Cornwall, the Revs. Chancellor Worlledge, M.A., Canon Moor, M.A., M.R.A.S., S. Rundle, M.A., A. R. Tomlinson, M.A., and D. G. Whitley; Messrs. H. and J. Barrett, A. Blenkinsop, J. Bryant, J. G. Chilcott, T. Clark, W. J. Clyma, T. W. Cornish, F. Cozens, F. H. Davey, R. Fox, H. James, T. F. Letcher, W. Penrose, T. C. Peter, H. H. Share, R.N , E. F. Whitley, B. Williams ; Mesdames Cornish, Paull, Share, and Whitley; the Misses Blenkinsop, Chilcott, Enys, James, Moor, Peter, Share, and Tomn (2); and the Curator Mr. Gregg. Letters regretting absence were read, from the President, and from the Revs. Sir V. D. Vyvyan, Bart. and Canon Moore; Messrs. R. Harvey, E. Dunkin, F.R.S., J. H. Collins, F.G.S., and Howard Fox, F.G.S.

The Minutes of former proceedings having been read by Major Parkyn, and confirmed, the Curator read the following :—

78th ANNUAL REPORT OF THE COUNCIL.

The Council have much pleasure in being able to report favorably on the position of the Society and the work accomplished during the past year.

Although the roll of Members is annually affected by losses through death, resignation, and removal,—depletion from these causes has not materially lessened its numbers. The Council record with sincere regret, the deaths of Mr. R. N. Worth, F.G.S., and Mr. G. B. Millett, M.R.C.S., both for many years connected with the Royal Institution of Cornwall and other kindred Societies, and whose services were so greatly valued by them all; their presence at the Meetings will now be greatly missed.

In the Museum a very considerable amount of interest continues to be manifested, not only by persons in the neighbourhood but by increasing numbers of tourists during their visits to the County.

The Curator has pointed out the various objects of interest and instruction to the pupils of several schools. The mineral and shell specimens are much used by students, and every facility is afforded them. Surprise is frequently expressed at such a fine and valuable collection.

The eggs presented some time ago, by Mr. R. Pearce and Mr. A. P. Nix, have been arranged in the cases prepared for them at the farther end of the shell-room, and proper spaces have been left for such as are not yet represented. It is hoped that, in time, these spaces may be filled and the collection be completed.

The interiors of the cases have been thoroughly cleaned, and their contents renovated as far as possible; re-labelling of specimens, in indian ink, being continued. There have been many additions and much re-arrangement.

The number of persons admitted during the year has been as follows:—

Public admitted free ..	2928
Members and Friends ..	203
By Payment	361
	3492

During the year many valuable gifts have again been presented to the museum, the following being especially worthy of mention. Mrs. Peter, of Chyverton, has kindly given two handsome models in plaster, one of the district of Sinai and the other of Jerusalem. The former is a graphic representation of this deeply interesting neighbourhood, and contains a number of scriptural references. The latter is an exquisitely finished piece of workmanship, constructed on a scale of 3¼ inches to the mile, and shows the contour of the country, whilst the different geological formations are indicated by the use of different colours. It is of especial value, as it was constructed by the Ordnance Survey Officers under Lieut. General Sir Henry James, R.E., F.R.S., who was so eminent an authority and who was at one time connected with this county.

Miss Holland presented a very interesting relic of old Truro, viz.: the staff of the constable of the Parish of St. Mary, in the time of William IV. The handle is turned and painted black, while the head is square in section and painted red, picked out with gold. Two of the rectangular sides bear the royal arms, while on the others are inscribed "W.R." surmounted by a crown, and "W. Hobbs, parish of St. Mary's."

Mr. James Osborne, to whom the museum is indebted for many valuable gifts, has presented amongst other objects a number of Moorish tiles from a Palace near Seville in the South of Spain.* They comprise a number of such as were used for the decoration of walls. These were placed so as to extend to a height of from 4 to 6 feet from the floor, and formed a border or dado; these tiles show the ability of the Moors in arranging colours and designs for decorative purposes.

Mr. Thurstan C. Peter has sent another consignment of flint implements obtained during his explorations of Carn Brea.

Mr. John D. Enys, one of our most generous donors has obtained, from the Parish of Laneast, near Launceston, a mould once used for casting ingots of tin, and, from the collection of the late Mr. G. B. Millett, of Penzance, a glass lamp.

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* One of the tiles in the Museum, from Luxulyan Church, is of exactly similar make, design, and color, and was therefore probably brought to Luxulyan from Spain.

Mrs. Oliver, sister of our President, the Right Hon. Leonard H. Courtney, has presented an ancient form of lamp called a Crusie from Newlyn near Penzance, also a Chill, another form of lamp, from St. Martin's, Isles of Scilly; and has forwarded with them from Miss Courtney a glass lamp which belonged to one of her ancestors four generations back, also from the Isles of Scilly.

In the Technical Classes good work has been done, under the auspices of the Institution; the examination results can be best judged by a comparison with those all over the Country, the standard has been raised considerably, and the comparison is not unfavorable to Cornwall. An additional class has also been established, through the kindness of the Mining Committee of the County Council. It is being taught Rock-section cutting, by Mr. T. Clark, whose skill and experience, in such work, are well known.

The regular Meteorological observations have been taken by the Curator, as usual, and copies furnished to the Registrar General, the Sanitary Committee of the County Council, and the local papers. It is gratifying to find that the results of these labours are much appreciated, and are embodied in their reports.

The Library, by the great accession of books in the ordinary way, by gifts from old and valued members, especially Canon Moor of St. Clement's, and Mr. J. D. Enys, and by exchanges with various learned societies, has now become a most important feature of the Institution, and has during the past year received the serious attention of the Council. For many months past the work of re-arrangement, and the making of a new catalogue (which had become absolutely necessary from the great increase), have been in progress, and it is hoped that these labours will be completed before the close of the year. They will be productive of very great convenience, as members will be enabled more easily to obtain the books they require, without trouble or loss of time.

Those members who are in the habit of using the library know well the valuable collection of the publications of learned societies both at home and abroad, for the obtaining of which, exchanges are effected. The library is almost daily receiving

additions to its shelves, not only from various parts of this country but also from the continent of Europe, from our Colonies, and from the United States.

During the past year, two numbers of the Journal have been issued, Nos. 41 and 42. From these it will be seen that the Society is not likely to fall back from its position of usefulness, as various important facts and investigations are recorded, and others are noted as in progress.

The papers printed in both numbers are of varied interest, treating of Archæology, Geology, Biology, Botany, Modern History, and other branches of Literature and Science. Two of those who wrote excellent papers in the Journals passed away, by death, viz: Sir John Maclean, F.R.S.A. and Mr. R. N. Worth, F.G.S. Very important explorations on Carn Brea having been made by Mr. Peter, with the sanction of Mr. Basset of Tehidy, full particulars and excellent illustrations of the discoveries appear. The objects found, throw great light on the prehistoric condition of Cornwall, and these now enrich the Museum of the Society through Mr. Basset's kindness.

The Henwood Gold Medal which is awarded triennially according to the will of the late Mr. Wm. Jory Henwood, F.R.S., has been awarded to Mr. Thurstan Collins Peter, of Redruth, by a fully constituted meeting of the Council which was held after due notice on the 6th of August last. His paper on the exploration of Carn Brea appeared in the 42nd number of the Journal, and was considered the best qualified to win the Medal of all those which had been contributed during the last 3 years. The Presentation of the Medal to Mr. Peter will take place in the course of the present proceedings.

Lord Falmouth very kindly afforded facilities for an interesting examination of ancient remains on his property near Kynance, and, during the Autumn excursion, a British Village was consequently explored, with satisfactory results.

The Council recommend for approval the following list of Executive Officers, for the ensuing year, 1896-7.

President.

The Right Hon. Leonard H. Courtney, M.A., M.P.

Vice-Presidents.

Ven. Archdeacon Cornish, M.A.
Rev. Canon Moor, M.A., M.R.A.S.
Rev. W. Iago, B.A., L. Sec. S.A., Lon.
Mr. E. Dunkin, F.R.S., F.R.A.S.
Mr. John Davies Enys, F.G.S.

Treasurer.

Mr. A. P. Nix, *Truro.*

Secretaries.

Major Parkyn, F.G.S. *Truro.*
Rev. W. Iago, B.A., *Westheath, Bodmin.*

Other Members of Council.

Mr. W. E. Baily.
Mr. Howard Fox, F.G.S.
Mr. Hamilton James.
Mr. F. W. Michell, C.E.
Chancellor Paul, M.A.
Mr. Thurstan C. Peter.
Rev. A. R. Tomlinson, M.A.
Mr. Robert Tweedy.
Rev. D. G. Whitley.

Corresponding Secretary for East Cornwall.

Rev. W. Iago, B.A., *Westheath, Bodmin.*

Joint Editors of the Journal.

Rev. W. Iago, B.A.
Major Parkyn, F.G.S.

Librarian and Curator of Museum.

Mr. R. A. Gregg, *Royal Institution, Truro.*

It was proposed, seconded, and unanimously resolved that the Report be received and adopted.

The further business of the Meeting then proceeded, including the presentation of the Gold Medal, and the reading and discussion of Papers.

PRESENTATION OF THE HENWOOD MEDAL.

The Chairman said he had been unexpectedly called upon to preside at that meeting, and his first duty would be to hand the Henwood Medal to Mr. T. C. Peter. He was sorry, not that he had to present it, but because the president (Mr. Leonard Courtney) was unable to be there to hand it to Mr. Peter himself. The medal had been awarded to Mr. Peter for his paper on "Excavations at Carn Brea." Both Dr. Borlase and Sir G. Wilkinson had published interesting accounts and plans of Carn Brea many years ago, and Mr. Peter had now taken the matter up in a systematic manner, during a favourably dry season, and had engaged very careful men to help him to do it

(applause). He spoke with pleasure of those men, because he had seen them at their work. They were reliable and competent and shewed great discernment—they were not content with merely finding things, but they came to Mr. Peter to ask what the things were which they had found. He desired to present Mr. Peter with the Gold Medal on behalf of the Institution, and at the same time, beg him to accept for his little daughter (whose sharp eyes had helped him so materially in his explorations,) an arrow-head which he had brought home from abroad and which was now mounted for her, in silver, as a brooch. (applause).

Mr. Peter (having received the presents amid loud plaudits from the beholders) said he was intensely surprised as well as gratified at receiving the medal. He did not contemplate such an honour when he began to write his paper. Mr. Enys had referred to three of his fellow workers, without whom he could not have had the patience to carry out these explorations (hear, hear). He did not like solitude, and without the company of his little daughter and her sharp eyes, he should not have found many of the circles at all (hear, hear). They studied a great many things together—she and he—but lately their studies had been devoted to "The History of the Snow Queen." He was glad Mr. Enys had referred to the two men as he had. One of the men had gone to Africa and had since died in a hospital there; the other had come home, and he did not hesitate to say that if he could have fitting opportuntity he would make one of the most accomplished geologists in Cornwall (applause). This man had brought home from South Africa many objects (not simply pretty), and his observations shewed that he appreciated their peculiar characteristics of manufacture in a very intelligent way. He desired to say before closing that he did not think that the Institution was sufficiently appreciated by the general public (hear, hear). The people whom they were pleased to call the lower classes only wanted a little encouragement to be of great service to them as well as to themselves. For example, they knew that lately a beautiful cross had been found at Crane, near Camborne. How was it found? Simply by the Camborne Students' Association, into which were admitted the mine girl and the artisan, as well as those in a higher position, and all were on the same

footing (applause). A working man, a blacksmith, went to mend a well; and but for the fact that he had had the privilege of having had his attention drawn to that sort of thing, he would have mended the well with the stones that were now rescued, and which were to be placed in Camborne Churchyard. When one interesting stone had been moved, a second was found beneath, and thus they had recovered two ancient crosses, neither of which was previously known to have existed (applause). He hoped the time would come when that Institution would take steps to popularise itself in every town in the county, when its Museum collection would be recognised as a county collection, and opportunities would be given for exhibiting many of the objects in every town with proper explanations. Then he hoped they would have a host of subscribers, and be able to buy up a street or two for such scientific purposes as those in which they were engaged.

Papers on various subjects were then presented, and discussions took place.

Mr. F. H. Davey, of Ponsanooth, contributed a paper entitled "Notes on the Dry Summer of 1896." After it had been read by one of the Members of the Council, the Chairman remarked on several unusual incidents caused by the dry weather, and the other peculiarities of the past season. At Enys the camellia was blooming in October in the open air, also the red rhododendron in October instead of in December, while several other kinds of flowers and berries had come to maturity long before the usual time, including those of the hawthorn or May, the blackthorn and holly. Narcissi had been brought over exceptionally early from the Scilly Isles, blackberries and mushrooms had been very plentiful, and many trees had suffered loss of foliage.

Other products were also peculiarly affected. Certain mackerel had been brought into Newlyn at an unusual time, which were regarded as Spring fish,—and it had been stated by Mr. Cornish that in Mount's Bay the temperature of the sea had been lower than usual.

The Chairman next pointed out "Various modes of obtaining and maintaining a light," as illustrated by a Roman lamp from Alexandria, and several curious appliances which he

exhibited, and which bore such names as chill, crusie, &c. They were indebted, he said, to Miss M. A. Courtney, and to her sister Mrs. Oliver, of New Zealand, for some of them. He had also brought into the group, rush-lights and their various burners and lantern, a tinder box, &c., and a remarkable apparatus from Burmah, by which a light could be obtained by the friction caused by a sharp blow of the hand. The next subject to which he would direct attention was the exact similarity of a Tile found in Luxulyan Church, to the Moorish Tiles given to the Museum by Mr. J. Osborne, and brought from Spain. He also shewed a very fine cauldron apparently Roman.

Before concluding his remarks, the Chairman called attention to the issue of Mr. A. H. Norway's book on the History of the Falmouth Packets, and the heroic officers and men who served in them, and fought many a gallant action, and in whose honour it is proposed to erect a memorial at Falmouth, a fund being formed for the purpose.

He added that he looked forward to the issue of an illustrated volume by the Rev. W. Iago, on the "Inscribed Stones" of the County, which has long been in preparation; a work on "The Crosses of Cornwall" having meanwhile been issued by Mr. Langdon.

Mr. A. L. Lewis, F.C.A., who on a former occasion had given a paper on "Rude Stone Monuments on Bodmin Moor," now sent some notes on "Ancient remains in Guatemala," which he thought bore considerable resemblance to "King Arthur's Hall," in Cornwall.

Mr. Rupert Vallentin, of Falmouth, contributed certain particulars relating to "Oyster Cultivation," detailing experiments tried in 1895-6.

Rev. W. Iago, B.A., described a most valuable and interesting historical manuscript which relates to Cornwall, and has never yet been published with perfect accuracy. It may be described as "The Anglo-Saxon Record in the Bodmin Book of the Gospels." He had lately devoted considerable care to the making of a correct copy of all its Latin and Anglo-Saxon entries, and hoped to publish it in the Society's Journal. Mr. Enys had kindly met a large part of the expense which had been

incurred in obtaining photographs of the entire record, which had been taken under his (Mr. Iago's) direction, by permission of the Authorities of the British Museum, who had the precious volume in their charge. It is probably the oldest manuscript in existence relating to Bodmin and Liskeard, both of which places are named in it. The writing itself is from eight hundred to a thousand years old, and is of considerable value from every point of view. The oldest part of the book is a vulgate copy of the Gospels, with Harmonies of them and other introductory matter, &c., written of course by hand, and containing curious ornaments drawn by the writer, who probably was Irish. It has vellum leaves, and wooden covers overlaid with crimson-stained leather. The covers were once encrusted with jewels, surrounding probably a silver-gilt representation of the crucifixion. The jewels, &c., have long ago disappeared, for the book was, doubtless, "appropriated" at the dissolution of the great Priory of St. Mary and St. Petroc, Bodmin. But its "despoiled nutshell" still contains the "kernel," which is beyond the price of rubies and fine gold, viz.: the Holy Gospels, and the record of religious acts performed by Kings and Bishops, Dukes, Duchess, Portreeves, Hundredsmen, &c., and the Clergy of St. Petroc's "Monasterium." They bought male and female Serfs, and manumitted them for the good of their own, and of one another's souls, in the sight of God and before all the Saints "of the Welkin," that they should remain "for ever sackless;" and they recorded the names of themselves and of the Cornish slaves so treated, and many particulars, with prospective blessings and curses, in this remarkable book; using its margins and blank pages for a Register, but not writing a word of all these on any page of the actual Gospels themselves.

St. Petroc's Altar and his treasured hand-bell, and certain relics, are mentioned, and many an Anglo-Saxon King of England, and Duke and Bishop, connected with the western provinces.

The record is of such importance, Mr. Iago stated, that although versions of it have been given, by Davies Gilbert, Wallis, Prior Oliver, Pedler, Whitley Stokes, and others, it is well worth further elucidation and study. The Bishop of Oxford, Dr. Stubbs, has published a very valuable notice of it, and Mr.

Iago stated that he had been in correspondence with his Lordship in reference to it,—all reliable means being adopted for clearing up doubtful passages. Mr. Iago acknowledged the great courtesy he had received from the Bishop of Oxford, and stated that his Lordship had presented him with an abstract, which he had kindly written out for him,* of St. Dunstan's letter stating what part Dunstan had taken in consecrating a Bishop for the Cornish See,—and what property in Cornwall belonged to the Bishops of the West in and before his own day. Mr. Iago had also had correspondence with Dr. Stubbs about the ancient Bishops of Cornwall, Crediton, &c., as given in Carne's and other lists, and had been convinced that the most correct list is that which so great an authority as Bishop Stubbs has himself contributed to the Truro Diocesan Kalendar,—which list may be seen in the current number of that comprehensive publication. Mr. Iago illustrated his account of the venerable book and his contents by means of a large sized drawing which he had made of it, in the British Museum, and photographs of the ancient hand-writing.

A somewhat similar Book of the Gospels, known as Lord Ashburnham's, on the cover of which the crucifix and jewels remain, was figured in the "Illustrated London News" of June 20, 1891, and is valued at £10,000.

At the close of the Meeting, votes of thanks were passed to those who had been benefactors to the Library and Museum, and had contributed Papers, &c. Also to Mr. Enys for presiding.

Tea, coffee, and other refreshments were afterwards served in the outer Library.

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* The Bishop of Oxford has since been so kind as to forward to Mr. Iago, a copy of "Anecdota Oxoniensia,"—containing a full version and critical account of St. Dunstan's letter, by Professor Napier.

GIFTS TO THE MUSEUM

Impression of Seal of Truro Cathedral	Chancellor Worlledge.
Back of large Turtle	Mr. W. W. Prynn, Surgeon, R.N.
Two Baby Turtles...	
Two Turtles' Eggs	
Two Sea Swallows' Eggs	
Constable's Staff of St. Mary's Parish, Truro, in the time of William IV	Miss Holland.
Two Sea Swallows' Eggs from the Isle of Ascension ...	Mr. Hamilton James.
Bottle marked in Gold "W. Moseley, Truro, 1772" ...	
Plaster Model of District of Sinai	Mrs. Peter, Chyverton.
Plaster Model of Jerusalem from the Ordnance Survey by Sir Henry James, R.E., F.R.S.	
Natural Crystals of Sulphate of Copper from old Roman Workings in Rio Tinto Mines, Spain	Mr. James Osborne, F.G.S.
Collection of Moorish Tiles from a Moorish Palace near Seville, in the south of Spain	
Five Spanish Knives	
Spanish Revolver	
Malay Kris	
Egg of Rhea	Mr. Hamilton James.
Cidaris Papillara, pipe sea urchin	Mr. Wilberforce Penrose.
Four Copper Coins	
Flint Implements from Exploration at Carn Brea (2nd donation)	Mr. Thurstan C. Peter, by permission of Mr. A. F. Basset.
Crusie, an ancient form of lamp	Mrs. Oliver.
Chill, ,, ,, ,, ...	
Impression of Seal of Marazion	Mr. Lean, late Mayor of Marazion.
Neolithic Implements and Celts from Yorkshire	Mr. H. Crowther.
Specimen of Gold Ore from Australia	Mr. T. L. Dorrington.
Heron	Major Parkyn, F.G.S.
Two specimens illustrating the occurrence of gold in the ores of the Cripple Creek district (America)	Dr. Richard Pearce, F.G.S.
Mashonga Waist Belt (S. Africa)	Mr. Thurstan C. Peter.
Pondo Mealie Dish ,, ...	
Pondo Pillow ,, ...	
Quern and Stone from Carn Brea, Cornwall	
Map of Carn Brea	
Two Mullers from St. Issey	
Mould for Casting Tin Ingots, from Laneast	Mr. J. D. Enys, F.G.S.
Glass Lamp from the collection of the late Mr. G. Bown Millett, M.R.C.S.	
Four Celts found under a rock at Gwinear, from Mr. W. C. Borlase's Sale	
Glass Lamp used in Scilly some generations ago	Miss Courtney.

GIFTS TO THE LIBRARY.

Lectures on Fisheries, &c., at the Fishery Exhibition, Truro, 1893	Cornwall County Council, per Mr. E. W. Rashleigh.
Prophecies fulfilled during the 19th Century	Mr. Edward Dingle.
Remarks on Some Senses in Fishes, including a Sixth-Sense	Mr. Matthias Dunn.
Ancient History from the Monuments of Sinai	Mrs. Peter, Chyverton.
General Index to the Monthly Notices of the Royal Astronomical Society	
Concretions of Chalcedony and Opal in Obsidian and Rhyolite in Colorado	Colorado Scientific Society.
The Dyke on the Columbian Vein in Ward district, Colorado	
British Association Report, 1895	Mr. J. D. Enys, F.G.S.
Marine Biological Journal	
Tantallon Castle, the Story of the Ship and Canal ...	Messrs. Donald Currie & Co.
River Valleys	Mr. Joseph Dickinson, F.G.S.
The Vaccination Question	Mr. Arthur Wollaston Hutton.
Notes on the Geography of the Upper Mekong	Mr. H. Warrington Smyth.
The Jesuit Relations and Allied Documents	Messrs. Bros. Co. Cleveland, Ohio, U.S.A.
Four Centuries of Copper production in the West of England	Mr. J. H. Collins, F.G.S.
29 Numbers of the Geographical Journal	Rev. Canon Moor.
Symbolic Logic	Mr. Lewis Carrol.
Publications of the Geological Survey of U.S.A. ...	Government of U.S.A.
Greenwich Observations	Lords Commissioners of the Admiralty.
Cape Heliometer Observations	
On Pearceite, a Sulpharsenite of Silver	Dr. Richard Pearce, F.G.S.
On the Crystallization of Polybasite	
Old Documents	Miss Stokes, per Rev. W. Iago.

Dr. The Treasurer, A. P. Dix, Esq., in account with the Royal Institution of Cornwall. Cr.

1896.		£	s.	d.
July 31.	To Balance brought forward	44	14	7
	,, Interest on Deposit Account	30	9	0
	,, Subscription of H.R.H. Prince of Wales	20	0	0
	,, Other Subscriptions	147	6	6
	,, Donation of H. H. Vivian, Esq., Life Member	10	10	0
	,, Visitors' Fees	9	2	0
	,, Sale of Journals	1	1	6
	,, Sundry Receipts	0	12	4
	,, Excursion	4	14	6
	,, Catalogues	3	0	0
		£271	10	5

1896.		£	s.	d.
July 31.	By Curator	75	0	0
	,, Caretaker	5	0	0
	,, Fuel, Gas, and Water	7	16	1
	,, Taxes	1	12	2
	,, Fire Insurance	2	14	0
	,, Printing, Books, &c.	12	10	9
	,, Journals	69	3	8
	,, Magazines, &c, ...	5	14	0
	,, Renewals and Repairs	7	3	8
	,, Museum Expenses	1	12	0
	,, Sundries	13	1	0
	,, Excursion	7	16	6
	,, Balance remaining	62	6	7
		£271	10	5

Summary of Meteorological Observations at Truro, in Lat. 50° 17′ N., Long. 5° 4′ W., for the year 1896, *from Registers kept at the Royal Institution of Cornwall.*

TABLE No. 1.

1896.	MONTHLY MEANS OF THE BAROMETER. Cistern 43 feet above mean sea level.																	
Month.	Mean pressure corrected to 32 deg. Fahr. at sea level.			Mean of monthly means.	Mean correction for diurnal range.	True mean of monthly means.	Mean force of vapour.	Mean pressure of dry air.	Corrected absolute maximum observed.	Day.	Corrected absolute minimum observed.	Day.	Extreme range for the month.	Mean diurnal range.	Greatest range from 9 a.m. to 9 p.m.	Day.	Greatest range in any 24 consecutive hours.	Between which days it occurred.
	9 a.m.	3 p.m.	9 p.m.															
	ins.	ins.	ins.	ins.	in.	ins.	in.	ins.	ins.		ins.		ins.	in.	in.		in.	
January	30·346	30·328	30·354	30·342	·004	30·338	·244	30·098	30·903	9	29·626	14	1·277	·078	·25	13	·47	27 & 28
February	30·299	30·275	30·281	30·285	·003	30·282	·253	30·032	30·620	1	29·510	19	1·110	·086	·34	25	·33	21 & 22
March ...	29·875	29·855	29·865	29·875	·007	29·868	·285	29·590	30·283	10	28·947	3	1·336	·086	·34	4	·39	27 & 28
April ...	30·228	30·215	30·221	30·221	·004	30·217	·265	29·956	30·384	19	29·795	29	0·589	·052	·25	11	·22	29 & 30
May	30·230	30·215	30·223	30·222	·003	30·219	·295	29·927	30·464	25	29·971	22	0·493	·047	·15	1	·30	23 & 24
June	29·936	29·939	29·953	29·942	·001	29·941	·369	29·673	30·338	29	29·436	9	0·902	·056	·29	17	·47	17 & 18
July	30·044	30·043	30·038	30·041	·002	30·039	·439	29·602	30·296	17	29·610	25	0·686	·041	·16	20	·37	9 & 10
August ...	30·075	30·068	30·078	30·073	·004	30·069	·380	29·693	30·346	11	29·799	26	0·547	·048	·22	29	·35	29 & 30
September	29·763	29·766	29·804	29·777	·004	29·773	·391	29·386	30·495	30	29·199	13	1·296	·137	·88	25	·76	25 & 26
October	29·770	29·742	29·752	29·754	·006	29·748	·253	29·501	30·474	1	29·167	19	1·307	·106	·35	7	·43	17 & 18
November	30·139	30·109	30·136	30·128	·004	30·124	·225	29·903	30·580	26	29·333	11	1·247	·117	·83	14	·62	13 & 14
December	29·770	29·735	29·755	29·753	·003	29·750	·244	29·509	30·460	27	28·570	6	1·890	·180	·84	13	·71	3 & 4
Means ...	30·031	30·024	30·038	30·034	·003	30·030	·303	29·730	30·470		29·330		1·056	·086	·37		·45	

REMARKS.—The Barometer used is a Standard, made by Barrow, and compared with the Standard Barometer at the Royal Observatory, Greenwich, by Mr. Glaisher. The corrections for Index Error (+0·008), Capillarity (+0·103), height above sea (43 feet), and temperature, have been applied.

TABLE No. 2.

1896	MONTHLY MEANS OF THE THERMOMETER																								
	9 a.m.		3 p.m.		9 p.m.		MASON'S HYGROMETER.									SELF REGISTERING.						ABSOLUTE.				
Month.	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.	Mean of Dry Bulb.	Mean correction for diurnal range.	True mean of Dry Bulb.	Mean of Wet Bulb.	Mean correction for diurnal range.	Mean temp. of evaporation.	Wet Therm. below dry.	Mean dew point.	Dew point below Dry Therm.	Mean of all the Maxima.	Mean of all the Minima.	Approximate mean temp.	Correction for the month.	Adopted mean temp.	Daily mean range.	Maximum.	Day.	Minimum.	Day.	Range.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					
January	43·3	41·9	47·0	44·3	43·6	42·0	44·6	0·4	44·2	42·7	0·3	42·4	1·8	39·6	4·6	48·7	38·8	43·8	0·1	43·7	9·8	57	1	26	30	31
February	44·5	42·6	48·9	45·6	43·9	42·3	45·7	0·7	45·0	43·5	0·5	43·0	2·0	40·7	4·3	51·4	38·8	45·1	0·1	45·0	12·5	59	10	25	2	34
March ...	49·3	46·6	51·7	47·4	47·6	45·7	49·5	1·0	48·5	46·6	0·6	46·0	2·5	43·8	4·7	53·9	42·5	48·2	0·2	48·0	11·3	61	23	29	19	32
April ...	52·7	48·2	54·0	48·6	48·9	46·5	51·8	1·6	50·2	47·7	1·3	46·4	3·8	41·8	8·4	57·6	44·3	51·0	0·1	50·9	13·3	65	22	34	2	31
May	61·0	52·7	62·5	53·3	54·0	50·5	59·1	2·3	56·8	52·1	1·4	50·7	6·1	44·4	12·4	67·0	44·4	55·7	0·8	54·9	22·9	79	12	31	4	48
June	64·1	58·0	65·6	58·1	60·1	56·7	63·2	2·9	60·3	57·6	1·7	55·9	4·4	50·6	9·7	69·3	51·7	60·8	0·3	60·5	17·6	84	15	42	1	42
July	64·9	59·6	66·8	60·4	59·7	57·6	63·8	2·1	61·7	59·2	1·2	58·0	3·7	55·4	6·3	70·8	54·5	62·6	0·3	62·3	16·2	80	20	44	28	36
August ...	62·9	57·2	63·4	57·1	57·4	55·2	61·2	2·0	59·0	56·5	1·2	55·3	3·7	51·4	7·6	67·5	52·5	60·0	0·3	59·7	15·0	79	2	45	19	34
September	59·8	56·3	61·1	56·4	55·5	53·8	58·6	1·7	56·9	55·5	0·9	54·6	2·3	52·1	4·8	63·9	52·3	58·1	0·2	57·9	11·6	71	10	42	21	29
October	48·2	45·3	51·2	47·3	45·6	43·2	48·3	0·8	47·5	45·2	0·6	44·6	2·9	40·6	6·9	54·4	40·1	47·2	0·4	46·8	14·3	62	3	26	29	36
November	42·1	39·9	46·9	43·4	40·4	39·0	43·1	0·6	42·5	40·7	0·5	40·2	2·3	37·5	5·0	48·9	33·7	42·8	0·1	42·7	15·2	53	5	23	10	30
December	44·2	42·5	46·0	43·8	42·7	41·8	44·3	0·2	44·1	42·7	0·3	42·4	1·7	39·6	4·5	48·6	37·8	43·2	0·2	43·0	10·8	53	2	25	20	28
Means ...	53·0	49·2	55·4	50·4	49·9	47·8	52·7	1·3	51·3	48·3	0·8	48·2	3·1	44·7	6·6	58·5	44·2	51·5	0·2	51·2	14·2	67		32		34

The Thermometers are placed on the leaded roof of the Royal Institution in a wooden shed, through which the air passes freely. The Standard Wet and Dry Bulbs are by Negretti and Zambra, and have been corrected by Mr Glaisher.

TABLE No. 3.

1896.	WINDS.																											
	E.			S.E.			S.			S.W.			W.			N.W.			N.			N.E.			AVERAGE FORCE.			
Month.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	Mean.
January	4	2	2	—	2	1	2	1	1	3	5	4	2	2	2	4	7	4	—	1	1	6	8	6	0·8	1·0	0·8	0·8
February	4	6	5	10	5	3	—	3	1	1	3	4	—	—	—	5	7	7	—	—	1	1	2	—	0·8	1·0	0·8	0·9
March ...	—	—	—	3	1	—	1	1	—	7	9	9	5	10	5	8	6	5	—	2	1	2	—	—	1·3	1·6	1·0	1·3
April ...	2	1	—	—	—	—	—	—	—	2	2	1	3	8	5	13	10	10	7	8	5	—	1	—	1·3	1·3	0·8	1·1
May ...	3	5	—	—	5	2	—	—	—	—	1	—	—	1	—	5	7	7	12	7	7	7	4	3	1·1	1·1	0·6	0·9
June	1	1	1	6	6	5	3	4	1	5	3	4	1	3	2	9	11	8	2	1	1	1	—	—	1·2	1·2	0·7	1·0
July	—	—	—	—	—	—	—	1	—	4	2	2	9	10	4	3	2	1	5	8	2	4	1	—	0·8	0·8	0·3	0·7
August ...	—	—	—	—	—	—	—	—	—	3	2	1	2	2	2	14	18	15	6	6	5	3	2	1	1·0	1·1	0·8	1·0
September	—	—	—	3	4	3	2	1	—	9	8	6	3	5	5	7	9	10	2	1	1	—	—	—	1·3	1·4	1·1	1·3
October ...	—	—	—	1	—	2	1	2	1	3	3	1	6	5	2	3	6	7	8	7	5	1	3	1	1·1	1·1	0·8	1·0
November	1	2	1	2	2	3	2	—	—	—	3	3	—	4	1	5	1	6	4	6	3	7	8	5	0·9	1·0	0·8	0·9
December	—	—	—	8	7	2	4	3	1	3	5	6	2	3	2	5	9	8	1	2	1	—	—	—	1·0	1·3	0·9	1·1
Total	15	17	9	33	32	21	15	16	5	40	46	41	33	53	30	81	93	88	47	49	33	32	29	16	12·6	13·9	9·4	12·0
Means ...	13·6			28·6			12·0			42·3			38·6			87·6			43·0			25·6			1·0	1·1	0·7	1·0

The force of the Wind is estimated on a scale from 0 to 6, from *calm* to violent *storm*.

TABLE 4.

1896. Month.	WEATHER. Average Cloudiness. 9 a.m.	3 p.m.	9 p.m.	Mean.	Rainfall. Rainfall in inches. Truro.	No. of days in which rain fell.	Greatest fall in 24 hours, Truro. Depth.	Date.	Mean weight of vapour in a cubic foot of air.	Mean additional weight required for saturation of the air.	Mean humidity of atmosphere.	Mean elastic force of vapour.	Mean weight in grains troy of a cubic foot of air.	Total hours of Bright Sunshine.	No of Days on which the sun shone.	Average Daily sunshine.	Dry.	Wet.	REMARKS.
					in.		in.		grs.	grs.		in	grs.						
January	6·4	6·2	6·0	6·2	1·13	14	·23	24	2·8	0·5	84	·244	533·3	55·6	19	1·79	80	13	Fog, 1, 7, 21, 22, 23, 29. Frost, 7, 8, 10, 11, 20, 29, 30, 31.
February	5·5	5·4	4·8	5·2	·66	9	·23	8	2·9	0·5	85	·253	532·2	75·5	24	2·60	84	3	Fog, 7, 10, 12, 13, 14, 15, 21. Frost, 2, 3, 21, 24. Aurora Borealis, 24.
March ...	6·2	6·1	5·3	5·9	2·96	23	·50	2	3·3	0·5	86	·285	528·8	125·7	25	4·05	76	17	Hail, 2, 3, 28. Frost, 19, 31. Gale, 3, 4, 6.
April	5·2	4·6	3·8	4·5	·71	10	·31	11	3·0	1·1	74	·265	526·8	199·6	28	6·65	83	7	Fog, 24. Hail, 30. Swifts arrived, 23.
May	2·1	1·9	1·6	1·8	·04	3	·02	19	3·3	1·7	65	·295	520·6	320·4	31	10·33	93	—	Frost, 2, 4,
June	4·4	3·4	3·5	3·8	1·31	10	·32	16	4·1	1·7	71	·369	516·0	245·0	30	8·16	87	3	
July	4·2	3·9	3·0	3·7	2·20	11	1·05	25	4·9	1·1	82	·439	514·6	211·4	30	6·81	86	7	
August ...	4·7	4·5	3·7	4·2	1·99	15	·43	7	4·3	1·3	76	·380	517·0	216·5	31	6·98	86	7	Thunder, 2. Lunar Rainbow, 25,
September	5·6	5·3	4·3	5·1	4·78	23	1·33	21	4·4	0·6	87	·391	519·9	137·6	28	4·58	74	16	Lightning, 1. Gale, 24, 25, Meteor, 10.
October...	5·1	5·6	4·4	5·0	4·36	27	·70	6	2·9	0·8	79	·253	530·0	106·5	26	3·55	76	17	Fog, 29. Snow, 11. Hail, 17, 18, 19, 26, 27, Frost, 12, 13, 22, 23, 28. 29, 30, 31. Thunder Lightning 26.
November	4·4	4·8	3·8	4·3	1·31	10	·45	14	2·6	0·5	85	·225	535·5	72·4	24	2·41	84	6	Fog, 10, 11. 17, 18, 19, 21, 22, 23. Snow, 28. Frost, 1, 3, 4, 7, 9, 10, 11, 27, 29. Double Lunar Halo, 20.
December	6·0	6·8	6·2	6·3	9·78	27	1·71	14	2·8	0·5	84	·244	533·3	54·0	18	1·74	61	31	Fog, 11, 20, 27. Hail, 15. Frost, 12, 17, 18, 19, 20, 21. Gale, 4, 5, 6, 13.
Means ...	4·9	4·8	4·2	4·6	31·23	182	·60		3·4	0·9	79	·303	525·6	151·6	314	4·97	80	10	

Cloudiness is estimated by dividing the sky into ten parts, and noting how many of these are obscured. The sunshine is taken by a Jordan's Photographic Sunshine Recorder, presented by J. D. Enys, Esq., F.G.S. The rain-guage at Truro is placed on the flat roof of the Royal Institution, at about 40 feet from the ground.

ON SOME ANCIENT REMAINS AT GUATEMALA.

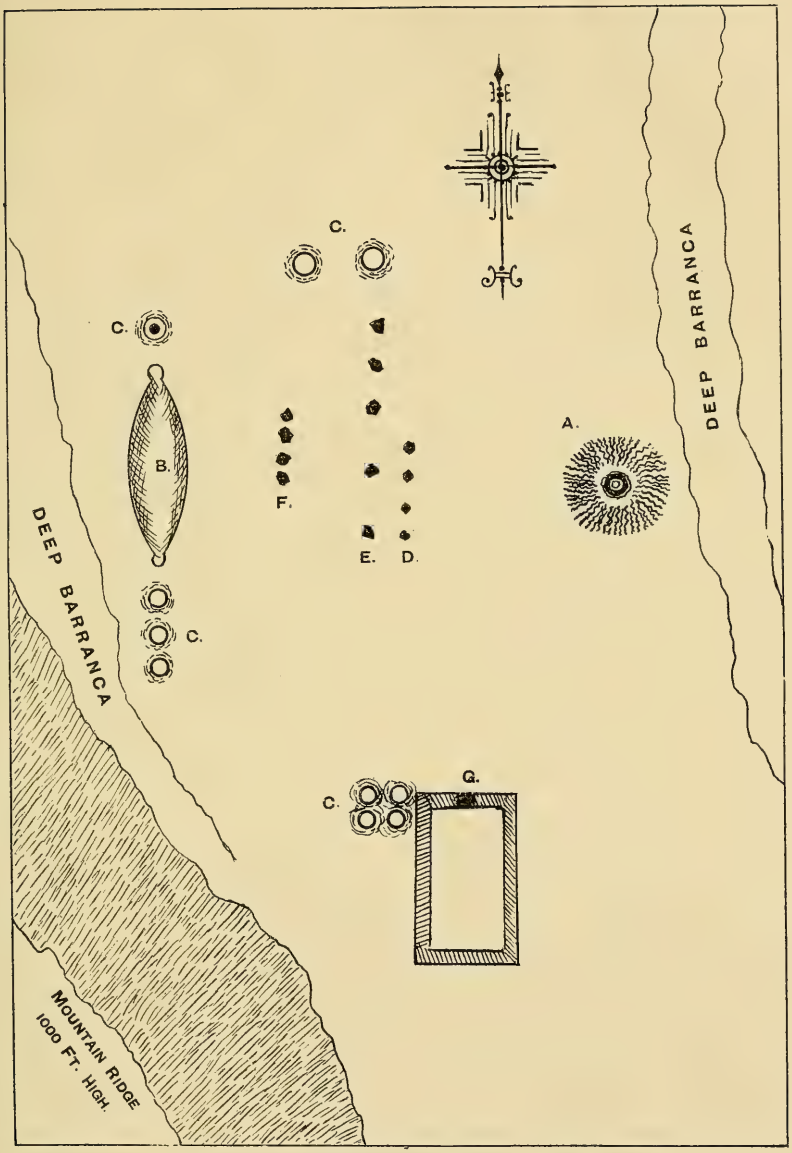
By A. L. LEWIS, F.C.A., Treasurer Anthropological Institute.

Since I wrote the paper on Rude Stone Monuments on Bodmin Moor, which the Royal Institution of Cornwall did me the honour of printing in the last number of its Journal, I have found a description of some remains in Guatemala, which seem to have a considerable resemblance to "King Arthur's Hall." This description is given by the Hon. G. Williamson, U.S. Minister to Central America, and appears in the Report of the Smithsonian Institute for 1876.

Of one enclosure he says: "It is a quadrilateral, of four unequal sides, which appears to have been enclosed by an earthen wall or embankment about ten or twelve feet high; the longer sides run from north to south and are 150 feet in length, the shorter sides run from east to west and are ninety feet long. On the west side, in a direct line with the shorter sides, are four small mounds probably twenty feet high. . . . . After deciding that the embankments had not been a Spanish or Indian fortification. . . . . I decided to open the mound nearest the north-west corner, it was cut down to the level of the surrounding ground by cross ditches from north to south and east to west, nothing was found but the head of a small stone idol, the edge part of a greenish stone hatchet, and a great quantity of broken pieces of obsidian and pottery."

A second enclosure, shaped liked the first, was found in the same field, it was 120 by 60 feet, and had mounds (much smaller), on the east side instead of on the west. These enclosures were in a coffee plantation near the City of Guatemala; but about three miles east from them Mr. Williamson found a third and much larger one, near which were some mounds and lines of stones, and of these I send a plan, traced from that given in the Smithsonian Report. This third enclosure had four mounds outside the north-west corner, like the first, and a single six-sided stone standing at the centre of the north end. (At point G, on plan).

A short distance, north-north-east from this enclosure is a large isolated hill (A on plan), perhaps three hundred feet high, and so regular that only its size and an examination of its surface prevented Mr. Williamson from believing it to be artificial. About six hundred yards due west from this hill (north-west from the enclosure) is an unusually large oblong mound, with a small one at each end (B, on plan) and others north and south from it. The height of this mound is not stated, it was cut through from east to west, but nothing was found except broken pieces of obsidian and pottery. Half way between the hill (A) and the great mound (B) is a line of four six-sided stones, each eight inches in diameter, and about forty feet apart, running north and south. (D, on plan). Sixty feet further west is a parallel line (E, on plan) of five stones averaging five feet high, and worked very rudely, if at all; these are about one hundred feet apart. One hundred and twenty five yards further west is another nearly parallel line—perhaps sixty feet long—of four stones (F, on plan); the stone at the north end of this line is a foot and a half high, the next two feet and a half high, and the other two from five to six feet above ground; the most southerly of these is in line with the centres of the hill (A) and mound (B), and of it Mr. Williamson says: "it has a hole cut about the centre of it, nearly three feet from the surface of the earth, this hole is just large enough to admit the insertion of a small man's shoulders and the passage of the head; that part of the hole toward the east is cut so that the face has to be horizontal when the head is passed through, and there is a notch or cut in it, so that, if the head were once passed through, the insertion of a piece of wood or stone in the notch would render it impossible to move or withdraw the head; on the same side (east side) there is a working which, if the stone were so used, would make the blood flowing from the neck of the person whose head was passed through the stone and was beheaded in that attitude, distribute itself nearly all over the lower part of it. I thought this place might have been used for the purpose of human sacrifices (at one time common in Central America) and for what were called religious services."



A. Large isolated Hill 300 feet high.
B. Oblong mound.
C. C. C. Mounds varying in size.
D Line of six-sided stones.
E. Line of unworked stones.
F. Line of stones varying in size.
G. Enclosure with high earthen embankments.

It remains to be added that several of the six-sided stones had been removed, and that one was standing on the mound due north of the large mound, also that the lines of stones and mounds did not run due north and south but about five degrees west of north, which is precisely the same variation that is found at " Arthur's Hall " in Cornwall. No ditches and no entrances to the enclosures are mentioned, and there are none* at "Arthur's Hall," which is one of the most puzzling features of that remarkable structure. The sizes of the two enclosures mentioned first, and the shapes and compass bearings of all three, are extremely like those of "Arthur's Hall," but although Arthur's Hall has stones along the interior of its mound, it does not appear that there are any inside the Guatemalan enclosures, except one stone at the north end of the largest. Mr. Williamson, it will be remembered, was of opinion that the enclosures had not been fortifications, but considered them to have been places of worship.

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* There does appear to be an entrance at Arthur's Hall, according to some observers.—Ed.

THE FUNCTION OF COLOUR AND SMELL IN FUNGI.

By FRED. HAMILTON DAVEY.

When we seriously consider the matter, it may justly surprise us that, while many volumes have been written on the attractive uses of colour and scent in flowering plants, it has seemed to have escaped notice that the presence of these same characteristics in such lower forms of vegetable life as fungi may be for similar purposes. Hitherto the question has been met in a popular rather than in a scientific manner. Distinctive colouration and smell in these humble plants of our woodlands and meadows have been thought to have been called into existence solely to aid man in distinguishing those which are harmless from those which possess dangerous properties. Broadly speaking, although not without exception, the division thus laid down is a good one. In the majority of instances, mushrooms with unobtrusive colour and smell are the ones generally used for culinary purposes, while those possessing striking colours and odours are the ones we do well to avoid. To the writer, however, it seems that the presence of such infinite varieties of colour and scent is capable of a broader and more satisfactory explanation.

Although many points in the life-cycle of most fungi are stilled wrapped in mystery, there appear cogent reasons for the statement that the existence of many of the higher forms, at least, is absolutely dependent on the presence and co-operation of certain forms of animal life. Sow as many of the spores of the common mushroom as we may, germination will be signally defeated if the spores have not first passed a preliminary stage in the interior of an ox, sheep, or horse. Like the majority of rusts, smuts, and mildews, the mushroom passes through several dissimilar stages, and the period, however short, during which the spore is retained in the animals mentioned is clearly one of importance. It is well known that without this prepara-

tory stage no mushrooms are produced, and this being so, we can see how important it is that in the spore-bearing stage the fungi have neither colour nor smell objectionable to the animal host, and how much more certain are their chances of perpetuation should they possess these qualities to an attractive degree.

Remembering these facts, we naturally expect to find that, not only does the same method obtain in fungi other than the common mushroom, but that each species or group has its own peculiar animal host, and that each animal is attracted by devices varying as greatly as those which are known to exist between flowers and insects. Because the subject is one requiring considerable biological knowledge, as well as necessitating close and extensive observations concerning the habits of both fungal and animal life, I must content myself for the present with furnishing a few simple facts, and would suggest that this contribution be regarded as introductory to a more exhaustive one, which I hope to be able to offer after I have pursued the subject a little closer.

At present I see reasons for supposing that birds, such as the raven, carrion-crow, rook, and magpie,—and quadrupeds, such as the fox, badger, rabbit, hare, and squirrel,—play the same important part in the life-history of our numerous native fungi as the ox, sheep, and horse do for the common mushroom. I am further convinced that each kind of bird and animal plays the part of host to a limited number of species, perhaps even to only one, and that in every case the animal is lured to the fungus, to which it acts as host, by a colour or smell which,—although perhaps disagreeable, or at any rate not attractive, to other creatures,—has a peculiar fascination for the animal host.

During the present autumn I have noticed in the woods of the Kennall Valley scores of mushrooms, embracing many species, on the partially eaten portions of which I have found teeth-marks of rabbits, squirrels, and other animals. I have long observed also a partiality among carrion-crows and rooks for fungi possessing "high" smell and taste. If we could go satisfactorily into the question we should doubtless find that the fungi which afford pleasure to the raven, rook, and carrion-crow, would be distasteful to the rabbit, fox, and squirrel,

while the fungi sought after by all six would be avoided by other birds and quadrupeds. Probably also when the subject has been more thoroughly worked out, the most interesting revelations will be forthcoming from the relationship between fungi and birds. In this respect I have been much struck by what has come under my own observation. Whenever I have seen a bird holding high carnival over a fungus, I have carefully gathered up the fragments for examination, and in every instance I have found buried in the tissues huge larval forms of insect life. To the questions :—How did the birds learn of such a rich meal hidden deep in the living vegetable tissue? and, Why did they attack those fungi only in which the larval forms had attained maturity?—no better solution has yet been forthcoming than that they were guided by *colour* and *smell.*

From the time of their first appearance, to their ultimate decay, most fungi develop an increasingly powerful odour. In their early stage some have a slight smell by day, and would therefore be attractive to diurnal insects. Others give forth their odour at night-time only, in which case strictly nocturnal insects, such as moths, would be their only visitors. In the young stage I have failed to find animal life of any kind in their tissues, but microscopic examination has revealed minute punctures of the surfaces in which tiny eggs have been snugly deposited. It is important to note also that at this early stage I have not known the fungi to be attacked by bird or quadruped. When the spores of the fungi are ripe and ready for dissemination, the plant acquires a more pronounced smell, varying, according to the species, from putrid fish and ordinary carrion to sweet-smelling fruit and flowers. Examination has proved that at this stage also the maggots in the putrifying mass have attained their full size. Attracted by the odour, which has doubtless a powerful ally in colour, now come the birds. Long experience has taught them to connect the particular smell with a meal, and it is, as I suppose, while devouring the living contents of the fungi, that they also swallow large quantities of spores. And for this latter purpose, in the main, it would seem that the complex but interesting series of mutations and correlations has been evolved.

The increasing strength of the distinctive odours which may be observed in many fungi, from a young to a full-grown stage, is a beautiful instance of adaptation to requirements. In the early stage the presence of birds would be fatal to the perpetuation of the species, inasmuch as the plant would be destroyed before the spores were ripe. Hence an odour signal is put up for the birds, only at the precise time when their presence is indispensable.

In contrast to birds, who come primarily for the animal life, quadrupeds would mainly feed on the fungus itself, and in this case colour and smell would be aided by a taste peculiar to the animal who plays the part of host. In support of this it is notorious, as any observer may test for himself, that, while many fungi swarm with animal life, others are comparatively, if not even perfectly, free. The former are the ones with repulsive odour and taste, while the latter are usually sweet-smelling and pleasant to the palate.

Lowlier forms of animal life than birds and quadrupeds may be necessary to the existence of other fungi. Botanists have long been acquainted with a class of fungi which seek the common house-fly and other insects as their hosts, although the precise dependence of the one on the other still awaits solution. The flies which we so frequently see at this season, stuck to our window panes, are simply the victims of a ravaging fungus, of which the misty ring which surrounds the corpse represents a multitude of reproductive bodies. When a spore has once found its way into the living tissues of the fly it develops into a considerable ramification of fine threads. Of these threads those which appear on the outside of the fly bear reproductive bodies at their free ends, which, according to a German botanist, "are projected against the under surface of the bodies of other flies, the only part at which penetration is possible," when they at once develop into a branched system of threads similar to that which bore them.

Even the common slug may be necessary to the existence of peculiar fungi. It is noteworthy that, in cellars and pits, slimy fungi and equally slimy slugs keep close company; and further, wherever an earthy-smelling fungus exists in our woods, there

also slugs gather. Conchologists know, although I believe they are unable to offer any explanation to account for it, that a fungus may be found on the eggs of the grey slug even before they are extruded from the body. Who knows but that the slug is as necessary to the complete cycle of life of a lowly form of fungus, as the horse, cow, or sheep is to the common mushroom, or as the house-fly is to its own vegetable parasite? What the conditions of this association are, is a problem for the future.

Recently, several Journals have been vying with each other in describing a New Zealand phenomenon which has won the appellation of "the strangest insect in the world." A caterpillar, called by the natives the aweto, buries itself at the foot of certain myrtles and clematis plants. When it is full grown, a fungus shoots up from the creature's neck, just between the head and the first ring. It grows to a height of about eight inches, and is sustained by the supplies it draws from the living substance of the caterpillar. It is said the fungus fills up every possible space within the outer skin of its victim without changing its form, simply substituting a vegetable matter for an animal one. Of course, viewed in the light of the foregoing remarks, there was absolutely no need for so much astonishment at this animal-cum-vegetable wonder; whilst, to assert, as one of our scientific journals gravely did, that "so far, science has not been able to say whether it is a vegetable or an insect," is absurd. If the substance of this paper be correct, this New Zealand combination is no greater a miracle than a cow, a squirrel, a rook, or a fly pursuing the even tenor of its way with a fungus passing the first stage of its life-history within it. Why this particular fungus and caterpillar keep such devoted company, may possibly find an explanation in the possession by the one of an odour or taste for which the other has a marked predilection.

Such, then, in brief, is a tentative explanation of the functions of the beautiful and varied colours, and the many kinds of taste and odour possessed by our native fungi. Here, no less than with higher forms of life, the race is to the strong. The peculiarities of colour, odour, and taste manifested by each

fungus have been established, it would seem, by slow degrees in response to certain demands, objective and subjective. By their possession each species is better able to attract the quadruped, bird, or insect, as the case may be, within which, or on the living tissue of which, it is necessary that it should pass a phase of its existence.

NOTES ON THE BULB-MITE.

By FRED. H. DAVEY.

By not a few horticulturists and gardeners in the west, will the early spring months of 1896 be remembered, for reasons other than their phenomenal clemency. In addition to the depredations of the hordes of destructive insects, with which they have at all times to contend, great mischief has been wrought during the season, and in a few instances severe losses have been incurred, by the ravages of a minute yet formidable pest, which has devoted its attention to such valuable and showy bulbous plants as the hyacinth and narcissus. The loss sustained, by two or three of the writer's acquaintances, runs to thousands of plants, while records of lesser damage are all too frequent. Such is the extent to which one cultivator has been visited by the plague that the whole of his crop, laid in at considerable expense, has been practically destroyed. Whole houses of plants have had to bow before the microscopic pest, and hopes of a profitable crop have been doomed to sore disappointment. In some instances portions of the crop made no start whatever after being planted, probably owing to the presence of the enemy in extraordinary numbers. Others assumed various stages of growth, a few of the more robust even giving promise of flower. In all cases, however, the leaves soon changed to a sickly hue, and shortly after, drooped and died. Specimens sent to me for microscopic examination, with the instrument so kindly placed at my disposal, a year or two since, by Mr. J. D. Enys, have afforded me opportunity for acquainting myself with the life-history of the little creature which is the author of all this spoliation; and as, in spite of its destructive proclivities, it is a most interesting bit of animality, and is but little known, it may benefit some if I record what I saw.

The plants submitted to me betrayed the presence of the foe in divers ways. On a few, the roots had dwindled to the merest apologies for such essential organs, and were absolutely incapable of obtaining for the plant its necessary supply of food

material. Others showed leaves sickly and flaccid, and in parts utterly devoid of chlorophyll; while, in a few, the bulbs themselves showed incipient signs of decay. Portions of the root, taken close to the base of the bulb, revealed a curious, not to say pretty, sight when examined under the microscope—they were simply infested with a beautiful pearly grey mite in various stages of development. Of eggs there was a multitude, and sprawling among them one soon made out adult male and female forms, together with a number of larvæ or immature individuals.

BULB-MITES.
(Magnified thirty-five times.)
1—Female; 2—Larva.

The picture looked like a bit stolen from fairyland, and one naturally regretted that such pretty creatures should be the authors of so much mischief. It was really an amusing sight to see them tossing and tumbling each other in their apparently purposeless movements. A few were quietly feeding on the tiny portion of root to which they were attached; but the majority seemed devoted to no other purpose than one eternal round of kicking and sprawling. A little patient watching of their doings and transformations, extending over several days, enabled me to relegate the voracious little fellows to their proper class, and eventually to call them by their proper name. What I had under view was in reality the much anathematised and, to the average horticulturist, but little known, Eucharis or Bulb-Mite, which during the past thirty years has been known to students of economic entomology by at least five different names, and which is now left in peace with the somewhat euphonious appellation *Cæpophagus echinopus*, Rob., meaning "the spine-footed bulb-eater."

Its life-history is a study which those who have the opportunity will profit by, if they carefully follow out and compare it with that of its equally interesting congener—the cheese-mite. Like all mites, the adult forms, both male and

female, are furnished with eight distinctly pointed and, in this case, bristle-set legs. The length of the female rarely exceeds one millimetre; that of the male is not nearly so great. The female deposits a number of tiny eggs at amazingly short intervals, and these quickly develop into sprawling little larvæ, possessing three pairs of legs, of which the first pair are furnished with "suckers." By some naturalists these latter appendages are regarded as organs of attachment, important only to the larval stage. It must be admitted, however, that further investigations as to their use are desirable. After a brief enjoyment of its six-legged condition, the mite moults—a process which robs it of its "suckers," and gives it an additional pair of legs, the number now being eight. Even at this stage there is no evidence of sex, the interesting and multiform creature having to undergo another mutation before one can say whether it is male or female.

Such is a brief outline of the history of a speck of animal life, which, in favourable seasons, devastates whole crops of hyacinths and narcissi. Although known as the bulb-mite, and deservedly so, by reason of the extensive injuries it does to bulb crops, it by no means confines its attention to this class of plants. Among decaying vegetable matter, on roots, and even among the posies on our table, it may be found by the diligent seeker. On out-door plants, it is chiefly found during the summer months; but, as many of our valuable bulbs are grown in stove houses and are also protected when flowering-time is over, the bulb-mite goes on merrily increasing among the bulb scales all the year round, and when unchecked is able, by reason of its numbers, to work such havoc as is recorded this season.

NOTES ON THE DRY SUMMER OF 1896.

By FRED. H. DAVEY.

For a parallel to the past summer, the memory of the oldest will be disturbed in vain. Considered by its results, it must rank as even more historic than the Jubilee summer of 1887, or indeed than any other dry season of recent times. To most, but to the agriculturist in a particular sense, the drought which prevailed, from early spring to after midsummer, was a time of considerable anxiety, fraught in many instances by serious financial losses. To the naturalist it was a period of unbroken interest, as it afforded opportunity for studying phenomena of very infrequent occurrence. In a short space of time nature gave us some of her choicest gifts, and many of her most destructive pests, some of the latter occurring in numbers appalling by their magnitude. On the other hand, as will presently be shewn, a few of the commonest objects of the country were notorious by their scarcity or entire absence.

To give here full particulars of the rainfall, barometrical readings, hours of actual sunshine, &c., for the whole of the dry season, would but burden these notes with much unnecessary matter. Those who may wish for statistics of this kind will be afforded them by others in due course, in the excellent meteorological tables published in the Journal of this Institution, and in the Annual Report of the Royal Cornwall Polytechnic Society. Meanwhile the following particulars, which I am able to give through the kindness of Mr. Gregg, will be sufficient.

Month.	Total Rainfall in inches.	Average Rainfall in inches.	Number of Wet Days.	Average number of wet days.
January	1·13	4·857	14	20
February	·66	3·382	9	17
March	2·96	2·914	23	16
April	·71	2·592	10	13
May	·04	2·441	3	13
June	1·31	2·400	10	13
July	2·20	2·606	11	13
Totals.. ...	9·01	21·192	80	105

Though taken at Truro, these figures are substantially correct for the Kennall Valley, which has furnished the material for this paper. It will be seen that the rainfall, for the first seven months of the present year, was 12·191 inches below the average; or, in other words, that every acre of land received nearly 1,300 tons of water less than usual. The figures also shew that, during the period mentioned, the number of wet days fell to twenty-five below the average.

All this has told a many-sided tale. On the one hand, the spring flowers, thanks to the rainfall and mildness of the first three months of the year, were very numerous, were unusually large in size, and deep in colour. Dog-violets, celandines, daisies, crowfoot, and other early flowering plants made the hedgerows and meadows gay with their blossoms,—the catkins and pendulous racemes, of the several kinds of trees, perfuming the air with their pollen. Never in the writer's experience have the sycamore, willow, poplar, alder, oak, beech, hawthorn, elder, blackthorn, Spanish and horse chestnuts looked gayer. Foreign trees and shrubs answered to the stimulating effects of the heat of the spring and summer months in a similar manner. Everywhere in the district, the male araucaria (better known as the Monkey-Puzzle) has been prolific in cones, a specimen in front of Pengreep house being a noteworthy example. On the same grounds, the flowers on the magnolia and the tulip-tree were also unusually fine, while at Burncoose, hydrangeas were such pictures as to have merited notice by the horticultural and local press.

By way of contrast to the foregoing, the ash, hazel, larch, and Scotch-pine were altogether below the average in flower, while the birch showed a large number of bare branches and leaves of a very diminutive description. Small summer-flowering plants suffered to a similar extent. In the main the plants themselves were pitiable shrivellings, and the flowers more than usually small; albeit of a very rich colour. As far as I have been able to ascertain, there was no distinction, in this respect, other than that bog-loving plants presented their normal habit.

Another interesting circumstance must be mentioned. In the early part of the summer, as early even as the latter part of

June, the colour of the woods changed rapidly from the delicate tints of spring to the sicklier hues of autumn. So obvious was the change that the fall of the leaf was expected. For this peculiarity, extensive observations suggest an explanation. Admittedly, the several weeks of blazing sunshine, with the absence of rain, must have told seriously on trees, no less than on lowlier forms of vegetation; but the prevalance of Aphides ("plant-lice") was a more potent factor in the change of the leaves from a spring to an autumn colour. From their expansion in May to the time when the above-mentioned changes became apparent, the leaves of all trees, without exception, were smeared with a thick layer of the viscid "honey-dew," which fell from the secreting organs of the Aphides. This prevented the normal movements of the stomata or breathing-pores. Transpiration, as necessary to plants as is respiration to human beings, was interrupted; disorganisation of cell-contents ensued, manifesting itself in a change of colour from chlorophyll-green to shades of yellow, red, and brown.

Before passing on to more important matters, it may be well to notice the scarcity of a few kinds of insects. Not once during the whole of the season did I see the clouded yellow butterfly or the painted lady; and half-a-dozen specimens will include all that I saw of the silver-washed fritillary; green-veined whites were also far from abundant, and even such common forms as the large and small cabbage white, tortoiseshell, red admiral, and copper were fewer in number than we are accustomed to see.

A yet more interesting circumstance has to be related. Not only in the Kennall Valley, but wherever my rambles have taken me, I have searched the furze and heath in vain for that object known to the country mind by such names as frog's spit, toad's spit, and cuckoo's spit, and which the naturalist designates the frog-hopper (*Aphrophora spumaria*). If others have recollections of any recent summer when a five-mile walk could be taken without coming across those familiar patches of froth, their experience differs from the writer's. Read in conjunction with what will be said later (about one or two other insects which are also protected by a secretion of their own) this total

absence of the frog-hopper is a splendid example of how differently apparently-similar insects responded to the dryness of the season. The tiny eggs of the frog-hopper are deposited on the branches of the furze, heath, and low-lying plants by a winged female in the autumn. In this condition they remain throughout the winter and right on into the following summer, when, given the requisite heat and moisture, they hatch forth into those small larvæ which may be found concealed in the frothy masses. As moisture is essential to the change from the egg to the froth-producing larval stage, the total absence of these creatures last summer is just what might have been expected after a drought extending over nearly four months. Incidentally, it may be mentioned that these larvæ feed on the juices of the plants on which they occur, and that the frothy mass is exuded from their own body as a protective mantle. Robbed of this, the creatures soon die if exposed to the heat of the sun, and should they even escape death in this manner, they meet it in another, being devoured by birds, wasps, and other enemies.

In our orchards, the American Blight, or Woolly Aphis, (*Schizoneura lanigera*) has been a formidable foe. Supposed to have been introduced into this country from America, over a hundred years ago (1787), this pest, at varying intervals, works incalculable mischief. Soon after its introduction, thousands of apple and pear-trees were destroyed in the vicinity of London; and so many trees perished in Gloucestershire, sixty-two years ago, that the cider-making industry was for a time threatened with extinction. Like the work of many other insects, the extent of the mischief occasioned by the American Blight cannot always be determined during the season in which the pest occurs. The females are wingless and covered with filaments of a white waxy substance. Hiding themselves under the bark and in small crevices, they impair the vitality of the trees by robbing them of their life-supporting sap. As stated, the injury is not always apparent the same season, for canker and wounds follow, if the Blight has been abundant, and eventually the trees droop and die. Young trees are least able to bear these attacks, and as both apple-trees and pear-trees were

literally infested last summer, no surprise need be felt, if, during the next year or two, our orchards lose some of their most promising trees.

Towards the close of June, the larch was attacked by a somewhat similar insect. In one small plantation in the valley, the lower branches were so plagued with the Larch-Aphis (*Chermes laricis*) that from a distance the waxy filaments secreted by, and protecting the body, looked like a coating of hoar frost. In less than a month after the appearance of the insects, so pronounced was their work that the tips of the newly-formed shoots became as brown as if they had been scorched by fire, while the leaves fell from the topmost branches until they were as bare as in the winter. Before leaving the larch, it will be necessary to place on record two or three peculiarities noticed in a four or five-year-old plantation, immediately below the Ponsanooth railway viaduct. The lower portion of the plantation abuts on the river, and occupies what, a few years ago, was a fairly rich meadow. Here, last summer, growth was at about the average rate,—the roots finding plenty of subsoil, to tide the trees over the drought. From the river the plantation extends up the hillside, where the soil is very loose and stony. In this portion the shoots produced last summer are scarcely half as long as those on the trees near the river. Not only so, but while growth goes on in most trees to about the end of August, almost the whole of the young larch-trees standing on the loose soil ceased growing by the beginning of July, remaining in a state of apparent inactivity until the middle of August, when, responding to the reviving showers, the branches once more underwent elongation, several inches being added. Even now the summer and autumn increments of growth can be traced. These same trees also bore a plenitude of cones, whereas those by the riverside had none. Further, the cones exhibited, to an unprecedented degree, the phenomenon known as proliferation, a leafy shoot of from two to six inches in length being produced at the apex of each.

During the whole of the summer the appearance of the alder was pitiable. June was scarcely ushered in before the leaves began to shrivel and turn brown, and by the first week

in July the majority of the trees in the valley had lost fully two-thirds of their foliage, while quite a score of noble specimens stood as bare as if winter had suddenly seized them in its icy grip. From the hillside, one could see them everywhere standing out in strong relief against other trees of the wood; and from Kennall Vale to Perranwharf they could be seen by the riverside, in this seared condition, in one unbroken line. Wherever willows grew among the alders, they, too, were affected, although the same kind of trees growing away from the alder remained scot free. Investigation proved the mischief to be the work of countless thousands of small caterpillars belonging to a pretty little beetle of the Galerucidæ, known as *G. lineold.* They infested the lower surface of the leaves, devouring the softer tissues so voraciously as to cause the blasted appearance which the tree presented. In August the larvæ pupated, but here the work of spoliation did not end, for in a week or so, an innumerable host of the little brownish yellow beetles themselves came forth to continue the work of devastation. This beetle and its larvæ are said, for the most part, to frequent willows and water plants, but have been recorded as being found on the alder in Sweden. Considering the damage it wrought last season, it is quite possible that our alders will not present their usual appearance next summer. Of a certainty the destruction of the leaves so early in the summer precluded the elaboration and storage of reserve materials in the permanent tissues of the tree for next spring's growth, a disastrous circumstance for any plant. As the expression, "tongues in trees," is really something more than a catch-phrase of the poet, it will be perfectly easy at any future time to trace the effects of last season's drought with its attendant abundance of insect life in both the alder, larch, and apple tree. Prof. Dickie tells us that, when he was collecting materials for a paper on the forest trees of Aberdeenshire, "a number of ash stumps, all in the same place, were found to have one hundred and eleven zones; the trees had been cut down near the root in 1838. On counting back from the external annual layer, it was observed that two of the zones, very much thinner than the others, corresponded to the years 1781 and 1782. On making inquiry of some aged persons, it was stated that 1781 was notable for its cold, ungenial

summer, that 1782 was still worse, and in fact, a year of famine in the north-east of Scotland." As the meteorological conditions of those two summers were thus recorded in the heart of ash stumps, so our alder, larch, and apple-trees last summer wrote their own histories. Years hence it will be found that the layer of wood formed during the summer of 1896 was narrower than those of the preceding and probably succeeding years.

In a few places the black poplar suffered from the ravages of a pest closely resembling that which devoted its attention to the alder. In this instance the foe was the Poplar-Beetle (*Chrysomela populi*). Larvæ and beetles infested the leaves at one and the same time, the latter being very small and of a beautiful metallic blue colour. The larvæ can be distinguished from those of the alder-beetle by their peculiarity of feeding side by side like a line of well-trained soldiers. This important distinction I have not noticed in books bearing on the subject.

We now pass on to the oak. Prolific in blossom and fruit, and bearing leaves of more than ordinary size; this tree has also had its enemies. Of the forty or more Galls found on the oak, many of the more interesting were among us last summer. Not to mention them all, it may be stated that we had the Currant-Gall, caused on the lower surface of the leaves and on the catkins by *Spathegaster baccarum*; the Artichoke-Gall, a scaly, bud-like growth, produced at the ends of the branches by *Cynips gemmæ*; the Common Oak-Gall, the work of *Cynips folii*; the Sponge-Gall, resulting from punctures by *Teras terminalis*; and, in the autumn, those interesting little Oak-Spangles, formed on the under surface of the leaves by *Neuroterus lenticularis*. Thanks to the investigations of Dr. Adler, Mr. Walsh, and others, the relationship between the spring and autumn galls is no longer a mystery. It is now abundantly clear that the two successive generations of a species differ in every respect from each other; that, in short, the progeny of the insects which cause the spring galls, not only produce a different kind of gall in the autumn, but, the insects themselves differ so greatly from their parents as to be considered distinct species. This will be better understood by citing an example. In the spring an insect known as *Spathegaster baccarum* gives rise, on the leaves and flowers of the oak, to those berry-like growths known as Currant-

Galls. The second stage, in the life-cycle of this insect, is not an insect bearing the lineaments of its parents, but a totally distinct one known as *Neuroterus lenticularis*, which produces the small Oak-Spangles in the autumn. It will thus be seen that each species of gall-insect resembles its grandparents and not its parents.

In that delightful book of his, dealing with "Tropical Africa," Prof. Drummond tells us, in his own inimitable manner, of the surprise he once felt at seeing what he thought to be white droppings from a tree, on a water-worn boulder, move! and how, on examination, the spots turned out to be not droppings at all, but a real living insect, that so closely simulated the white droppings from the trees as at first to deceive the observant Professor himself. On the leaves of the oak, birch mountain ash, and the alder, I, last summer, found an insect, much resembling that described by Prof. Drummond. It is the larva of one of the "lace-wings," a bit of animality that carries on its back a pent-house composed of the smallest fragments of lichen mixed with the dead cases of the aphides, on which it has fed. Touch the leaf and the creature shows not the least sign of life, looking, for all the world, like the merest scrap of lichen; but stand still and watch it awhile, and you will find that the apparently inanimate substance is really alive, and can be as nimble as possible. The staple diet of the little fellow hidden behind the shield, consists of aphides. These it kills by sucking the juices from their bodies, the dry cases afterwards being woven into the strange mantle on its back. Until last summer, when I could take them by the score, I had only met with a couple of specimens. The Natural History Editor of the *Yorkshire Weekly Post*, to whom I communicated certain particulars about this representative of the "lace-wings," informed me that I had come on what appeared to be a rare habitat, he being unable to find that the insect had been noticed more than once before as frequenting the alder.

So many peculiarities attended the drought that the difficulty is to bring one's-self to stopping-point. These remarks would be incomplete, however, if no mention were made of the absence of those dark blotches on the leaves of the

sycamore, caused by a fungus known as *Rhytisma Acerinum*; of the abundance and enormous size of haws; and of the extraordinary occurrence of the holly-berries being perfectly ripe by September. Equally necessary is it to state that what the summer's drought, with its attendant myriads of insect pests, failed to do, the cold blasting wind, which blew from the north-west on the 25th and 26th of September, accomplished. Vegetation bowed before it, as by fire or frost. The leaves of the trees which caught the stroke of the blast were simply blackened, and in a few days they strewed the ground. Everywhere in the valley the storm wrought untold mischief, and brought to a sad and premature end, one of the finest summers of recent years.

A BRIEF ACCOUNT OF AN ATTEMPT AT OYSTER CULTIVATION, MADE AT FALMOUTH DURING THE YEARS 1895-96.

By RUPERT VALLENTIN.

I am publishing this little record of my experiments in oyster-culture in the hope that others interested in the pursuit may here find some encouragement to go further and prosper more. As yet, our attempts in England have not met with the success which has rewarded the efforts of the French and Dutch.

I may preface these remarks by stating that the necessary funds for this and other experiments, and also for the establishment of a Fishery Museum, were collected by the Royal Cornwall Polytechnic Society,—the Technical Educational Committee of the County Council of Cornwall granting a small annual sum for the maintenance of these several undertakings.

Early in the spring of 1895 one thousand tiles were ordered to be made at Bridgwater after the most approved French pattern, and about six weeks later they were delivered at Falmouth. These tiles were treated in the following manner:—They were first dipped in a saturated aqueous solution of sea-water and quicklime, and when thoroughly dry they were quickly passed through a mixture of quicklime and fine sand mixed as follows:—one part of lime to three parts of sand, mixed with sea-water to the consistency of thick cream, and kept constantly stirred while the tiles were being dipped. After an interval of about twenty-four hours, the tiles so treated were found coated with a uniform layer of cement, about one millimeter in thickness.

With the view to give this experiment every chance of success, I divided these tiles into three lots, and distributed them in the following places:—one lot near Tolvern ferry, a second lot in St. Just creek, and a similar quantity in a small bay about a quarter of a mile due north of Carclase point.

Judging from appearances, I certainly considered that the first-named locality would produce the most successful results; the ground being firm, and the currents, both on the ebb and flood tides, being distinctly favourable for a heavy fall of spat in that neighbourhood. During the closing days of September I visited this place at low-water with my assistant, but after a most careful examination we were unable to detect any spat on these tiles. The next day an attempt was made to examine the remaining tiles, but the tide did not recede far enough to enable this to be done; and it was not till the early part of the following year that it could be accomplished.

On the morning of the 25th of February, I was able during low-water to make a careful examination of these tiles and I was excedingly gratified to find a fair sprinkling of oysters on most of them. When arranging the tiles near Carclase point it occurred to me to try, as an experiment, arranging some of them in tiers, and I now found that the tiles in the second or third tiers invariably had more young oysters on them than those next the sea-bottom. This year I have profited by the experiment and arranged all my tiles accordingly.

I am inclined to imagine that the success of this method of arranging the tiles, in tiers, is mainly due to the fact that crabs, of the genus Portunus, do not take shelter beneath those of the upper tiers, but invariably select the tiers next the ground. I have never caught any species of crab *flagrante delicto;* but I strongly suspect that all our litoral decapods have a partiality for young oysters. An observation made during the spring of this year rather confirmed my suspicions. On that occasion I was collecting in a large tidal pool in St. Just creek during low-water, and I observed a specimen of *Carcinus mænas* about three yards from me, pick up a small *Cardium edule* with the right chæla, and quickly retire with it beneath a heap of seaweed. Luckily having a small landing-net in my hand I soon caught the crustacean; and although the mollusk was dropped, as soon as the landing-net approached the crab, I secured it immediately afterwards. This specimen of cardium measured 6 m.m. in diameter. On my return to my hut I placed both crab and mollusk in a clean jar of sea-water, and kept both under close

observation during the next two days. On the morning of the third day the crab was dead; but the mollusk was there unharmed and healthy.

Before the March winds began to blow, those tiles on which young oysters were detected were removed to Bar Pool which had already been prepared for their reception. This pool, which is about an acre in extent, was used, many years ago, to store sea-water in; this water being utilized, when the tide was out, to work a very picturesque corn-mill, of which the rapidly decaying remains still form one of the attractions of Falmouth. In those days the greater part of the wheat consumed in Falmouth was ground in this mill; but now, owing to the present rapid means of transit both by sea and land, flour comes from far off regions; and almost fifty years have passed since the mill was in working order. To put this pool into a serviceable condition, some fifteen hundred tons of mud had to be removed; and an even layer of fine gravel, about four inches in depth, was spread over the bottom. In addition to this, the old sluice-gates were replaced and the stone wall which forms the western boundary of the pool was repaired up to a certain height; so that one is now able always to keep a uniform depth of water in the pool of about one metre. This water is changed twice every day by the tide. The average temperature of the water in the pool is high, the rising tide having to pass up a narrow channel which is sheltered from the winds, but exposed to the sun's rays. Hence the average temperature is about four degrees higher than that of the water in the inner harbour. As a natural consequence, diatoms, which form about ninety per cent. of the food of the oyster, abound here, and during neap tides, when the tide is only sufficiently high to just change the water in the pool, a uniform yellowish film of almost pure diatoms can be observed resting on the thin layer of mud in certain places. This feature is still more noticeable if the sun has been shining uninterruptedly for some hours previously.

Ulva latissima flourishes, and during the past summer the screens which guard the entrances to both sluices have been almost forced in, on more than one occasion, by the quantities of weed carried up on the flowing tide. Indeed no inconsiderable amount of the annual grant has been spent in removing this

drift-weed from the sluices and pool; twelve heaped barrow-loads being carried away from the pool in one day.

Towards the close of March, the spat on the tiles was considered large enough to be removed; and a gauze case for the reception of the young oysters was made under the kind superintendence of my friend Mr. J. B. Tilly. This case was firmly fixed six inches from the bottom of the pool by means of four posts which were driven some distance into the ground and then fastened to the four corners of the case by means of screw-bolts.

Almost directly after the young oysters had been detached from the tiles and placed in the cage, hot weather set in, and it was not till the 9th of June, that I considered it prudent to run out the greater part of the water in the pool and examine them. On that morning during the ebbing tide, both sluices were opened, and when sufficient water had escaped to allow one to wade in and inspect the case, the sluices were again closed. I then discovered that one end of the case had been wilfully smashed in, and many of the young oysters lost in the rubbish in the bottom of the pond. Those that remained were found to have doubled their size in six weeks and three days; sufficient evidence, in my opinion, to show how admirably this pond is suited for oyster-culture.

I may also state that early in the spring of this year a school of young Mullet (*Mugil capito*), took up their residence in this pool, and finding the high temperature agreeable, and plenty of food to be got, have remained there ever since. Within the past few days I ran the greater part of the water out of the pool, during a calm cloudless day, to make my monthly examination of the young oysters, and I was gratified to find that these Mullet had increased in size and were as large as a fair-sized Pilchard. I have no doubt they will grow much larger if they are not disturbed.

Since the 9th of June I have managed once a month to make a careful examination of the oysters in the case, and on each occasion removed two specimens for more careful inspection. These specimens were not selected, but were invariably taken at random; and so one can obtain a very good idea of the rapid

growth of the oysters when treated in this manner. An examination of the specimens sent with this communication will confirm this statement. I have, however, considered it desirable to place on record the actual diameter of each series of oysters with the dates of removal from the case; these facts are added to this paper as an appendix.

It is to be noticed that the last two specimens of oysters removed from the case, although large in size, possess a very thin delicate shell, and this would afford but scanty protection to the mollusk if it were attacked by any decapod crustacean.

At the present moment, in spite of all my efforts, the pool literally teems with *Carcinus mænas* and *Portunus arcuatus*; and with a view to guard my delicate bivalves from these crustaceans I have constructed a small enclosure of fine galvanized wire meshing, and have securely fixed it to the bottom of the pool. Here I have put my young oysters for a month, at the end of which they will be replaced in the case for another month. They then will be again transferred to the enclosure for a longer period. In this way they will get gradually accustomed to their new surroundings, and in about four or five months may be left at the bottom of the pool. By adopting this plan the shell in every instance will be increased in thickness, and the young oyster will stand a better chance in "the struggle for existence."

It is hardly necessary for me to mention that this experiment was undertaken to test whether the climatic conditions of Falmouth were suitable for oyster-culture. I cannot help thinking that these results justify a larger outlay, especially when it is remembered that the summer of 1895 was not a good spatting season. If I had had 50,000 or 100,000 tiles to experiment with, my expenses for labour would not have materially increased, and my results would have been far better. Besides, if the number of tiles were increased, it would be worth while employing a man to watch them when uncovered by the tides. Under the present circumstances, our tiles have been frequently thrown about, broken, and even stolen, during spring tides. This has forced me to make frequent visits to St. Just creek during the early part of the year, to collect the tiles and again place them in order.

APPENDIX.

On the 25th of February the average diameter of the spat on the tiles was about 8 m.m.

On the 25th of April the average diameter of the spat on the tiles was about 14 m.m.

During that morning the young oysters were removed from the tiles and placed in the case in the Bar Pool.

On the 9th of June two young oysters were removed from the case at random and measured 35 and 40 m.m. respectively in diameter.

On the 11th of July two more specimens were removed from the case under similar conditions and were found to measure 36 and 50 m.m. in diameter.

On the 20th of August two additional specimens were removed and measured 47 and 52 m.m. in diameter.

On the 25th of October the last two type specimens removed were found to measure 65 and 80 m.m. in diameter.

SOME REMARKS ON AN EXPERIMENTAL LOBSTER HATCHERY.

By RUPERT VALLENTIN.

During the early part of last summer (1895), at the request of the Fishery Committee of the Royal Cornwall Polytechnic Society, I undertook, with the co-operation of my friend Mr. J. B. Tilly, the construction, and afterwards the superintendence of an experimental lobster-hatchery; our aim was to rear lobster-larvæ in captivity, till they had grown to an inch or more in length and were able to assume the habits of the adult.

Before designing this hatchery, I made a careful examination of the coast, in the neighbourhood of Falmouth, to see if some rock-pool could not be adapted at a small outlay to suit our requirements; but I was unable to find any place that could be made to answer our purpose without a heavy expenditure.

The attempts which have hitherto been made in this kingdom, to rear lobster-larvæ in captivity, have not been very successful. At Plymouth, Prof. Weldon[(1)]* hatched some thousands of young lobsters, in the hold of an old trawler which he had altered to suit his requirements, and he was able to keep them under observation for fourteen days: the vessel then foundered. Later[(2)] the same gentleman, with the co-operation of Dr. Fowler, resumed experiments in a large tank, belonging to the Marine Biological Association, which held about 600 gallons of water; but they were again unsuccessful, and up to this time their experiments have been discontinued.

In concluding his account of this second experiment my friend, Dr. Fowler, writes as follows:—

"The mere hatching of the eggs of the lobster, whether they are left on the mother, or are stripped from her and hatched in appropriate apparatus, presents, of course, no difficulties; it is easy to turn myriads of young lobsters loose in

*These numbers refer to Bibliographical list at end.

the sea, with a very small expenditure; but the general belief that overfished grounds can be replenished in this way is still open to very serious criticism."

I have herewith submitted a photograph of our experimental lobster-hatchery; and with a view to enable those seeing it to form a better idea as to its size, I have included my assistant in the picture; the boat-hook which he holds in his hand rests on the water-line. The dimensions of this hatchery are as follows: length, 14-ft.; width, 6-ft.; depth, 4-ft. 3-ins. The windows or ports are 16 in number, measure 11ins. square, and are distributed as follows:— three on each side and two at each end. Every port is protected by an external covering of half-inch galvanized wire netting, and about three inches on the inside of each of these is a thin fine brass screen; which, while allowing an uninterrupted stream of water to pass through, effectually prevents the larvæ from escaping. Firmly fixed at each end in the interior of the hatchery is an empty fifteen-gallon cask, two of these being found sufficient to give the apparatus the necessary buoyancy.

Immediately beneath each of the three hatches on the top of the hatchery, which can be opened at pleasure, and screwed into its floor are three cages, each measuring two feet square. These are covered with half-inch galvanized wire netting, and also provided with a hinged top. These cages are used to put the hen-lobsters in, when the eggs are ripe; each animal having ample room to move in, and at the same time one is able to examine each lobster, as often as needful, without disturbing the others.

Some time later, I was exceedingly gratified to find that Prof. Herdman[3] had recommended in his report that experiments should be attempted at Port Erin, in the Isle of Man, on lines very similar to ours; it is indeed very singular how our views on this subject agree.

Towards the end of June, this hatchery was moored in a corner formed by the extremities of the northern and western breakwaters on the Dock Company's premises. In this locality it was fairly well protected from every strong wind, and besides, being moored in a tide-way, had the additional advantage of a gentle undulatory motion imparted to the water by constantly

passing steamers,—which greatly added to the success of the experiment.

After the hatchery had been allowed to remain a short time in the water, a nearly ripe-berried lobster was obtained and placed in one of the inner cages of the hatchery, and fed with a piece of whiting. The next morning I was gratified to find about a score of lobster-larvæ swimming vigorously inside the hatchery. During the next few days these larvæ greatly increased in numbers; but it was not till after five days had passed that all the berries were hatched.

It has long been known to zoologists that the young of the fresh-water crayfish hold on to the fine hairs which abound on the swimmerets of the female, almost directly they are hatched; and that they probably remain so attached till after the first moult or ecdysis. The young of the lobster are, however, unable so to attach themselves, their claws or chelæ not being adapted for the purpose.

Prof. Bell,[4] on the authority of Mr. Peach, makes the following statement;—"I have heard the fishermen of Gorran-Haven say that they have seen in the summer, frequently, the old lobsters with their young ones round them; some of the young have been noticed as six inches long. One man observed the old lobster with her head peeping from under a rock, the young ones playing around her: she appeared to rattle her claws on the approach of the fisherman, and herself and young took shelter under the rock; this rattling, no doubt, was to give the alarm."

As this statement has been frequently quoted by many recent authorities, I was very anxious to make some experiments with my larvæ, to see if I could confirm it in any way.

According to my observations I found that during the first five days of their free existence these larvæ, although there was a current of water continually passing through the hatchery, had a decided tendency to remain in the immediate neighbourhood of their mother; but never attempted to take refuge beneath their parent, or shewed the least alarm when I tried to frighten them. This I attempted by splashing the water, knocking stones

together, sharply hitting the sides or roof of the hatchery, but was invariably unsuccessful.

At the end of the first week, when all the eggs were hatched, I removed the parent lobster, for I feared she might eat some of the larvæ. Towards the tenth day of their free existence the larvæ gained considerably in strength, and scattered all over the interior of the hatchery.

During the whole time I had these young lobsters under observation, they were of a delicate grass-green colour; and, being almost transparent, formed very instructive objects when examined with a low magnifying power.

The next matter was to supply these larvæ with appropriate food. As soon as I observed that the eggs were hatching, I made extensive tow-net gatherings in the harbour; and after removing all medusæ and young fish from each gathering I turned the remainder into the hatchery; and during most of the time that I had these animals under observation I managed to pursue this plan. There were, however, several consecutive days during which it was impossible for me to venture out in my canoe to make the necessary tow-net gatherings, owing to strong winds from various quarters. Indeed, on more than one occasion, the sea made a clean sweep over the hatchery; but I found when the weather moderated that the larvæ had not seemingly suffered by this rough treatment.

For twenty seven days these young lobsters continued to thrive, and increased in length from 7 m.m. to 1 c.m. However, on the morning of the 11th of August, I was astonished to find only three larvæ in the hatching, where on the previous afternoon there had been some scores, and, on beaching it, I found a small crevice about 15 c.m. in length, and 4 m.m. in width at one end: this space being formed by the unequal swelling of two of the planks; and I have no doubt that the young lobsters managed to find their way out at this point during the night.

This opening was at once closed, and some slight repairs were also made in the hatchery with a view to increase its buoyancy. On the morning of the 20th of that month the hatchery was replaced and again ready for experiments.

Owing to the great interest which the fishermen took in these experiments I was able to obtain another female lobster with ripe berries at once, and on the morning of the 4th of September I was again gratified to find a score or more of young larvæ swimming inside the hatchery.

During the night of the 6th, or early morning of the 7th of September, one of the ports, either by accident or design, was smashed in, and all the larvæ escaped. Owing to the lateness of the season I was unable to obtain any more ripe-berried lobsters, and so my experiments came to an abrupt termination.

Perhaps some of my readers will be inclined to ask why I did not turn some of these larvæ into the sea, after I had reared them for three weeks. It so happens that Falmouth Harbour, abounding as it does with creeks, is a natural nursery for all kinds of fish; and I have no doubt in my own mind that the majority of the larvæ which escaped on both occasions, were devoured by small pollack and other fish. The task of rearing lobster-larvæ is full of difficulties, but I am firmly convinced that these can be overcome by patient perseverence.

This hatchery is now on shore for the winter, and a small outlay of a few shillings is all that will be required to put it in order, for the fresh experiments which I intend to undertake this year.

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(3.) Note on a Lobster Hatchery, by Prof. Herdman. Report for 1893 on the Lancashire Sea Fisheries Laboratory.

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A SUMMARY OF TWO LOG-BOOKS, KEPT AT CADGWITH, RECORDING THE CAPTURE OF LOBSTERS, CRAYFISH, AND CRABS, FOR THE YEAR 1895.

By RUPERT VALLENTIN.

When I held the post of Lecturer to Fishermen under the County Council of Cornwall, I drew up—at the request of my Committee—a series of log-books, wherein those men who accepted them could record the details of their daily catch of fish, together with the surface temperature of the sea, a thermometer being supplied for that purpose. The majority of these books refer to drift and long-line fishing; but two of their number relating to Lobsters, Crayfish, and Crabs, were given to two fishermen residing at Cadgwith, a small village situate about three miles to the eastward of the Lizard; these were returned to me early in October, when the fishing for those crustaceans closed. On making a careful summary of these books, I at once saw that some valuable information had been obtained; so I asked for, and immediately obtained, permission from my Committee to publish them.

I may preface these notes by stating that this village is one of the largest on the coast of Cornwall where the capture of Lobsters, Crayfish, and Crabs is exclusively followed.

Should the weather appear at all settled, these men begin fishing about the middle of March with a dozen crab-pots; and these are gradually increased till the full number, usually sixty to each boat, is reached.

There are, however, occasions when even the best judges of the weather are liable to be deceived; for I find that soon after the fishing commenced, one of my informants lost thirty-two lobster-pots out of a total of thirty-six, during an easterly gale. In spite, however, of these drawbacks, the temptation to

commence fishing for these crustaceans as soon as may be, is very great; for, during the early part of the year, they command a high price in the market.

Owing to the fact that this season was an exceptionally favorable one, it will perhaps be of interest to place on record the number of days during which these men have been able to haul their trammels and examine their crab-pots. Sundays are of course excluded in these returns; for, no matter how fine the weather may be, these men never fish on those days.

March	5	days
April	18	,,
May	23	,,
June	21	,,
July	20	,,
August	15	,,
September ..	17	,,
Total	119	days.

I have reduced to a tabular form the contents of each log-book, and have numbered each return 1 and 2 respectively. The second return relating to Crabs has not been published, as it is far from complete. Considering however the large amount of information each man was requested to supply, each day, and bearing in mind that this is the first occasion of their having attempted to record their daily captures, these returns cannot but be considered highly satisfactory.

No. 1. LOBSTERS.

	Males.	Females.	Of these 'in Berry.'	Total.	No. over 11-in in length.	No. between 8 & 10-inches in length.
March ..	5	7	7	12	6	6
April ..	63	29	7	92	37	55
May ..	152	137	48	289	160	129
June ..	95	97	52	192	139	53
July ..	82	75	33	157	63	94
August..	96	129	18	225	89	136
September	77	87	14	164	73	91
Totals	570	561	179	1131	567	564

No. 2.

March ..	19	23	7	42	16	26
April ..	51	68	34	119	73	46
May ..	123	95	53	218	131	87
June ..	96	84	39	180	120	60
July ..	75	77	35	152	96	56
August..	119	94	39	213	133	80
September	136	112	32	248	[not recorded]	
Totals	619	553	239	1172	569	355

No. 1. CRAYFISH (*Palinurus vulgaris*).

	Males.	Females.	Of these 'in Berry.'	Total	No. over 11-in. in length.	No. between 8 & 10 inches in length.
March ..	0	0	0	0	0	0
April ..	5	6	1	11	7	4
May ..	20	31	5	51	42	9
June ..	16	23	5	39	38	1
July ..	40	52	2	92	90	2
August..	26	24	0	50	46	4
September	52	60	8	112	111	1
Totals	159	196	21	355	334	21

No. 2.

March ..	0	0	0	0	0	0
April ..	7	2	0	9	[not recorded]	
May ..	15	12	2	27	,,	,,
June ..	18	20	2	38	,,	,,
July ..	21	22	4	43	,,	,,
August..	21	29	0	50	,,	,,
September	83	76	8	159	,,	,,
Totals	165	161	16	326		

No. 1. CRABS.

	Males	Females	Females 'in berry' returned to sea	No. 8-in. and upward across the shell	No. from 6-8 in. across the shell	Total	Soft shelled males	Soft shelled females
March ...	8	1	0	1	8	9	0	0
April ...	91	40	0	15	66	81	17	18
May ...	320	232	1	78	234	321	92	105
June ...	473	274	3	142	321	473	306	218
July ...	337	712	0	123	215	338	137	142
August	197	516	0	68	132	200	93	81
Sept. ...	84	129	0	24	62	86	80	79
Totals	1510	1904	4	451	1038	1508	725	643

It should be remembered that all the crabs which measure less than six inches across the shell, together with the soft-shelled specimens of both sexes, are returned at once to the sea by these fishermen.

Curiously enough, each of these men secured four female crabs carrying ova. The majority of these were five inches across the shell, but one speciman was 'very large,' though the exact dimensions were unfortunately not recorded. These were also returned, as soon as caught, to the sea.

Mr. RICHARD PEARCE, F.G.S., OF DENVER, COLORADO, ON PROSPECTING FOR GOLD, AND ON THE GENERAL PROMOTION OF MINING, IN CORNWALL.

As all matters relating to Cornish Mining are regarded as highly important and interesting, it is deemed desirable here to insert an extension of the short-hand-writers' notes, taken at the Royal Institution of Cornwall Spring Meeting, 1896, when special allusion was made to Gold-Mining, &c., in Cornwall:—

Mr. Richard Pearce, in the outset of his address, said that he would describe some specimens of mineral from what was known as the Cripple Creek District in Colorado,—a district which had recently been the source of great excitement. He thought possibly some members of the Institution might be glad to hear an account of the peculiar deposits of gold in the Cripple Creek district. They probably knew that by the depreciation of silver, Colorado mining was reduced to a comparatively low point, and that the miners turned their attention from silver to gold. One of the first results of their investigation in that direction was the discovery of gold in a new district entirely—a district in which they had no suspicion that gold existed. In fact, Cripple Creek never presented the peculiar conditions which most gold districts offered in the way of outcrops and well-defined fissure veins, so that the district had been neglected by the prospector until within the last five years. Cripple Creek was almost at the base of the celebrated mountain known as Pike's Peak, which was one of the most prominent points in the Rocky Mountains, and was of granite. At the base of the mountain they had discovered a number of intrusive rocks, probably of the tertiary period, some of them were called andecites, and others classed as phonolites. He was sorry that a more extensive collection was not before them that day. He had requested samples to be sent on to New York, but they had not arrived there when he sailed. Instructions were given by him for them to be forwarded, but he had not received them,

and so he had not the pleasure of exhibiting a more extended series of these peculiar specimens. The chief characteristic, and probably the most interesting, was the peculiar way in which the gold was associated. The gold did not occur native, as in other districts where gold was found in very large quantities, but it occurred in connection with that rare element tellurium. The discovery of gold and tellurium together was not new, as, about twenty-five years ago, gold had been discovered in connection with tellurium in the Boulder district. He shewed a sample of sylvanite from that district, which he had found in the Museum. It had been sent by him to the Royal Institution of Cornwall several years ago. The gold as it occurred at Cripple Creek was in the form of sylvanite and mineral calaverite, which was the richest of all gold-tellurium minerals. Some experts said at first that it was iron pyrites, but it was a compound of tellurium and gold, and contained forty per cent. of gold. One interesting point of this combination was that it did not occur in regular well-defined veins and lodes, but rather in segregated masses, —the result of intense thermal action. The rock which intruded itself from the granite was andecite; subsequently there was another upheaval of rock called phonolite. The impregnation of the rock of subsequent origin was the result of intense thermal action, the extremely hot solutions probably containing gold in connection with silica and fluorine. One thing which was rather extraordinary was, that above the zone of oxidation they had gold in combination with tellurium, simply as a telluride. But, above the water-line, where water containing oxygen had had the opportunity of oxidising this compound, they found that gold had settled free, not in a form analogous to the ordinary form of gold,—that was in bright yellow scales,—but in the form of a red powder, which was not unlike gold produced by the parting of an alloy of silver and gold, that was to say as a brownish powder. In this way the miners had failed to determine the existence of gold by the ordinary process of panning and washing. Gold so light could only be made lustrous by simple polishing. It was so light that it flowed off, and it was impossible to find it by the prospector's plan of treating it with the ordinary pan.

The discovery was made by a man who knew nothing about minerals, and geology, and assaying; but he happened to strike on something that he thought had better be sent to the hands of the assayer. And, to his great astonishment, the ore was reported to be rich in gold. In connection with these deposits it was remarkable that the granite, through which these intrusive rocks passed, had become impregnated with the gold, just in the same way that they had the stanniferous granite in many of the lodes in Cornwall. He had seen hundreds and thousands of tons of granite which, under ordinary circumstances, he should have declared to be absolutely worthless, and which would be thrown away, containing as much as four ounces of gold to the ton, and this was due entirely to the impregnation of the rock itself from the influence of these thermal waters, which had come up through the spaces produced by these eruptive rocks. The miner had come to the conclusion that, because gold occurred in Cripple Creek in such large quantities, there was a probability of its occurring everywhere, and so the prospector was very busy all through the Western Rocky Mountains, endeavouring to discover new Cripple Creeks. The importance of the discovery was that Cripple Creek, although only five years old, had, with the town and its suburbs, a population now, not far from 15,000 people, three lines of railway running into it, and an output of gold, for 1895, amounting to eight millions of dollars. This was a rapid development, considering the short time the district had been discovered as a gold-producing one.

Since he had been in Cornwall, he had taken a few opportunities of moving among mining districts, and it had struck him there was quite room for the prospector in Cornwall to-day. He might be wrong but, between thirty and forty years ago, he did a great deal of work in Cornwall in hunting up, more particularly, the minerals of the county, and it had struck him that since that time he had seen nothing done in the way of any new discovery, or search after new deposits in any new district. He was struck with what appeared in a newspaper he read at Denver, not long ago; the paper referred to Phœnix mines, and the possibility of their being closed, and he thought it stated that there was one well-known lode in the sett which had never been prospected, and on which nothing had ever been done to

see how far it would turn out to be a vein of value. He might be imbued with certain American ideas, rather in advance of the period, but it struck him that they, as Cornishmen, had allowed themselves, in a measure, to sleep and to get very rusty, and to neglect a great part of their county, which, he thought, still offered a field for investigation. It distressed him very much, as a Cornishman, to hear of the depression which existed in Cornwall at this time. But he thought that the depression, if he might be allowed the expression, was due more particularly to the slow and indifferent habits of the Cornish miner himself. He said that, without the slightest hesitation. All they wanted to-day were modern ideas, and a modern system of working introduced into the mines, to make them successful and profitable. Only on the previous day he went to the bottom of Dolcoath, a depth of 440 fathoms, and there saw what he had never seen before, although acquainted with Dolcoath from infancy—viz.: an enormous vein of rich tin, literally showing ore, forty odd feet wide, which contained quite a considerable quantity of tin. Thus they had an enormous lode, but they did not seem to have any means of getting it out, or any capacity for treating it when they did get it out. He had been accustomed within the last few years to deal with mines in America that were handled on a large scale. In the Butte district of Montana, they had the celebrated Amatonga mines turning out one hundred and twenty tons of copper every day from a lode no wider than that of Dolcoath, representing a tonnage of not less than two thousand a day. It behoved them to try to introduce a little spirit into their Cornish engineers, and get them to adopt some of the modern ideas and the modern systems of working, which they saw in other countries carried out so successfully. He spoke this in good faith; he had the greatest possible sympathy with Cornish mines and miners, but believed that the dear old county had been neglected in a very great measure. It had occurred to him whether they had not the conditions which should warrant attempting to prospect for gold in Cornwall; it had never been hunted for in Cornwall. They had, in their collection, a magnificent nugget from the Carnon streams, and a series of small nuggets from other streams; but he did not think anybody had made any special study, or cared

to investigate or look after gold in Cornwall. He thought Mr. Collins would agree that they had the proper geological conditions for gold in Cornwall. But it required very careful investigation and the aid of the assayer to determine whether gold was contained or not. Silver occurred in large quantities at Dolcoath and in other instances. At North Dolcoath he had seen it occur. Yet they had never in Cornwall made any special exertions, or done anything very much beyond the ordinary routine of districts in which copper and tin occurred. He thought Cornishmen would be perfectly justified in going further than that, and of seeing just what their own county was capable of doing. He took this opportunity of referring to the matter purely from love of the old county.

CELIA FIENNES IN CORNWALL.

By H. MICHELL WHITLEY, F.G.S., Hon. Member R.I.C.

The Diary of Celia Fiennes, written in the latter part of the seventeenth century, during the Reign of William and Mary, and recently published,* contains much valuable information relating not only to the customs and manners of the times, but also to the country towns and houses she visited.

Celia Fiennes was the daughter of Colonel Nathaniel Fiennes, a Parliamentarian Officer, and sister of the third Viscount Saye and Sele.

Her health not being good, in order to regain it, she undertook several journeys through England and noted down in her diary a description of the various districts she passed through,—specially giving a detailed account of the various houses of the country gentry, which notes are the more valuable, as many of the houses have since been pulled down.

For instance, she visited and described the old house at Tregothnan, which was demolished about 1815 when the present mansion was erected; whilst other entries throw light on the social condition of the county at the period in question.

Celia Fiennes took the great South road into Cornwall, crossing from Plymouth to Millbrook by Cribly ferry, and rode through Looe and Fowey, and so by Par to "St. Austins" (St. Austle); at this latter town she remained the night, and here found herself not pleased "with the custome of the country wch is a universal smoaking, both men, women, and children have all their pipes of tobacco in their mouths and soe sit around the fire smoaking, wch was not delightful to me when I went down to talk wth my Landlady for information of any matter and customs amongst them. I must say they are as comely sort of women as I have seen anywhere, tho' in ordinary dress,—good black eyes and crafty enough, and very neat." After visiting a blowing house and tin mine, of which a long account is given, she rode to Tregothnan on a visit to her kinsman, Mr. Boscawen.

* Through England on a Side-Saddle in the time of William and Mary. Field and Tuer, London.

Her description of the Old Boscawen House is as follows:

"I went 3 mile more to Mr. Boscawen's—Trygothy—a Relation of mine. His house stands on a high hill in the middle of a parke, with severall Rows of trees, with woods beyond it.

Y^{e} house is built all of white stone like the Rough coarse marble, and covered wth slate. They use much Lime in their cement wch makes both walls and cover look very white.

There is a Court, walled round, wth open Iron gates and barrs. The Entrance is up a few stone steps into a Large high hall, and so to a passage that leads foreright up a good Stair Case. On ye Right side is a large Common parlour for constant Eating in, from whence goes a Little room for smoaking, y^{t} has a back way into the kitchen, and on Left hand is a Great Parlour and Drawing-roome, which is hung with pictures of the family, that goes into ye garden, wch has Gravell walks around and across, but ye squares are full of goosebury and shrub-trees and Looks more like a Kitchen garden, as Lady Mary Boscawen told me, out of wch is another Garden and Orchard which is something like a Grove, Green walks wth rows of fruit trees.

Its capable of being a fine place wth some Charge, the roomes above are new modell'd, 3 roomes wanscotted, and hung as ye new way is, and ye beds made up well, one red damaske, another Green, another wrought, some of ye Ladyes own work and well made up, wch is her own Roome wth a dressing roome by it. There is a dressing roome and a roome for a servant just by ye best chamber. There are two other good roomes unalter'd wth old hangings to ye bottom on wrought work of ye first Ladyes, Lady Margets work, y^{t} was my Cosin German, within that roome was a servants roome and back stairs; there was just such another apartment on ye other side.

Between all, from the stairs a broad passage Leads to a Balcony over the Entrance wch Look'd very pleasantly over the parke but in the Cupulo on ye Leads I could see a vast way, at Least 20 mile round; for this house stands very high to ye Land side Eastward, and the South was the Great Ocean wch runns into Falmouth thats ye best harbour for shipps in that road."

Riding on to Truro, where she was very civily entertained, she determined, for fear of the rains, to abandon her intention of visiting the Land's End, and returned back to St. Columb; but the next day, fair weather setting in, she rode to Redruth through heath and downs, very bleak, and full of copper mines.

From here she went to Hayle and found "The people very ill guides and knew but little from home, only to some Market town they frequent, but will be very solicitous to know where you goe and how farre, and from whence you came and where is y^r abode."

The stone Cresset, now known as St. Michael's Chair, on the tower of the Mount, was still used for its original purpose, as she describes it as "a chair or throne on the top, from whence they can discover a Great way at sea, and here they put up Lights to direct shipps."

At Penzance she found the town ill-supplied with fuel, there being no coal, and little or no wood; her supper being boiled over a furze fire,—the only fuel to dress a joint of meat and broth, except a little wood for roasting, which was both scarce and dear; it appears, that coal could not be brought to the town, around the Land's End, on account of pirates, and the road traffic was carried on by crooks of wood slung over the horses' backs, (a custom which remained in use, down to a few years ago in the Chagford district). After visiting the Land's End she returned to Truro, the description of which is worth quoting in full:—

"From Redruth I went to Truro, 8 mile, wch is a pretty Little Town and seaport, and formerly was esteemed the best town in Cornwall, now is the second next Lanstone.

Its just by ye copper and tinn Mines, and Lies down in a bottom, pretty steep ascent, as most of the towns in these Countrys, that you would be afraid of tumbling wth nose and head foremost.

Y^e town is built of stone—a good pretty church built all stone and carved on ye outside, it stands in ye middle of ye town, and just by there is a Market house on stone pillars, and hall on ye top; there is alsoe a pretty good key.

This was formerly a great tradeing town and flourished in all things, but now, as there is in all places their rise and period, soe this, wch is become a ruinated disregarded place.

Here is a very good meeteing but I was hindered by ye raine, ye Lord's day, else should have come to hearing, and so was forced to stay, where I could hear but one sermon at ye Church, but by it saw ye fashion of ye country, being obliged to go a mile to ye Parish Church over some grounds wch are divided by such stiles and bridges uncommon, and I never saw any such before:—they are severall stones fixed across and so are like a grate, or large steps, over a ditch that is full of Mudd or Water; and over this, just in the middle, is a great stone fixed sideways, wch is the style to be clambered over.

These I find are the Fences and Guards of their grounds one from another, and indeed they are very troublesome and dangerous for strangers and children."

From Truro she rode, through St. Columb and Wadebridge, to Camelford, and so on to Launceston.

This latter town she describes as being encompassed with walls and gates: in the Market-place a long and handsome space set on stone pillars with the Town Hall on the top, "which has a large Lanthorne or Cupilo in the middle, where hangs a bell for a clock, with a Dyal to the street. There is in this place 2 or 3 good houses built after the London form by some Lawyers. Else the whole town is old houses of timber work."

From Launceston, Celia Fiennes rode to Okehampton, and so on to Exeter.

THE HEROES OF THE OLD FALMOUTH PACKET SERVICE.

By the Rev. W. IAGO, B.A. (a Vice-President, &c., of the Royal Institution of Cornwall); Westheath, Bodmin.

The Oil-Painting which the accompanying illustration represents, in reduced form, has a special interest for Cornish folk, as it pourtrays one of the numerous defence-fights in which the grandfathers and other relatives of many of them had to engage, when,—in the service of their Country,—they were ruthlessly attacked on the high seas by out-numbering foreign foes.

It is not a mere fancy picture, but was painted by an eminent contemporary artist from details supplied by the survivors of the action. It is a portrait group, and its general character throws light on the exploits of a host of brave men connected with the Falmouth Packet Service, this contest being one link in a long, exciting series. There were many actions very similar; and some, in certain respects, even more remarkable; whilst several, less fortunate in their issue, were not less heroic, for none of those involved could foresee whether their struggles would result in Victory, Captivity, or Death.

The Falmouth Packets were not an attacking force, but were occupied in the peaceful pursuits of Commerce. They were commissioned to carry the Mails, and many of their Commanders were Officers of the Royal Navy, yet the Government very inadequately provided them with even the means of self-defence. This last-mentioned fact has awakened feelings of never-ending regret.

Not having been furnished with the amount of armed support they ought to have received, the Packet heroes had to contend against terrible odds, and suffered accordingly. The brave Cornish won,—they lost,—numbers of them were grievously wounded or slain, and many of them were compelled to endure for lengthened periods the horrors of loathsome dungeons in foreign lands.

Small bands of heroic men, defying hordes of enemies, often succeeded, after superhuman exertion, in saving what remained of their battered ships, but most of those who chanced to survive had no defenders to thank, and received little besides their lives as recompense. Prize-taking was not, in their case, recognised. As to pecuniary profits, only a small number of those concerned were so fortunate as to obtain, after many voyages in course of years, enough for a moderate retirement, whilst many of the families of those who fell were left without a maintenance.

It was understood by the Commanders and Crews of the Packets that they were, by skilful seamanship, to avoid conflicts, whenever such a course might be possible.

Specie sometimes formed part of their freight. The Mails were to be saved or sunk. But, notwithstanding all precautions, fierce and very unequal contests were frequently forced upon them. On such occasions, Officers, Men, Boys, and even Passengers fought bravely,—some desperately,—and, in addition to those who ranked as combatants, Medical Officers in their devotion to duty sustained personal injuries, laid down their lives, or were carried into captivity.

The Packets were established at Falmouth in 1688. They had a long and adventurous career, towards the close of which the Admiralty introduced 10-gun brigs, barque-rigged, into the service; but all were abolished in 1850.

Interesting notes on the Packets and their experiences have appeared in the tenth volume of this series of Journals,* and a History of them has since been written by the same author. His book,† rightly regarded as an incentive to wholesome valour, has been adopted for library use in Her Majesty's Royal Navy. It contains many thrilling descriptions of encounters between the Falmouth vessels and hostile ships, and gives incidentally the names of a great number of officers and others who distinguished themselves by conspicuous bravery, the particulars being gathered from the archives of the General Post Office, the Gazettes, and other reliable sources.

Those of us who are the grandchildren of the heroes, or are otherwise connected with them, and have been familiar all our lives with their worthy deeds of daring, feel that their prowess and high sense of duty should not be forgotten. It behoves all who appreciate their gallantry to honor their memory.

An effort towards this is meeting with success. A sum of over £200 has been subscribed by numerous contributors including Her Majesty's Post-Master-General, and it is hoped that £50 more may be raised; then, ere long, in Falmouth—the Port of the Packets—a lofty Monument, of enduring Cornish granite, will be erected, in the centre of the town, as the Packet Heroes' well-deserved Memorial.

With regard to those who should be considered the chief heroes, a choice of names becomes difficult, since so many fought so well, or were actuated in various other ways by noble self-sacrifice. Portions of the old record, moreover, containing names that ought to have been preserved, are lost; consequently, any

*R.I.C. Journal, Vol. X, pp. 355, 368, 371, (1891), No. 37.

†Hist. of Post Office Packet Service, by A. H. Norway, London, Macmillan & Co. (1895).

list now made, must, to some extent, contain an invidious selection. Still, a great many heroes, of brilliant achievements, undeniably claim special mention. Captain Dyneley's wondrous service was unique. He saved Dominica from the French, but was afterwards slain. Capt. Anthony, and his little cabin-boy David, shewed fine courage in the face of the Spaniards. Capt. Norway was killed as he won an almost impossible victory over a hugely preponderating American foe;—his surgeon Dr. Ure, and many of his men being slain also. Capt. John Bull, fought, like his father, often and well; and was honorably wounded; he had a drawn battle with a British Man-of-War which had assailed him by mistake. But space here fails for further reference, except to the gallant officer whose likeness appears in the centre of our illustration.

Mr. William Rogers, a native of Falmouth, is there shewn with a few of his seamen, boarding and capturing, near the West Indies, "Le Jeune Richard,"* a French Privateer, which had attacked his vessel, the Falmouth Packet "Windsor Castle;" in the reign of King George III. Mr. Rogers was the Master, in temporary command. The attacking ship was much the stronger, as is here shewn:—

ENGLISH, 150 tons; Guns, six 4-pounders, and two stern-chase 6-pounders; crew 28.
FRENCH, 250 tons; Guns, six 6-pounders, and an 18-pounder traversing on circle; crew 92.

After a cannonade, which lasted several hours, and more than one determined fight at close quarters, the following was the result:—

ENGLISH, victorious; Master and 25 of crew surviving (15 active, 10 wounded); 3 killed.
FRENCH, vanquished; 71 prisoners (38 in irons, 33 wounded); Captain and 21 killed.

Thus the comparatively weak Falmouth Packet took the swift and powerful French vessel which had made an apparently overwhelming onslaught upon her.

The following is a condensed abstract of Mr. Rogers's letter written from Carlisle Bay, Barbadoes, two days afterwards, viz: on October 3rd, 1807,† reporting the action to the British Admiral of the station:—

"Having been attacked by a French Privateer we were fortunate enough to capture her, and arrived safe with her in this Bay. Seen in the morning of October 1st, about half-past eight, she gave chase. Every exertion was made to get away: finding it impossible, preparations were made for resistance and to sink the mails if necessary. At noon she got within gunshot, hoisted French colours and began her fire, which was returned by our stern-chase guns until she came near, when we were hailed

* According to some documents "The Jeane Richard," or "Le Génie."

† London Gazette, No. 16102, Dec. 2—26, 1807.

WINDSOR CASTLE—CAPT. ROGERS, COMMANDER.

in very opprobrious terms and desired to strike the colours. On our refusing, she ran alongside, grappled, and attempted to board, which we repulsed with pikes, with a loss of 8 or 10 men on the part of the enemy. She attempted to get clear, but our mainyard was locked in her rigging. About three we got one of our 6-pounder carronades to bear, loaded with double grape, cannister, and one hundred musket balls; which—fired at the moment the enemy was making a second desperate attempt to board—killed and wounded a great number. After this I boarded, with 5 men, driving the enemy from his quarters. About four, the schooner was completely in our possession. Of her 92 men, 21 were found dead and 33 wounded. From the superior number remaining, it was necessary to use every precaution in securing the prisoners. I was obliged to order them up from below, one by one, and place them in their own irons, as 3 of our little crew of 28 were killed and 10 wounded,—our mizzen-mast and main-yard carried away, and the rigging fore and aft, much damaged. The crew of the Packet supported me with the greatest gallantry during the whole contest." (*Signed*) "W. ROGERS,* Acting Captain."

For his intrepid conduct Rogers received the thanks of His Majesty's Post-Masters-General; promotion to the rank of captain, with command of another Packet; 100 guineas besides his share of the Prize (although no prize-allowance was usual); the freedom of the City of London; and an illuminated address, with sword of honour, from the inhabitants of Tortola.

In London, a gentleman named Dixon, unacquainted with Rogers, sought and obtained his friendship, and then commissioned Samuel Drummond, the well-known artist, to paint a view of the action, in which the hero's full-length portrait should appear. Rogers was introduced to the artist and reliable details were supplied. One day Rogers saw a man strikingly like the officer he had shot, when, armed with sword and pistol, he himself had advanced to the 18-pounder gun in the middle of the French ship's deck. He took the stranger to the studio as portrait-model for the hostile swordsman by whom he had been so nearly cut down. When completed, the Painting belonged to Mr. Dixon, but the artist issued excellent delineations of it in Mezzotint, the work of William Ward, engraver extraordinary to the Prince of Wales (afterwards King George IV.) and (Frederick) Duke of York. The Plate was dedicated by permission to the Earls Chichester and Sandwich, Post-Masters-General, the impressions being published by S. Drummond, A.R.A., at Church Street, Soho; June 21, 1809. From one of these our Plate is derived. The Painting in course of time passed to the first owner's grandson, Mr. James Dixon, of

*Captain Wm. Rogers (son of Capt. and Mrs Rogers who died 1790, 1798,) was born at Falmouth, 29th Sept., 1783. He married Susan, dau. of Capt. John Harris, of St. Mawes, by his wife Ann, dau. of Rev. Nicholas Cory, Vicar of Fowey, by his wife Mary (née Wymond), of St. Cadock's, St. Veep. Capt. Wm. Rogers died at Holyhead, January 11, 1825. His and his wife's portraits were preserved by her relatives and eventually given to his only surviving daughter or her descendants. For further references see Rogers, Pengelly, &c., in Bibliotheca and Collectanea Cornub: The Hero's sword is in Mr. Cecil Wade's collection at Plymouth.

2, Portman Square, whose daughter, Miss Anna Louisa Dixon, at his decease in 1896, became possessed of it, and generously presented it to the Nation. It is now, in the Painted Hall collection, at Greenwich Hospital. Further, it is satisfactory to know that her aunt, Miss A. M. Dixon, has, since, presented to the town of Falmouth through Mr. J. D. Enys, F.G.S.,† one of the large Mezzotints. This valuable Engraving, suitably framed, now appropriately adorns the Council Chamber of the Falmouth New Municipal Buildings.

†Chairman of the Heroes' Memorial Committee, of which Major Christoe, Falmouth, is Secretary. Many of the particulars relating to the Painting have come to us, through Mr. Enys, from Dr. Guillimard, F.R.G.S., &c., and Miss A. M. Dixon.

Obituary, 1896.

The late Mr. R. N. WORTH, of Plymouth.

Throughout Devon and Cornwall there was not a better known name than that of Mr. Richard Nicholls Worth, F.G.S., whose death, at the age of 58 years, occurred on the 3rd of July, 1896, at Shaugh, on the border of Dartmoor, where for a short time he had been staying for the benefit of his health. (His burial took place there on the 8th of his native month). He was born at Devonport on the 19th of July, 1837. Originally a Journalist, he afterwards became an Author and Editor. He wrote and supervised numerous publications illustrative of the Western Counties of Cornwall, Devon, Dorset, and Somerset. His Histories of Plymouth, Devonport, and of Devon, as also his writings on several topics (notably Sir Francis Drake's connection with Plymouth) have become widely known, and from their originality contain points of special interest. He contributed papers on a variety of subjects to the Devonshire Association, of which he became President, and to the Plymouth Institution over which, likewise, he, for some time, presided, also to the Geological and Polytechnic Societies of this County. He moreover greatly exerted himself, as Curator, in arranging exhibitions for the latter at Falmouth, and in improving the fossil and other collections, in the Museum of the former, in the

Athenæum at Plymouth. As a member of the Royal Institution of Cornwall, he contributed several papers to the volumes of this Journal, a very valuable essay of his, on Prehistoric Stone remains, appearing, in the number last issued.

Besides being engaged in literary pursuits, Mr. Worth was a zealous promoter of educational and other social movements, and held local offices of considerable importance.

Some idea of the extensive range of his literary productions may be obtained by reference to the lists of them given in the four Volumes of the Cornish Bibliotheca and Collectanea. The members of this Society greatly lament the demise of one who, for many years, took an active and pleasing part in its proceedings.

The late Mr. GEORGE BOWN MILLETT.

It was with sincere sorrow that the Members of the Royal Institution of Cornwall heard of the unexpected death of one of their most highly esteemed fellow-members, resident at Penzance. The following press-notice evoked their sincere sympathy:—"Deep regret was felt by all classes in Penzance when it became known that Mr. George Bown Millett, medical officer of health for the borough, had succumbed late on Thursday night, September 17th, 1896, to an attack of acute inflammation of the throat. Mr. Millett had attended the Sanitary Congress at Newcastle, and suffered from slight indisposition while in the northern city, but it was not until his return to Penzance that the symptoms became serious."

"Mr. Millett was the second and only surviving son of the late Mr. Richard Millett, solicitor, of Penzance, and was born on the 27th of June, 1842. He was educated by tutors, and having decided to embrace the medical profession went to St. Mary's Hospital in 1862, and after completing his course there passed his examination in 1865-66, and became M.R.C.S. Eng., 1865, L.R.C.P., Edin., 1866, and L.S.A., 1866. In 1877 he was in succession to the late Mr. F. Boase, elected medical officer for Penzance Urban and Port Sanitary Authorities. He held the

former office up to the time of his death, and on the creation of the new Joint Port Sanitary Authority that year, he was unanimously elected to the post of medical officer to the new body. Few men in West Cornwall held a larger number of honorary offices. He was in succession secretary and librarian of the Penzance Library, in the affairs of which he ever took a most active interest. He was also a president of Penzance Institute, vice-president of Penzance Natural History and Antiquarian Society (which he had previously served as secretary and president); vice-president of St. Mary's Branch of the Church of England Temperance Society, and vice-president of Penzance branch of the Young Men's Christian Association. On the retirement of Mr. Ambrose Taylor, he was appointed secretary of the Royal Geological Society of Cornwall, and continued to hold the office to the time of his death. In 1867 he was elected a corresponding member of the New England Historic Genealogical Society. Mr. Millett was the author of several publications including "Penzance Past and Present," and of a number of songs, some of which he set to music. Perhaps the most famous of these is "The Mayor of Market Jew," which was often sung at concerts in West Cornwall, and was included in several anthologies of West Country verse. The deceased gentleman also most carefully edited the parish registers of Madron and Gulval." He was unmarried. His burial took place on the 21st, at Madron. Mr. Millett wrote in different Magazines many accounts of matters and objects of interest; and also edited and contributed to transactions and other literary works connected with Penzance. He frequently attended the Meetings of the Royal Institution of Cornwall, &c., and his circle of friends extended far beyond the County.

It is unnecessary here to give a comprehensive notice of his family connections and of his writings, as they have been very fully recorded in the valuable volumes of Messrs. Boase and Courtney:—The Bibliotheca Cornubiensis, and Collectanea Cornubiensia.

W.I.

Royal Institution of Cornwall.

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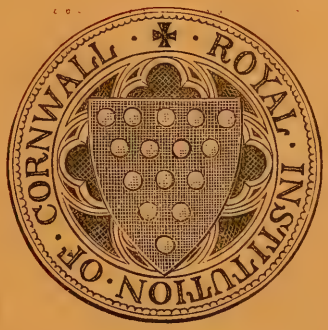

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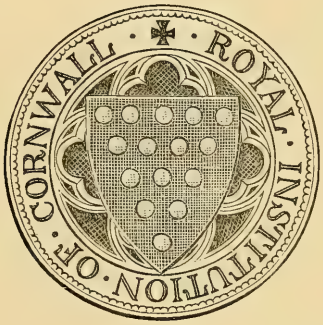

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Royal Institution of Cornwall.

SPRING MEETING.

The Spring Meeting was held in the Museum Buildings, Truro, on Tuesday, the 25th of May, 1897, the Right Honorable Leonard H. Courtney, M.A., M.P., the President, in the Chair. There were also present, the Revs. Canon Moor, M.A., F.R.G.S , T. M. Comyns, S. Rundle, M.A., A. R. Tomlinson, M.A., D. G. Whitley; Messrs. C. Barrett, H. Barrett, J. Barrett, F. Bryant, J. Bryant, W. Bryant, J. G. Chilcott, W. Clark, W. J. Clyma, F. H. Davey, J. D. Enys, F.G.S., T. Hawken, Hamilton James, P. Jennings, J. Lake, C. Mitchell, W. L. Penrose, J. Pollard, J. J. Smith, H. W. Vinter, B. Williams, Rev. J. Cockin; Mesdames Chilcott, Donaldson, H. James, Pascoe, Share; the Misses Clyma, F. James, Tomn, Vinter; also the Hon. Secretaries, Major Parkyn, F.G.S. (Cor. Sec. for Cornwall of the Cambrian Archæological Association), and Rev. W. Iago, B.A. (Hon. Local Sec., for Cornwall, of the Society of Antiquaries, London), and Mr. R. A. Gregg, Curator.

THE PRESIDENT'S ADDRESS.

The Dispersion of Cornishmen.

Every reader of history naturally thinks of our county as a place in which an ancient race, driven by an invader westwards, maintained its stand, and withstood the advancing hordes. Cornwall in this respect is akin in its history and its situation to Wales on the north and Brittany across the channel, exhibiting the same Celtic fringe bordering on the western seas. The peoples have many characteristics in common. Although our language has disappeared, the names of places attest the unity of race, and it appears doubtful whether the slender remains of Cornish literature should not be in some measure distributed between Wales and Armorica, the greater portion being with much plausibility claimed by the latter.

I suppose there is no one who has not thus regarded our county as a western refuge, and most of us have been pleased to think how unavailing have been successive attacks to modify the stock of the people. The traces of Roman occupation are extremely few, the most important pointing to the christianising of Britain in the later days of Roman authority. It was long before the Saxon passed through the county, and though he and the Norman after him established sovereignty over it, but few Saxons or Normans came to dwell within it, and the people remained a scarcely modified Celtic race down to our own times. But my purpose to-day is to lead you to turn to another picture. Instead of thinking of Cornishmen pressed by the enemy within the county, I would draw your attention to the outward movement of Cornishmen from the county. We may see, as it were, some kind of elasticity, a reaction from the movement of the past, a regurgitation of a race long pent up between the northern and southern seas. The population of the county taken in the several censuses of this century, give us the following figures:—

1801	..	..	192,281
1811	..	..	220,525
1821	..	..	261,045
1831	..	..	301,306
1841	..	..	342,159
1851	..	..	355,558
1861	..	..	369,390
1871	..	..	362,343
1881	..	..	330,686
1891	..	..	322,571

This table may awake at first sight feelings of surprise, of pain, and of regret. We see to our astonishment a rapid increase of numbers in the first half of the century, followed almost immediately by what has been a continuous decline.

The period to which we are accustomed to look back as a period of imperfect law, and of injurious commercial and industrial regulations, shows an increase in population; whilst reform of law, improved administration, greater freedom of commerce and industry, have been accompanied by decline. I

shall not dwell on the social and economic causes which have brought about this startling contrast. I will only safeguard myself from misapprehension by saying that I find no reason in the movement of our people to refrain from approving the changes that have been made. Must we continue to feel pained at the reduction of our home-dwelling numbers? If we were driven to the conclusion that this diminution of population implied a dying-out of a race, a falling off in a contest with continually worsening conditions of life, we might well be shocked at the revelation. But I suppose it will be conceded by all that the well being of those who live in the county has been advanced during the last half century, that the standard of existence has been raised, and that our countrymen have greater comfort and a wider if not yet an ample margin of leisure surrounding their toil. I do not feel always sure that the standard of thinking has risen with the standard of material living. But the doubt thus suggested may be one of over-anxiety not having a real foundation. In the long run we may hope better conditions of outward existence will be found accompanied by better life. I put aside the thought that Cornishmen in Cornwall are worse off than they used to be, and the regret we may feel at their decline in numbers may turn into something like triumph, if we find reason to believe that those who are not found in the county have left it to improve their condition elsewhere, and have gone forth to conquer the world.

The population which in 1841 was 342,159 had increased in 1851 by 13,399, as against an increase of 40,853 in the previous decennium. The reaction had already begun. It continued between 1851 and 1861 when there was about the same increase, namely, 13,832. But we have the best means of knowing that this falling off of numbers within the county did not indicate a falling off in the numbers of Cornishmen. Throughout the decennium from 1851-1861 the number of births far exceeded the number of deaths, and, had there not been an outward movement of the population, would have shown much the same growth as in the earlier part of the century. The figures we have at hand do not indeed strictly apply to Cornwall as we know it, the geographical county we recognise as our own. They are the figures of what is called the registration county,

being compiled from the returns made by the registrars within the several poor law unions, and as along the boundary of Devonshire, unions now overlap a little on one side and now a little on the other, the identification of the two counties is not exact. But the overlapping portions do very nearly counterbalance one another, and we shall not go far wrong if we take the births and deaths in the registration county as if they applied to the geographical Cornwall. The figures then are:—

1851-60—Births	..	122,663
Deaths	..	73,367

showing an overplus of births of 49,296, and as the actual increase was only 13,832, it is evident that there went out of the county in the course of the 10 years at least 35,464, and if these had remained within it, the total population would have been 404,854.

Following up a similar process for succeeding decennial periods we find:—

	1861-71	1871-81	1881-91
Overplus of deaths over births ..	46,830	33,903	31,025
and as there were fallings off of population in each decennium to the extent of	7,047	31,657	8,115
there must have been an outgoing of at least	53,877	65,560	39,140

This shows a total emigration from 1851-1891 of at least 193,541. As it may be assumed that out of this army that has gone forth, those who have died have left at least an equal number of descendants behind them, we can easily understand that Cornish men and women and their children now living out of the county are fit to rank in numbers with those remaining at home. In fact the numbers that have gone out have exceeded those given in these tables, because there has been a small, relatively unimportant, but still measurable, movement of population from without the county into it, and the emigration must be increased by the numbers required to counterbalance this inward movement.

We are able, by a little further examination, to estimate, at least approximately, what correction should be thus made, and the facts we shall have to consider in arriving at this

estimate enables us also to throw some little light upon the interesting question, what has become of the sons and daughters of Cornwall who have left their native county.

At the census of 1861 there were Cornishmen living out of Cornwall in the United Kingdom amounting to 21,461. If we take the ordinary rate of mortality in the United Kingdom, this number would be reduced by 1871 to 17,138.

On the other hand there were living in Cornwall in 1861 non-Cornish born persons—29,678, and these with the same calculation, would be reduced to 24,249.

In point of fact we find that at the end of the decennium, Cornishmen living in the United Kingdom out of Cornwall were 35,628, and non-Cornishmen living in Cornwall were 30,767.

It appears, therefore, that during the decennium at least 6,518 non-Cornishmen must have come into the county, and 18,490 Cornishmen must have gone out of the county to live in the United Kingdom. The Cornishmen who have gone out of the county in that decennium amount therefore altogether to 60,395,* and as we have ascertained that 18,490 have left the county for the United Kingdom, it follows that 41,905 have left the county for the Colonies and Foreign countries over sea. Applying similar methods of calculation we find:

	1851-61	1861-71	1871-81	1881-91
Cornishmen migrating into the United Kingdom	3,509	18,490	27,451	9,337
		TOTAL—58,787.		
Cornishmen migrating over seas	41,908	41,905	48,160	38,786
		TOTAL—170,759.		
Grand total of emigration from Cornwall during the period 1851-91	229,546.			

Yet one more inquiry may be of interest. I have not said anything hitherto in this summary of the proportion of the sexes. But the figures of the census show the males and females in the county at each decennium, and it will be observed how remarkably the proportion has changed during the century.

*That is 53,877 being the loss of population already quoted, plus 6518, counterbalancing the influx of non-Cornishmen.

	Men.	Women.
1801	91,693	100,588
1811	105,011	115,514
1821	126,573	134,472
1831	146,297	155,009
1841	165,112	177,047
1851	171,636	183,922
1861	176,384	193,006
1871	169,706	192,637
1881	155,115	175,571
1891	149,259	173,312

We are also able to separate the Cornishmen living in the United Kingdom out of the county according to sex, and again the Cornish folk who have gone abroad, and it is not unnatural that while the men have always exceeded the women as emigrants from the county, the proportion of men to women going abroad is so overwhelming that the women left in the United Kingdom have exceeded the men emigrating into the same area.

	1861-71.		1871-81.		1881-1891.	
	Men.	Women.	Men.	Women.	Men.	Women.
To United Kingdom	8,723	9,767	9,807	17,644	3,830	5,507
Abroad	25,195	16,710	29,127	19,033	23,070	15,716

Other inquiries might be pursued, and I should be glad if these speculations provoke anyone to take them up and carry them farther. It would be especially interesting if we could trace, in any degree, what proportion of our countrymen have helped to people our Colonies.

But I have brought forward facts enough to show that if we have to recognise a diminution of population at home, which may not have yet been arrested, we can turn to the contemplation of an ample army of Cornish folk and their descendents abroad, so that wherever we go we may meet kinsmen as well as friends.

STATISTICS OF CORNWALL.

NOTES.

Ref. No. in Table.

1. Geographical County of Cornwall.
2. Registration County of Cornwall.
4. Registration County of Cornwall.
6. Geographical County of Cornwall.
7. This figure represents the excess of all emigrants from Cornwall over all immigrants into the county during the decennium.
9. These estimated survivors are ascertained by reducing the numbers given under (8) by the average annual mortality obtaining in the United Kingdom (according to sex) during the decennium.
10. The enumerated Cornish-born people living in other parts of the United Kingdom would include :—
    (*a*) the survivors of those so enumerated at the commencement of the decennium,
    (*b*) the number of Cornish-born persons emigrating from Cornwall, to other parts of the United Kingdom, during the decennium; *less* those immigrating into Cornwall from other parts of the United Kingdom;
    (*c*) the number of Cornish-born persons returning, during the decennium, from foreign countries to the United Kingdom (outside Cornwall); *less* those emigrating from the United Kingdom (outside Cornwall) to foreign countries.
11. The numbers here set out represent the difference between (10) and (9), and would therefore include the classes specified above under (*b*) and (*c*).
12. The numbers here set out represent the difference between (7) and (11), and therefore include :—
    (*a*) all emigrants from Cornwall to foreign countries, during the decennium; *less* all immigrants from foreign countries into Cornwall;
    (*b*) all Cornish-born persons emigrating from the United Kingdom (outside Cornwall) to foreign countries; *less* all Cornish-born persons returning from foreign countries to the United Kingdom (outside Cornwall) during the decennium;
    (*c*) all non Cornish-born persons emigrating during the decennium from Cornwall to other parts of the United Kingdom; *less* those non Cornish-born persons who settled in Cornwall from other parts of the United Kingdom.

COUNTY OF CORNWALL: Statistics as to Population, Births, Deaths and Emigration. 1851—1890.

	STATISTICAL DATA.		1851—1860.			1861—1870.			1871—1880.			1881—1890.		
			M.	F.	M.&F.	M.	F.	M.&F.	M.	F.	M.&F.	M.	F.	M.&F.
1	Enumerated population of Cornwall at commencement of Decennium.	... ...	171636	183922	355558	176384	193006	369390	169706	192637	362343	155115	175571	330686
2	Births registered in Cornwall during Decennium...	... ...	62903	59760	122663	63136	59507	122643	53055	50411	103466	47338	44879	92217
3	Estimated population at end of Decennium, as increased by births	1 + 2	234539	243682	478221	239520	252513	492033	222761	243048	465809	202453	220450	422903
4	Deaths registered in Cornwall during Decennium	. ...	36947	36420	73367	38363	37450	75813	35056	34507	69563	30160	31032	61192
5	Estimated population at end of Decennium, as affected by births and deaths during period	3—4	197592	207262	404854	201157	215063	416220	187705	208541	396246	172293	189418	361711
6	Enumerated population of Cornwall at end of Decennium	.. ...	176384	193006	369390	169706	192637	362343	155115	175571	330686	149259	173312	322571
7	Estimated numbers emigrating from Cornwall during Decennium	5—6	21208	14256	35464	31451	22426	53877	32590	32970	65560	23034	16106	39140
8	Enumerated persons born in Cornwall, and living at the commencement of the Decennium in other parts of the United Kingdom...	.. ...	[8812]	[13613]	22425	7901	13560	21461	14939	20689	35628	21681	34531	56212
9	Estimated numbers surviving in other parts of the United Kingdom at end of Decennium	... ...	[6971]	[10981]	17952	6216	10922	17138	11874	16887	28761	17679	28795	46474
10	Enumerated persons born in Cornwall, and living at the end of the Decennium in other parts of the United Kingdom	.. ...	7901	13560	21461	14939	20689	35628	21681	34531	56212	21509	34302	55811
11	Estimated numbers emigrating from Cornwall during Decennium to other parts of the United Kingdom ...	10—9	[930]	[2579]	3509	8723	9767	18490	9807	17644	27451	3830	5507	9337
12	Estimated numbers emigrating from Cornwall during Decennium to foreign countries	7—11	[20278]	[11677]	31955	22728	12659	35387	22783	15326	38109	19204	10599	29803

COUNTY OF CORNWALL: Statistics as to Population, Births, Deaths and Population. 1851—1890.

	STATISTICAL DATA.		1851—1860			1861—1870.			1871—1880.			1881—1890.		
			M.	F.	M.&F.	M.	F.	M.&F.	M.	F.	M.&F.	M.	F.	M.&F.
13	Non Cornish-born persons enumerated as living in Cornwall at commencement of Decennium	... ...	... ...	... ...	24141	15607	14071	29678	15219	15548	30767	18779	16411	35190
14	Estimated number of survivors at end of Decennium, allowing for an average annual mortality of 20 per 1000 ...	... ...	... ...	... ...	19725	12752	11497	24249	12435	12704	25139	15344	13409	28753
15	Non Cornish-born persons enumerated as living in Cornwall at end of the Decenninm	... ...	15607	14071	29678	15219	15548	30767	18779	16411	35190	19210	18526	37736
16	Estimated number of Non Cornish-born persons who immigrated into Cornwall during Decennium	... ...	... ...	.. ..	9953	2467	4051	6518	6344	3707	10051	3866	5117	8983
												Gross	Total	35505
	Add No. 7 from 1st Table	... ...	21208	14256	35464	31451	22426	53877	32590	32970	65560	23034	16106	39140
17	Estimated numbers emigrating from Cornwall during Decennium (2nd approximation)	... ...	... ...	... ...	45417	33918	26477	60395	38934	36677	75611	26900	21223	48123
												Gross	Total	229546
	Add (to No. 16 above) No. 12 from 1st Table	... ...	... ...	.. ...	31955	22728	12659	35387	22783	15326	38109	19204	10599	29803
18	Estimated numbers emigrating from Cornwall during Decennium to foreign countrie (2nd approximation)	... ...	... ..	... ...	41908	25195	16710	41905	29127	19033	48160	23070	15716	38786
												Gross	Total	170759

17. These numbers now represent the excess of Cornish-born Emigrants over Immigrants (between Cornwall and all parts).

18. These numbers now represent the excess of Cornish-born persons emigrating to foreign countries, from all parts of the United Kingdom, over Cornish-born persons returning to the United Kingdom from abroad.

COUNTY OF CORNWALL.

Population, as enumerated at successive censuses, 1801 to 1891.

Census.	Males.	Females.	Males and Females.
1801	91,693	100,588	192,281
1811	105,011	115,514	220,525
1821	126,573	134,472	261,045
1831	146,297	155,009	301,306
1841	165,112	177,047	342,159
1851	171,636	183,922	355,558
1861	176,384	193,006	369,390
1871	169,706	192,637	362,343
1881	155,115	175,571	330,686
1891	149,259	173,312	322,571

OTHER PAPERS.

At the conclusion of the President's Address, various other papers were read, and subjects discussed.

Mr. J. H. Collins, F.G.S., forwarded a continuation of his observations on "The Origin and Development of Ore Deposits in the West of England."

Mr. P. Jennings, of St. Day, contributed "Notes on the Parliamentary History of Truro, A.D. 1295—1467."

Mr. F. J. Stephens, of Falmouth—"The Adventures of a Cornishman (J. Deeble) in foreign parts a hundred years ago."

Mr. H. Michell Whitley, F.G.S.,—"Supposed Hiding places, at Golden in Probus."

The President observed, with reference to Golden, that Mr. Tregian, the owner, suffered much persecution in England:—his wife nobly sharing his sufferings. He died at Lisbon, and a memorial (in a church there) shews that his memory was much revered.

The Rev. W. Iago, on the same subject, remarked that Mr. Tregian's Chaplain, the Priest Cuthbert Mayne (who had been in hiding) was, when caught, tried at the Assizes and barbarously executed at Launceston. He was hanged, quartered, and decapitated. His head had been exposed on a pole at Wadebridge, and the upper part of the skull is now preserved at Lanherne. It displays the square hole made by the iron spike. He, and other members of the Royal Institution of Cornwall, had visited Lanherne, and seen it. Cuthbert Mayne was convicted of being a Roman Catholic Priest found in England at a time when the government required all such to leave this country. The Pope had decreed that the dethronement of Queen Elizabeth by her subjects would be justifiable. Danger from the Romish faction, therefore, threatened the Queen, and it was on that ground that all Roman priests were called upon to quit this realm. Cuthbert Mayne came over and remained, for religious purposes, but this constituted political disobedience, and death was the penalty. He had committed no other crime, and may therefore be regarded as a Martyr. He

has been, in our own day, Beatified by the Church of Rome, and at Douay College are preserved some sensational pictures which include a representation of the shocking treatment he underwent at the hands of justice.

Referring to some other topics which had been brought before the notice of the Institution, Mr. Iago stated that he had consulted the authorities at the British Museum with reference to the age of the Heathen Roman Sepulchral Inscriptions, at Prideaux Place, which he had deciphered, and the date assigned to them is the beginning of the First Century, A.D.

He also received confirmation of the view that the Hebrew tin image, at Lanhydrock, is a genuine relic of mediæval time:—its date appearing to be of the 13th century.

He had also taken the opportunity of comparing manuscripts of Defoe and other writers in the British Museum with some which gave the full story of the Botathen Ghost. The conclusion he arrived at was that Hawker, when stating what he alleged to be fact, was writing fiction, and instead of quoting from an original "Diurnal," had copied (misprints included) from C. S. Gilbert. He hoped to contribute to the Journal full particulars of these and other investigations.

Canon Moor, in making feeling allusion to the death of Sir A. W. Franks, C.B., testified to the great interest that eminent archæologist took in Cornish antiquities.

Votes of thanks were accorded to the President and other contributors of papers.

The President, in replying, made suitable allusion to the 60th year of Her Majesty's Reign:—the Queen being the Patron of their Institution. Mr. Courtney added that Her Majesty's long connection with the Society was not the only cause of their strong devotion towards her. She was Queen and Empress of the vastest Empire in the world, and in that capacity had shown wonderful political knowledge and discretion, and had endeared herself to everyone of her subjects. The Queen had lived in the time of many persons of great political distinction, men of enormous power, who had devoted their minds to the service of the country, and who had produced great changes in its political

history, and compared with the men who had served her—Lord Melbourne, Lord Russell, and Sir Robert Peel, down to the men of the present time—the Queen might be said to have made fewer mistakes through the whole of her long reign than any one of them. It was his belief that posterity would confirm the view of contemporary critics that Queen Victoria had made no political mistakes, and that was the greatest merit the Queen as a constitutional monarch could hope to have assigned her.

FIFTH ANNUAL ASSOCIATED MEETING OF THE CORNISH SCIENTIFIC SOCIETIES.

The Royal Geological Society of Cornwall, Royal Institution of Cornwall, Royal Cornwall Polytechnic Society, and Mining Association and Institute of Cornwall, held their 5th Joint Annual Meeting, on Tuesday, September 18th, 1897, in the Camborne District. It was numerously attended.

Dolcoath, Carn Brea, and East Pool Mines were inspected under very advantageous conditions, the experiments in rock-drilling, &c., and the illustrations of various mining processes being of great interest and value. The arrangements were all that could be desired, and were marked by generous hospitality.

The President of the Mining Association and Institute, Mr. T. Forster Brown, invited all the members of the societies to luncheon in Carn Brea Account House. To Captains Josiah Thomas, A. Thomas, W. Teague, R. White, Messrs. Trestrail and many others, thanks were also due for the able manner in which they promoted the wishes of all who took part in the proceedings. Mr. William Thomas, F.G.S., of Penelvan, Camborne, also rendered invaluable aid, as Secretary, in organizing the meeting and conducing to its success.

Particulars of the Joint Meetings are duly published when they take place, and the printing of the papers read, devolves upon the society of the district. It must therefore suffice here to record only a few facts in connection with what took place.

Papers on the following subjects were contributed, and were read by the writers or their deputies, in East Pool Account house.

(1). "Submarine Rock-fragments obtained South of the Lizard," by Mr. F. J. Stephens (for the R.G.S.C.)

(2). "The Ethnology of Cornwall," by Rev. S. Baring-Gould, M.A. (for the R.I.C.)

(3). "Minerals of Cornwall," by Mr. E. W. Newton, F.G.S. (for the R.C.P.S)

(4). "The formation of a Mining Record Office, as a Supplement to the Geological Survey," by Mr. C. Twite, F.R.G.S., F.G.S. (for the M.A. & I.C.)

The Rev. S. Baring-Gould, unfortunately, was unable to attend, but his paper, on behalf of this Society, was of great interest. In it he stated that the earliest traces of human inhabitants in Cornwall shewed that they were a dark, short, long-headed race, with faces mild, long, and agreeable. They used weapons and tools of flint and polished chert,—ground into required shape,—great proficiency being acquired in the manufacture of great knives, lance-heads, arrows, and even swords. They understood agriculture and weaving, and possessed domesticated animals like most of our own. They formed pottery by hand,—not on a wheel, - and the designs were good. They were devoted to the cult of the spirits of the dead, and, in honour of their deceased, they erected monuments of unhewn stone, of surprising dimensions and dignity. Their language was agglutinative. It had not reached that stage of development attained by the Aryan races, in which inflection took place. The Ethnology of Cornwall resolved itself into an admixture of—

1. The dusky Ivernian,
2. The Goidel Celt,
3. The Brythonic Celt, in a limited degree,
4. The Saxon, in a still more limited degree,
5. Various adventitious elements; due to the settlement of foreign sailors or miners, and possibly of a few Norman masters, as the Arundells, Beauchamps, Fortescues, &c.

Many other interesting theories and statements were added, by the author of the paper, as well as recommendations for recording existing peculiarities, in furtherance of the science of Anthropology.

A discussion ensued, in which Mr. John B. Cornish said no doubt most of the Cornish population of to-day were not of the pure Cornish origin—they were practically an amalgamation of the Cornish and Anglo-Saxon. The amalgamation had been

peaceful and gradual because Cornish names were still in existence. Had it not been peaceful the Anglo-Saxon, when he saw the native, would have killed him. It seemed to him that there was an actual barrier of Anglo-Saxon blood between Devon and Cornwall.

Mr. T. Robins Bolitho remarked that the surnames in Cornwall were certainly Celtic names, and if they analysed them they adapted themselves more to the name of the place than the man. With regard to Saxons and Celts the former was put down as a much more vigorous race than the other. They could not help recognising the fact that in the time of Athelstan there was an outbreak in Exeter, and he had to come down and repress the Celts who seemed to be getting rather the better of the Saxons.

The Rev. D. G. Whitley pleaded for a recognition of men belonging to the older or Palæolithic age in Cornwall. He pointed out that traces of men of that period had been found in a cave at Cattedown, Plymouth. The bones of men and animals, there discovered, shewed, he said, that Palæolithic men lived and died in South Devon; therefore it might be concluded that human inhabitants of the same date dwelt in the adjacent region of Cornwall.

Royal Institution of Cornwall.

79TH ANNUAL GENERAL MEETING & COUNCIL'S REPORT.

The Annual Meeting of the Society was held in the Museum Buildings, Truro, on Tuesday, the 23rd of November, 1897.

In the absence of the President, The Right Honorable Leonard H. Courtney, M.A., M.P., Mr. John Davies Enys, F.G.S., the ex-President, was voted to the chair. There were also present the Ven. J. R. Cornish, M.A., Archdeacon of Cornwall, the Revs. Canon Donaldson, M.A., Canon Moore, M.A., R. Prior, B.A., S. Rundle, M.A., C. F. Rogers, M.A., D. G. Whitley; Col. Bolitho; Messrs. C. Barrett, H. Barrett, A. Blenkinsop, T. Clark, W. J. Clyma, F. A. Cozens, J. T. Cunningham, M.A. (County Council Lecturer on Fisheries), F. H. Davey, H. Edwards, T. B. Hill, R.N. (Geological Survey), H. James, T. D. Jenkins, P. Jennings, T. Lake, N. S. Laurie, J. Osborne, F.G.S., Thurstan C. Peter, G. Rogers, W. Rose, W. Rowe, H. H. Share, R.N., E. F. Whitley, B. Williams; Drs. F. Chown, and Nevell E. Norway; and several ladies, including Mesdames H. Barrett, Buck, Cornish, Grylls, Iago, James, Leverton, Moore, Paull, Share, Spencer; the Misses Blenkinsop, Buck, Enys, Iago, Leverton, Paull, Prideaux-Brune, Rogers, Tomn. Also the Rev. W. Iago, B.A. (L.S. Soc. Ant.), and Major Parkyn, F.G.S. (Honorary Secretaries), and Mr. R. A. Gregg (Curator).

The Chairman regretted the absence of the President, and of the Rev. S. Baring-Gould, M.A., who would be nominated that day for the Presidency of the Society during the next two years, in succession to Mr. Courtney, whose term of office expired. He (Mr. Enys) sympathized with all those who, like himself, felt the great loss which the Royal Cornwall Polytechnic Society had sustained in common with a large circle of scientific and other friends, by the death of Miss Anna Maria Fox, of Penjerrick, Falmouth, foundress of the Polytechnic.

The minutes of the last meeting having been read and confirmed, the secretary read the following

REPORT OF THE COUNCIL.

The Council in presenting the 79th Annual Report and Balance Sheet, have pleasure in again stating that the Institution continues a prosperous course, and that the facilities afforded to students for study in antiquarian and scientific subjects, are being more and more availed of. The presents to the Museum and Library show an increase, and have been received from friends of the society scattered over various parts of the world, showing the wide-spread interest felt in the institution.

The Society is to be congratulated on the smallness of the loss by death since the last annual meeting. They have, however, to regret the death of Mr. George Clement Boase, the eminent Cornish writer and compiler, who died in London in October last.

He was born at Penzance in 1829, and educated at the Grammar School there. Before settling down to a literary career he had a varied experience as clerk, corrector for the press, gold digger, tutor and manager in a store. Having retired from commercial pursuits he gave himself up entirely to literary work, and commenced to prepare a Cornish bibliography, and in connection with Mr. William Prideaux Courtney brought out the Bibliotheca Cornubiensis. In 1890 Mr. Boase issued another work of the same character, the result of his subsequent labours, entitled Collectanea Cornubiensia. The last few years of Mr. Boase's life were mainly devoted to articles contributed by him to the Dictionary of National Biography, which numbered over 700 in all, and were distinguished by their accuracy and attention to detail. Mr. Boase was a member of very long standing of this Institution, in which he always showed the greatest interest.

The membership of a Society such as this necessarily fluctuates by deaths and removals, but the council are happy to say that the new members about compensate for the loss from these sources.

The Society have again to thank the many donors of gifts to the library and museum, among whom may be mentioned Capt. James Roberts of Perranporth, whose previous gifts are of such great interest. He has now presented a specimen of fungus, 3 feet by 2 feet, from a tree in Demerara, a settenwood stick from the same neighbourhood, which is so heavy that it will sink in water, and a bag made from the skin of an otter by a native of Demerara, British Guiana; specimen of cloth made from the bark of a tree, and a sarang of silk cloth, both made by natives of the Malay Peninsula; a specimen of pottery from old mine workings at Silensing, which is totally different from anything of the kind now used in the country, and four tusks of hippopotami from Delago Bay.

Mr. G. W. Eustice, F.G.S., has given two cups, beautifully carved and engraved, made from cocoa-nuts, several vessels made of horn softened and moulded by natives of the Republic of Colombia, and some fine specimens of gold in quartz from Venezuela, Ecuador, and the Republic of Colombia.

Mr. Share's gift of a portrait of Richard Lander is a nice addition to the series of portraits of Cornish worthies hanging in the library. It is a proof engraving published in 1835, by Colnaghi & Son, Pall-Mall, London, engraved by C. Turner, A.R.A., from a painting by William Brockedon, F.R.S., and represents the celebrated explorer in his African costume.

Sir Richard Tangye has presented a beautiful impression of the official seal of Sir Walter Raleigh in his dual capacity of Lord Warden of the Stannaries and Governor of the Island of Jersey, very tastefully mounted in an ebony frame, a MS. letter, dated 1760, April 23rd, Whitehall, written by the Earl of Holdernesse, relating to the calling out of the militia in the County of Cornwall; and a copy of his book, recently published, entitled "Notes Illustrative of the Cromwellian Collection in the possession of Sir Richard Tangye."

Mr. John D. Enys has once more increased the indebtedness of the Institution to him by presenting a fine mezzotinto engraving of Capt. Rogers in the Windsor Castle, a portrait in oils of William Gwavas, Barrister of the Middle Temple, London, which is the only known portrait of this distinguished

Cornishman, a trout caught by by him in Loe Pool, which is probably a specimen of the Loch Leven trout, and a copy of the British Association Report for 1896.

Mr. Cornelius E. Cardew, M.I.C.E., has given the following books which formerly belonged to his great grandfather, the Rev. Cornelius Cardew, D.D., some time Head Master of Truro Grammar School, Mayor of Truro and Rector of St. Erme; Polwhele's History of Devonshire; The History of the Rebellion and Civil Wars in England begun in 1641, by Edward, Earl of Clarendon; and Thesaurus Ecclesiasticus Provincialis, a survey of the Diocese of Exeter by the Clergy of that Diocese.

Mrs. Loring, of Antony, Devonport, has presented a collection of butterflies and moths from Ceylon, consisting of more than 400 specimens of butterflies and over 60 moths, and including about 100 different species of the former and 50 of the latter. They were well set up, evidently by an expert, in six specially constructed air and damp-tight cases, so that they are in an excellent state of preservation, and now that they have been transferred to the museum cases they form a feature of great beauty and interest.

The usual additions to the library of the transactions of kindred societies have been made during the past year. The Council cannot refrain from specially mentioning the large number of valuable and costly publications received from the Government of the United States—works, many of which are monumental. Very valuable books have also been received from the different colonies, which have been found most useful to members of our Society as books of reference. Canon Moor, one of our vice-presidents, continues to send us the Proceedings of the Royal Geographical Society, which are greatly appreciated and often referred to by the subscribers. Mr. J. D. Enys continues to keep our set of the Reports of the British Association complete, by sending us the current report when published.

A very important work has been accomplished since our last annual meeting in making a new catalogue of the library, rendered necessary by the great increase of books during the last few years, which included the munificent gift by the

executors of the late H. Martyn Jeffery, F.R.S., one of our vice-presidents. This catalogue has proved to be of the greatest service, making all the books easily accessible, thus saving much time and inconvenience.

The meteorological observations have been regularly taken during the year, and the usual reports furnished to the Registrar General, and the Sanitary Committee of the Cornwall County Council. A monthly report, which is looked forward to with great interest, has also been sent to the local papers, and it has included information regarding the rainfall in the neighbourhood, which has been communicated to the Curator by Mr. J. C. Daubuz, of Killiow, Mr. Tresawna, Lamellyn, Probus, and Mr. Lean, of the Truro Water Works. These have increased the value of the reports, as they have afforded a means of comparing the rainfall in different parts of the district.

The Curator will be glad to receive returns from other gentlemen in the neighbourhood who keep meteorological records and to embody them in his reports, thus making the means of comparison more complete.

During the past year a number of the cases in the museum have been entirely renovated. The paper with which they were covered has been stripped off and the cases painted, enabling their contents to be displayed to the best advantage. The birds have been very carefully cleaned and attended to, but many of them are in a very dilapidated condition, and are not worthy of a place in the collection. The Council would therefore be pleased to receive donations of birds to replace the worst of them. A number of Indian butterflies acquired some time since from the Rev. W. A. Hamilton have been set up and arranged in cases in the conchological room, and it is expected that when they have all been done, they will, with those recently presented by Mrs. Loring, form a fairly representative collection of Indian and Ceylon butterflies. The tokens have been taken out and cleaned, and as many as possible have been labelled, thus increasing the value of this portion of the collection. In the shell and mineral departments a large amount of re-labelling has been done in Indian ink.

The interest of the public in the museum, as exhibited by the number of visitors, shows no diminution, and every facility has been afforded students and others who have made use of it for antiquarian or scientific purposes. Many of the visitors from outside the county speak very highly of the various collections, and express their surprise at finding such an excellent museum in connection with the Institution.

The numbers admitted during the year were:

Admitted Free	3019
Members and friends ..	226
By Payment..	355
	3600

The technical classes held in the Institution during the past session were attended by an increased number of students, and the results, as shown by the examinations of the Science and Art Department, were very good. The classes recently started for the current session are being still more largely attended, and several of the students are doing good advanced work. Arrangements have been made with Messrs. Henderson & Son by which their mining students are enabled to take advantage of the laboratory of the Institution.

A pleasing incident in the year's proceedings was the Joint Meeting of the Scientific Societies of the County, which took place on Tuesday, 18th September last, when a very large and representative party assembled at Dolcoath Mine, where Capt. Josiah Thomas, together with his son Mr. Arthur Thomas, chaperoned the party, taking them first to Williams's shaft, which is going down from surface, perpendicularly, to below the present deepest point in the mine, and afterwards taking them to inspect any features which were of special interest. From Dolcoath the party proceeded to Carn Brea Mine, where Capt. Teague and Capt. White had arranged a series of experiments on the use of high and low pressure air in rock drilling.

In Carn Brea Account House luncheon was partaken of, at the invitation of Mr. T. Forster Brown, the President of the Mining Association and Institute of Cornwall.

East Pool was next visited, and in the Account House, a Meeting, under the presidency of Mr. T. Forster Brown, was held, when the reading of the papers took place.

The next number of the Society's Journal, containing many papers of interest, is in the press and almost ready for issue. Every endeavour is being made to complete it, and the members may expect to have it in their hands very shortly.

The President, The Right Hon. Leonard H. Courtney, M.P., having to the great advantage of the Society, filled the office for two years, the Council have much pleasure in proposing as his successor,

Rev. S. BARING-GOULD, M.A.

As Vice-Presidents for the ensuing year:

E. DUNKIN, F.R.S., F.R.A.S.
Rev. CANON MOOR, M.A., F.R.G.S.
Rev. W. IAGO, B.A., L. Sec. S.A. Lon.
Mr. J. D. ENYS, F.G.S.
RT. HON. LEONARD H. COURTNEY, M.P.

Treasurer:—Mr. A. P. NIX.

Secretaries:—MAJOR PARKYN, F.G.S., Truro.
REV. W. IAGO, B.A., Westheath, Bodmin.

Other Members of Council:—

Ven. Archdeacon CORNISH, M.A.
Mr. HOWARD FOX, F.G.S.
MR. HAMILTON JAMES.
Mr. F. W. MICHELL, C.E.
Mr. J. OSBORNE, F.G.S.
CHANCELLOR PAUL, M.A.
Mr. THURSTAN C. PETER.
COL. PARKYN.
Rev. A. R. TOMLINSON, M.A.
Mr. ROBERT TWEEDY.
Rev. D. G. WHITLEY.

Joint Editors of the Journal:—Rev. W. IAGO, B.A.
MAJOR PARKYN, F.G.S.

Librarian and Curator of Museum:—Mr. R. A. GREGG, Royal Institution, Truro.

On the motion of Canon Donaldson, seconded by Rev. S. Rundle, it was resolved that the Report be received, adopted and printed, and that the gentlemen named in it constitute the officers for the ensuing year.

The reading and discussing of papers then took place, the following subjects being brought forward:—

"On the Acclimatisation of Exotics in Cornwall," by Mr. F. H. Davey, of Ponsanooth.

"The Lobster and the Crab," by Mr. J. T. Cunningham, M.A. (Lecturer for the Cornwall County Council, on Fisheries).

"The Parliamentary Election in Truro, 1832," by Mr. P. Jennings, of St. Day.

"The Fauna of Falmouth, 1895-6," by Mr. R. Vallentin.

"On some Prehistoric Remains in Cornwall," by Rev. S. Rundle, M.A.

"Folk-lore and remarkable Superstitions in Cornwall," were also referred to by Mr. Nevill E. Norway.

He said that he was very much interested in the superstitions of the county, especially those connected with medical science, and he had been wondering whether a collective effort could be made by the Council of the Institution to gather up the superstitions which were rapidly dying out. They would not merely be subjects of interest, but would show the usage and character of the people. A man came to him suffering from rheumatism and lumbago, and expressed great surprise that he was still in pain, although he had killed a cat on the 12th of May, and had worn the skin on his back since. The man believed that he had followed a course which would prove a certain cure, and inquired whether the fact of the skin having had yellow hairs in it made the difference. He (the doctor) said he did not know that yellow had any effect upon rheumatism, upon which the man exclaimed: "Not know that yellow was bad for rheumatism. Why Tom Chegwidden went to Perranporth courting with a yellow necktie on, and died that day three weeks." Such things as these were not, he thought, beneath the dignity of the Institution to inquire into.

The Chairman said he would be glad if anyone would collect information. He was quite aware that in certain parts of the county it was considered improper to wash linen on certain days in the month, at the end of May no article of linen being washed at all. He hoped anyone with information of legends and curious customs would bring them forward.* In

* The Editors of the Journal invite communications on Folk-lore, superstitions, and kindred subjects, and would call attention to several works already published which give a considerable amount of information on such topics:—notably, "Hunt's Romances and Drolls," including traditions and superstitions of Cornwall; also Bottrell's Traditions and Stories of West Cornwall," (3 volumes); Whitcombe's "By-gone Days in Devon and Cornwall;" Forfar's "Wizard of West Penwith," &c.; and scattered notes by the late Mr. T. Q. Couch (Surgeon) in some of the earlier numbers of this Society's Journal.

two streams the children of Gwennap used to christen their dolls on Good Friday.

Mr. Jennings: It is done still.

Mr. Thurstan C. Peter said that people in the Mining Division were full of folk-lore and the wildest superstitions. People would not stop a cut from bleeding with a half-crown, but would do so with a florin because it had a cross on it. He proposed a vote of thanks to contributors of papers and to donors of gifts to the library and museum. This was seconded and carried.

The Chairman called attention to several objects placed upon the table for exhibition, kindly lent by Sir Richard Tangye. Amongst these were an old tinder-box, with flint and steel, used before the invention of lucifers, and an imitation of it made in the present day at Birmingham for the natives of the West Coast of Africa. There was also a Dutch specimen of the 16th century, and a bundle of the old sulphur matches, sharpened and dipped at both ends.

Fine mistletoe, from Enys, was also shewn, descended from seeds introduced into Cornwall over a century ago.

The Moorish tiles from Spain, which had been presented some time ago by Mr. Osborne, might now be seen arranged in frames in the entrance hall of the Institution, and a comparison of them with the tile found, some years back, in the rood-loft of Luxulyan Church, and presented by Rev. J. K. Rashleigh, would shew that the make and pattern in both instances were identical

The Chairman was thanked on the proposition of Archdeacon Cornish.

PRESENTS TO THE MUSEUM.

Fragments of Pottery, Charred Wood, and a piece of Jasper, from huts in an Ancient British Village near Kynance	Lord Falmouth.
Two Carved and Engraved Cups made from Cocoa-nuts, Ash Tray and Cover, Cup and Saucer and Tray made of horn, softened and moulded; all the above were made by natives of the Republic of Colombia Six Specimens of Gold in quartz, from the Republic of Colombia, Venezuela, and Ecuador	Mr. G. W. Eustice, F.G.S., St. Agnes.

Fungus, 3 feet by 2 feet, from a tree in Demerara, a Setten-Wood Stick from Demerara, and a bag made from the skin of an Otter by a native of Demerara Specimen of Cloth made from the bark of a tree, and a Sarang of Silk Cloth from Kelantin, made by natives of the Malay Peninsula, and a specimen of Pottery from old mine workings at Silensing, Malay Peninsula; four Tusks of Hippopotami from Delagoa Bay	Capt. James Roberts, Perranporth.
Muller from Godolphin	Mr. James Pryor.
Sundial...	Mr. Robert Tweedy.
Portrait in Oils of William Gwavas, Barrister of the Middle Temple ... ... Trout from Loe Pool, probably a Loch Leven Trout ...	Mr. John D. Enys, F.G.S.
Pair of Snuffers	Mr. Bailey.
A further consignment of Flints from Carn Brea ...	Mr. Thurstan C. Peter.
Cannon Ball found on Carnon Downs	Mr. F. W. Osborn.
Sharks teeth (fossil)	Mr. J. B. Brown.
Trout which passed through a pipe at Falmouth Reservoir	College Wood Reservoirs Fishing Association.
Sepiola Atlantica D'Orb ... ... Sepia officinalis	Mr. Rupert Vallentin.
Impression of Seal of Sir Walter Raleigh	Sir Richard Tangye.
Paroaria culcullata	Rev. A. M. Cazalet.
Flint forming an almost perfect cone on being fractured, Amythestine quartz and radiated quartz from boulders found when digging the foundations for the extension of Truro Cathedral	Mr Cane, Clerk of Works, Truro Cathedral.
Specimens of Clays from the St. Erth fossiliferous beds	Mr. Alfred Bell.
Six Cases of Butterflies and Moths from Ceylon ...	Mrs. Loring, Antony, Devonport.
Limestone bored by Pholas, from Greenore, Co. Louth, Ireland	Rev. E. P. Carlyon.
Flint flakes from Constantine, St. Merryn Island ...	Mr. Ed. Sharp, M.R.C.S.

GIFTS TO THE LIBRARY.

Proceedings of the Conference on Inland Navigation, Birmingham, 1895	Federated Institution of Mining Engineers.
Report of Technical Instruction Committee, Cornwall County Council, 1896	Mr. E. W. Rashleigh for Fisheries Committee.
The Marine Mollusca of Cornwall	Mr. G. Fox Tregelles.
Consolations in Travel—Sir Humphrey Davy ... ... The Lord our Shepherd—Rev. J. Stevenson ... ... On the Human Soul—Samuel Drew ... ... On the Deity— ,, ,, ... Sermons—Rev. W. Woodis Harvey ... ... Spirits of the Past—Nicholas Michell	Rev. Samuel Rundle, M.A.

Nine Numbers Royal Geographical Society's Journal ...	Rev. Canon Moor. M.A.
Portrait of Richard Lander	Mr. H. H. Share, R.N.
British Association Report, 1896	Mr. John D. Enys, F.G.S.
An Attempt to outline Ancient Hebrew History... ..	Rev. Theodore Budd.
,, ,, ,, ,, Diagrams	
MS. Letter, dated 1760, April 23rd, Whitehall, written by the Earl of Holdernesse, relating to the calling out of the Militia in the County of Cornwall ...	Sir Richard Tangye.
Notes Illustrative of the Cromwellian Collection in the possession of Sir Richard Tangye	
The Silver Sulphides of Broken Hill	The Editor, Australian Mining Standard.
The Mining Standard of Australia	
Atlas published in 1700	Mr. John Snell.
Queensland Past and Present	Agent General for Queensland.
Picturesque Devonshire and Cornwall	Mr. T. Worth.
Polwhele's History of Devonshire...	Mr. E. Cornelius E. Cardew.
History of the Rebellion and Civil Wars in England begun in 1641, by Edward Earl of Clarendon ...	
Thesaurus Ecclesiasticus Provincialis	
Summaries of Statistics relating to mines and quarries in the United Kingdom and Isle of Man	Dr. C. Le Neve Foster.
Report on Mines and Quarries for 1896	
Westralia, The Gold Country	Royal Geographical Society of Australasia.
Journal of the Horn Scientific Exploring Expedition ...	
,, ,, ,, ,, Maps	
The Science of Speech	The Volta Bureau.
The Mystic Oral School	
Photograph of Rev. Prebendary F. C. Hingeston-Randolph...	Rev. W. Iago.
Journal of the British and American Archæological Society of Rome	British and American Archæological Society of Rome.
The Fernley Observatory (Southport) Report, 1896 ...	Mr. Jos. Baxendell.
The Present and Future of Western Australia... ...	Agent General for Western Australia.
Official Guide to the Isle of Man	Isle of Man Board of Advertising.
The New Orthodoxy	Elliot Stock.
Copy of Grant of Crest to the St. Aubyn Family of Clowance by Henry VIII	Rev. St. Aubyn M. H. St. Aubyn.

Dr. Mr. A. P. Nix, Hon. Treas., in account with the Royal Institution of Cornwall. Cr.

		£	s.	d.
1896.				
July 31st.	To Balance	62	6	7
1897.				
July 31st.	,, H.R.H. Prince of Wales...	20	0	0
	,, Subscriptions	134	18	6
	,, Visitors' Fees	8	15	0
	,, Sale of Journals	3	2	3
	,, Henry Williams, Esq. (Colorado) ...	5	0	0
	,, Excursion	6	16	0
		£240	18	4

		£	s.	d.
1897.				
July 31st.	By Curator...	75	0	0
	,, Fire Insurance	2	14	0
	,, Taxes	1	12	2
	,, Books and Printing	14	13	8
	,, Magazines, &c.	5	0	8
	,, Library Catalogue	20	0	0
	,, Renewals and Repairs	5	11	5
	,, Museum Expenses	1	9	11
	,, Fuel and Gas	5	13	7
	,, Sundries	10	2	9
	,, Excursion	8	8	2
	,, Caretaker	5	0	0
	Balance	85	12	0
		£240	18	4

Summary of Meteorological Observations at Truro, in Lat. 50° 17′ N., Long. 5° 4′ W., for the year 1897, *from Registers kept at the Royal Institution of Cornwall.*

TABLE No. 1.

1897.	MONTHLY MEANS OF THE BAROMETER. Cistern 43 feet above mean sea level.																	
Month.	Mean pressure corrected to 32 deg. Fahr. at sea level.			Mean of monthly means.	Mean correction for diurnal range.	True mean of monthly means.	Mean force of vapour.	Mean pressure of dry air.	Corrected absolute maximum observed.	Day.	Corrected absolute minimum observed.	Day.	Extreme range for the month.	Mean diurnal range.	Greatest range from 9 a.m. to 9 p.m.	Day.	Greatest range in any 24 consecutive hours.	Between which days it occurred.
	9 a.m.	3 p.m.	9 p.m.															
	ins.	ins.	ins.	ins.	in.	ins.	in.	ins.	ins.		ins.		ins.	in.	in.		in.	
January	29·886	29·862	29·867	29·871	·004	29·867	·199	29·672	30·500	1	29·250	6	1·250	·095	·36	29	·71	29 & 30
February	30·101	30·092	30·126	30·106	·003	30·103	·275	29·831	30·708	21	29·230	2	1·478	·093	·30	6	·73	27 & 28
March ...	29·717	29·702	29·695	29·704	·007	29·697	·264	29·440	30·150	21	28·950	2	1·200	·123	·49	3	·59	1 & 2
April ...	29·835	29·826	29·840	29·867	·004	29·863	·253	29·614	30·291	15	29·060	1	1·231	·121	·37	4	·74	3 & 4
May	29·897	29·892	29·959	29·916	·003	29·913	·266	29·650	30·364	15	29·224	27	1·140	·059	·20	10	·35	9 & 10
June	30·017	30·021	30·028	30·025	·001	30·024	·393	29·632	30·286	11	29·601	18	0·685	·087	·38	18	·46	17 & 18
July	30·021	30·021	30·024	30·022	·002	30·020	·427	29·595	30·330	29	29·536	20	0·794	·057	·15	5	·28	21 & 22
August ...	29·813	29·803	29·085	29·821	·004	29·817	·410	29·411	30·140	3	29·489	24	0·651	·066	·16	23	·30	23 & 24
September	30·034	30·012	30·028	30·024	·004	30·020	·375	29·649	30·508	13	29·570	2	0·938	·087	·35	1	·41	1 & 2
October	30·112	30·097	30·109	30·106	·006	30·100	·336	29·770	30·490	21	29·238	15	1·252	·060	·18	16	·51	15 & 16
November	30·152	30·124	30·139	30·138	·004	30·134	·297	29·841	30·647	20	29·478	14	1·169	·112	·30	25	·50	27 & 28
December	29·893	29·871	29·877	29·880	·003	29·877	·264	29·616	30·490	21	29·168	30	1·322	·107	·34	29	·70	1 & 2
Means ...	29·956	29·943	29·958	29·956	·004	29·952	·313	29·643	30·407		29·316		1·092	·088	·29		·52	

REMARKS.—The Barometer used is a Standard, made by Barrow, and compared with the Standard Barometer at the Royal Observatory, Greenwich, by Mr. Glaisher. The corrections for Index Error (+0·008), Capillarity (+0·103), height above sea (43 feet), and temperature, have been applied.

TABLE No. 2.

MONTHLY MEANS OF THE THERMOMETER

1897. Month.	9 a.m. Dry Bulb.	9 a.m. Wet Bulb.	3 p.m. Dry Bulb.	3 p.m. Wet Bulb.	9 p.m. Dry Bulb.	9 p.m. Wet Bulb.	MASON'S HYGROMETER. Mean of Dry Bulb.	Mean correction for diurnal range.	True mean of Dry Bulb.	Mean of Wet Bulb.	Mean correction for diurnal range.	Mean temp. of evaporation.	Wet Therm. below dry.	Mean dew point.	Dew point below Dry Therm.	SELF REGISTERING. Mean of all the Maxima.	Mean of all the Minima.	Approximate mean temp.	Correction for the month.	Adopted mean temp.	Daily mean range.	ABSOLUTE. Maximum.	Day.	Minimum.	Day.	Range.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					
January	38·6	37·0	42·3	39·4	39·0	37·5	33·9	0·4	39·5	37·9	0·3	37·6	1·9	34·4	5·1	44·0	34·3	39·2	0·1	39·1	9·6	52	31	24	17	28
February	47·7	46·0	49·7	47·3	46·5	45·9	47·9	0·7	47·2	46·4	0·5	45·9	1·3	42·8	4·4	51·6	43·7	47·6	0·1	47·5	7·9	56	3	28	18	28
March ...	48·1	45·0	49·7	46·0	45·3	43·6	47·7	1·0	46·7	44·8	0·6	44·2	2·5	41·7	5·0	52·8	42·0	47·4	0·2	47·2	10·7	59	24	34	30	25
April ...	49·4	45·8	50·9	46·8	46·3	44·7	48·8	1·6	47·2	45·7	1·3	44·4	2·8	40·6	6·6	53·8	42·3	48·0	0·1	47·9	11·4	68	28	30	11	38
May	55·7	49·2	57·3	50·3	50·5	47·7	54·5	2·3	52·3	49·0	1·4	47·6	4·7	41·9	10·4	61·3	43·7	52·5	0·8	51·7	17·6	76	18	33	2	43
June	62·5	57·2	64·6	58·1	58·0	55·8	61·7	2·9	58·8	57·0	1·7	55·3	3·5	52·3	6·5	68·5	52·9	60·7	0·3	60·4	15·6	79	25	44	3	35
July	66·2	60·0	68·0	60·1	60·7	57·8	64·9	2·1	62·8	59·3	1·2	58·1	4·7	54·6	8·2	71·9	56·2	63·4	0·3	63·1	16·9	82	16	37	8	45
August ...	64·3	58·7	65·7	59·3	59·4	57·1	63·1	2·0	61·1	58·3	1·2	57·1	4·0	53·5	7·6	69·0	55·2	62·2	0·3	61·9	13·8	82	3	43	27	39
September	57·4	54·2	60·1	55·2	54·4	52·4	57·3	1·7	55·6	53·9	0·9	53·0	2·6	51·1	4·5	63·0	48·8	55·9	0·2	55·7	14·1	73	12	38	11	35
October	54·3	52·2	57·6	53·8	53·0	51·4	54·9	0·8	54·1	52·4	0·6	51·8	2·3	48·1	6·0	59·8	48·1	53·9	0·4	53·5	11·6	67	2	34	8	33
November	50·0	47·9	52·8	49·7	48·7	47·3	50·5	0·6	49·9	48·3	0·5	47·8	2·1	44·8	5·1	54·6	44·6	49·6	0·1	49·5	10·0	65	8	31	20	34
December	46·5	43·9	48·8	45·6	45·5	43·6	46·9	0·2	46·7	44·3	0·3	44·0	1·3	41·7	5·0	51·7	41·9	46·8	0·2	46·6	9·8	58	17	29	3	29
Means ...	53·3	49·7	55·6	50·9	50·6	48·7	53·1	1·4	51·8	49·7	0·9	48·9	2·8	45·6	6·2	58·5	46·1	52·2	0·3	52·0	12·4	68		33		34

The Thermometers are placed on the leaded roof of the Royal Institution in a wooden shed, through which the air passes freely. The Standard Wet and Dry Bulbs are by Negretti and Zambra, and have been corrected by Mr Glaisher.

TABLE No. 3.

1897.	WINDS.																											
Month.	E.			S.E.			S.			S.W.			W.			N.W.			N.			N.E.			AVERAGE FORCE.			
	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	Mean.
January	2	1	1	2	4	2	2	0	0	0	2	1	0	1	1	6	5	5	6	5	1	4	7	7	1·0	1·0	0·7	0·9
February	2	1	0	1	2	2	2	0	0	7	10	9	7	8	5	5	3	2	1	1	0	2	1	0	1·0	1·1	0·6	0·9
March ...	1	0	0	3	4	3	6	1	2	11	10	10	2	8	3	7	4	5	1	1	0	0	0	0	1·5	1·2	1·0	1·2
April ...	1	7	2	5	4	7	4	3	1	2	5	5	1	4	1	8	5	5	1	2	1	5	0	1	1·2	1·2	0·8	1·1
May ...	2	4	0	3	4	2	2	2	1	4	4	5	3	3	3	7	6	6	4	5	3	4	0	0	1·1	1·1	0·6	0·9
June	2	2	0	9	9	3	1	2	0	0	4	4	4	1	2	5	7	5	4	3	0	1	0	0	1·0	1·1	0·5	0·8
July	3	2	2	3	6	2	2	2	1	1	3	1	7	4	6	6	8	4	2	2	2	3	2	0	1·0	1·2	0·6	1·0
August ...	1	0	0	4	7	4	3	4	4	11	11	8	7	4	1	3	4	3	0	1	0	0	0	0	1·2	1·3	0·7	1·1
September	1	1	1	1	2	2	1	3	1	6	2	2	2	4	1	9	10	6	0	2	0	1	1	0	0·8	1·0	0·5	0·8
October ...	1	3	2	6	10	5	2	3	4	2	2	2	1	4	3	2	4	3	2	2	0	3	1	0	0·7	1·0	0·7	0·8
November	6	5	1	4	4	6	1	2	0	5	5	2	0	0	0	1	1	1	0	2	1	2	4	1	0·8	1·0	0·6	0·8
December	3	3	5	7	8	4	5	5	2	6	6	7	2	2	1	2	2	2	2	3	1	1	1	0	1·2	1·3	1·0	1·1
Total	25	29	14	48	64	42	31	27	16	55	64	56	36	43	27	61	59	47	23	29	9	26	17	9	12·5	13·5	8·3	11·4
Means ...	22			51			24			58			35			55			20			17			1·0	1·1	0·7	0·9

The force of the Wind is estimated on a scale from 0 to 6, from *calm* to violent *storm*.

TABLE 4.

1897.	WEATHER.																	
Month.	AVERAGE CLOUDINESS.				RAINFALL.				Mean weight of vapour in a cubic foot of air.	Mean additional weight required for saturation of the air.	Mean humidity of atmosphere.	Mean elastic force of vapour.	Mean weight in grains troy of a cubic foot of air.	Total hours of Bright Sunshine.	No of Days on which the sun shone.	Average Daily sunshine.	Dry.	Wet.	REMARKS.
					Rainfall in inches.		Greatest fall in 24 hours, Truro.												
	9 a.m.	3 p.m.	9 p.m.	Mean.	Truro.	No. of days in which rain fell.	Depth.	Date.											
					in.		in.		grs.	grs.		in	grs.						
January	4·8	5·7	6·2	5·5	4·36	20	0·85	31	2·3	0·5	84	·199	538·9	64·3	24	2·0	83	10	Frost, 2, 16, 17, 18, 19, 21, 22, 23, 24, 27, 31. Hail, 25, 27, 31. Snow, 22, 26. Fog, 2, 4, 5, 7, 8, 17, 18 Lunar Halo, 8, 15
February	7·8	6·9	8·0	7·6	4·83	19	1·37	4	3·2	0·5	86	·275	529·9	49·2	16	1·7	54	30	Frost, 18. Fog, 7, 10, 12, 18, 27. Remarkable Rain, 4. Lunar Halo, 7, 8, 9, 11, 13. Solar Halo 21.
March ...	5·5	6·0	5·5	5·6	4·76	21	0·88	2	3·1	0·5	86	·265	531·0	129·0	27	4·1	72	21	Hail, 1, 2, 3, 4. Thunder & Lightning, 18. Lunar Halo, 11.
April	6·5	6·6	5·7	6·3	5·25	25	0·86	3	2·9	0·8	79	·253	530·0	131·2	27	4·3	66	24	Frost, 11. Hail, 1, 2, 4, 6, 7. Snow, 1. Thunder and Lightning, 1. Lunar Halo, 10.
May	4·0	4·0	3·4	3·7	1·38	11	0·23	4	3·0	1·4	69	·266	524·9	270·0	29	8·7	87	6	Thunder and Lightning, 16. Thunder, 17. Lunar Halo, 8.
June	4·7	3·7	4·6	4·3	1·90	8	0·85	8	4·4	1·0	81	·393	518·0	239·3	29	7·9	84	6	Thunder, 29.
July	4·9	4·0	4·1	4·3	2·05	10	1·31	20	4·7	1·5	77	·427	513·7	268·0	31	8·6	89	4	Hail, 20. Fog, 30. Remarkable Rain, 20. Lightning, 20. Lunar Halo, 10.
August ...	4·4	5·1	4·6	4·7	5·01	26	0·87	30	4·6	1·4	77	·410	518·0	237·1	31	7·6	77	16	Thunder and Lightning, 10, 18.
September	6·1	5·5	3·8	5·1	4·09	18	0·84	29	4·2	0·7	87	·375	521·0	151·4	25	5·0	73	17	Hail, 18, Fog, 13, 14, 15.
October...	6·3	6·3	6·1	6·3	1·78	13	0·81	14	3·8	0·9	80	·334	522·3	93·1	22	3·0	83	10	Fog, 5, 8, 18, 19, 20, 28.
November	6·7	7·0	6·5	6·7	4·00	14	1·21	24	3·4	0·6	86	·298	527·7	58·0	17	1·9	78	12	Hail, 28, 30. Fog, 5, 8, 9, 10, 11, 18, 19, 20, 23, 24, 26. Remarkable Rain, 24. Gale, 28. Lunar Halo, 1, 8, 9
December	5·8	6·0	5·4	5·7	7·14	19	1·36	29	3·1	0·5	86	·265	531·0	77·0	21	2·4	76	17	Frost, 3, 4 Hail, 1, 7, 8, 14 Fog, 3, 4, 31 Thunder and Lightning, 14 Gale, 29
Means ...	5·6	5·5	5·3	5·4	46·55	17	0·95		3·5	0·8	81	·313	525·2	147·3	24	4·7	76	14	

Cloudiness is estimated by dividing the sky into ten parts, and noting how many of these are obscured. The sunshine is taken by a Jordan's Photographic Sunshine Recorder, presented by J. D. Enys, Esq., F.G.S. The rain-guage at Truro is placed on the flat roof of the Royal Institution, at about 40 feet from the ground.

NOTES ON THE PARLIAMENTARY HISTORY OF TRURO, A.D. 1295—1467.

By P. JENNINGS.

Towards the end of the reign of Henry III it was becoming increasingly evident that the ordinary national council was inadequate to cope with the growing necessities of the state. Simon de Montfort accordingly resolved to introduce a new element into it, and issued writs, dated 12th December, 1264, and directed to the counties, cities, and towns of England, enjoining them to send members to a proposed conventionary parliament; but it does not appear that Truro or any other Cornish town was asked to send burgesses thereto. This assembly cannot be considered as a free parliament, for only those were invited who were known to be on the side of the barons; neither was it made a precedent, for it was not until thirty years later, in 1295, that the principal of representative government was practically adopted.

At the close of the thirteenth century the commercial classes were more influential than at any previous period in the nation's history, and Edward I deemed it expedient to enlist their sympathies in his struggle with Philip the Fair of France. He therefore ordered the election of two knights for every shire, two citizens for every city, and two burgesses for every market town, to assist him and the nobles in parliament; and this, the first general election in England, took place in October, 1295.

This "Great Parliament," the "first complete and model Parliament," met at the Chapter House of Westminster Abbey, on Sunday, 27th November, and in it were to be found two burgesses from Truro: Henry le Bailly and Robert Maynard.

In those early days, the position of a parliamentary representative was one of little honour; the power of the burgesses was limited to the grant of supplies, and their office was mainly to assist in collecting these supplies within their

several franchises; parliaments moved with the Court, and wandered with the sovereign to such diverse places as Westminster and York, Lincoln and Carlisle; and the danger and hardship of being compelled to ride from one end of England to the other, along roads which were little better than forest tracks and moorland paths, infested by dangerous animals, and still more dangerous outlaws, were calculated to disturb the peace of mind of those elected; moreover, the financial burden imposed on the towns to support their representatives was sometimes greater than they could bear; yet to the credit of Truro be it said, that in spite of these adverse considerations, there is no record to show that the borough ever repudiated its doubtful privilege, or that it ever lacked men who were willing to represent it in the nation's councils.

Many of the early burgesses returned for Truro were closely connected with the tin trade. In the old Stannary Rolls the names of le Bailly and Maynard are both found; and le Taylor, 1297, 1299, 1306, de Triagu, 1304, David de Tavystoke, one of the officers of the Stannary Court at Truro, 1306, 1312, with others, frequently occur. Of le Bailly nothing more seems to be known, but the Maynards were a leading family in the county; the names of Robert, John, and Bernard are very prominent in the Rolls; John represented Truro in the two parliaments of 1310, 1314; and Henry, David and Thomas Maynard were clergymen.

William le Taylor, probably a member of the Bodmin family of that name, had the misfortune of being summoned to such distant places as York in 1297, to Carlisle in 1306, as well as to Westminster in 1299. His grandson, Roger, married Joan, daughter of Johannis Nauntyan, lord of Kenwyn, and by this means acquired valuable estates in the neighbourhood of Truro.

Until the time of Henry VI at least, the parliamentary representatives of cities and boroughs were supposed to be resident citizens or burgesses of such cities or boroughs, and not strangers, nor even county gentlemen living in their vicinity. This rule bore hardly on the Cornish boroughs, owing to the scanty population, and the consequent dearth of men who were eligible, and sufficiently rich to bear the cost without unduly

taxing the burgesses. Hence Hals complains that many of the boroughs of Cornwall "found that profitable and expedient (as many others) of making country gentlemen free of their town, who bear the burden and heat of the day for them, and many times, for the honour of their corporations, distress their paternal estates, to exalt the reputation, and perpetuate the privileges of a petty Society, made up of mechanics, tradesmen, and inferior practitioners of the law." The government, considering these disabilities, and the remoteness of the county from London, seems to have relaxed the rule to some extent, for many instances occur in which the same individual is returned as representing two or more constituencies in the same parliament. Thus we find le Taylor representing Helston and Truro in the parliament of 1297; John Hameley sitting for the county, Launceston, Lostwithiel, and Truro in the parliament of 1357; John de Tremayne for Helston and Truro in 1364; and in 1379, Henry Chinhals for both Lostwithiel and Truro. The imperfection of the records is doubtless responsible for many of these returns; but we think that in many instances, they are due to the indulgence of the government.

Sir John de Triagu, of Fentongollen, represented Truro in 1304. Apparently, this was the first of a number of public offices which he filled with great credit to himself, and with considerable advantage to the county. He was appointed Steward to the Bishop in Cornwall in 1308, and again in 1309; was a member of a Commission "to inquire into the transgressions of the taxors in Devonshire," in 1318; in 1323 and 1325 he was high sheriff of the county; and in 1327 was elected a Knight of the shire. But perhaps the work with which his name is most closely associated, is in connection with the church of St. Michael Penkevel, of which he was patron. About the year 1319, and with the approval of the Bishop, he undertook to put the edifice into perfect repair, which it evidently needed, although it had been built no longer than about fifty years, and also to found a Chantry within it for four chaplains. The Bishop on his part erected the church into a Collegiate one, and the chief of the four clergymen into an Arch-priest. It was also arranged that perpetual prayers should be offered for Sir John and Joan, his wife; for his parents, John and Agnes; for

Walter de Stapeldon, Bishop of Exeter, his brother Sir Richard de Stapeldon, Knt., and his parents William and Mabilla de Stapeldon; for the Royal Family; for Simon and Lucy de Triagu; for his neighbours and relatives, Philip and Mary le Soor, of Tolverne; for his wife's parents, Stephen and Melora de Trewetheneke; and for the Mullaborne family, a member of which, Sir William de Mullaborne, was the first Arch-priest.

In the parliament of 1313, held at Westminster, the representatives of Truro were Robert Person and John Pouna, both of whom are described in the Stannary Rolls of the period as tin merchants. Fifteen years later, Person leased lands at Calenick, and a fulling mill of Geoffrey de Pridias.

John de Cornwall and William Nevill journeyed to Lincoln as the burgesses for Truro in 1332. Like the Killigrews, the Cornwall family of Court in St. Stephen Brannel is said to have descended from a son of Richard, Earl of Cornwall, by Joan de Valletort; the elder branch of the family became extinct after a few descents in the fourteenth century. The Cornwalls were thoroughly imbued with the freebooting propensities of the age, and on 18th Feb., 1328, four years before John's election as representative for Truro, Thomas Blaket complained that "Richard de Cornwall, William and John, his sons, and William de Purcelowe, broke his houses at Cornwell, co. Oxford, assaulted him, and took away 7 horses, 16 oxen, 10 cows, 200 sheep, and 40 swine, worth £100, felled his trees, fished in his fish-ponds, and carried away trees, and fish, and other goods." (Cal. of Pat. Rolls, memb. 29d.)

John de Polmorna, a member of the ancient family of that name, was elected for Truro in 1338; he had represented Bodmin and Launceston in preceding parliaments, and sat for Bodmin again in 1339; William de Polmorna, probably John's brother, was one of the most distinguished scholars of his time; he became Chancellor of the University of Oxford, 1350-51, and Archdeacon of Middlesex, 21st Sept., 1361.

The Hamleys of Halwyn, in St. Issey, and ancestors of the present family of Hamley, of Bodmin, became connected with Truro by the marriage of John Hamley and Margery, elder daughter and co-heir of Walter de Allet or Walter Idless, by

which the manor of Allet was brought to the Hamley family. This led to the election of Andrew, who had been Knight of the Shire in 1328 and 1338, as burgess for Truro in 1339. John also represented the town in 1355 and in 1357. Another John Hamley, doubtless the father of the burgesses, was rector of Truro in 1330. (Bp. Grandisson's Reg. vol ii, fol. 30.) Some doubt exists with regard to the correctness of the returns of the parliament of 1355. Browne Willis states that John Hamley and John Caeron were the members for Truro; other authorities claim them for Lostwithiel; Hamley is also said to have been a member for Helston, and Caeron for Bodmin. John Hamley's colleague in 1357 was William Trewinnard, who also represented the town in 1360, 1362, and 1363.

Even in those early days, the Tremayne family was honourably associated with the public life of the county. They had, at about this time settled at Tremayne, in St. Martin's, and it is supposed that they now exchanged their family name of Peres for that of the barton which had become their home. If so, John de Tremayne, to whom reference has already been made, was one of the first of the family to adopt their new name. He had a parliamentary experience extending over no less than thirty-two years, from 1344 to 1376, being knight of the shire in eight parliaments, a burgess for Bodmin in two, for Lostwithiel in two, for Helston in six, and for Truro in one,—that of 1364. Another John Tremayne, perhaps his son, sat for Truro in 1387; his name is mentioned in a Boscawen deed of the same date.

The parliament which commenced its sittings in 1379, sanctioned the imposition of a series of taxes which fell heavily on the poorer classes of the community, and which led to the formidable risings under Jack Straw and Wat Tyler. Henry Chinhals and Thomas Tregelias represented Truro at this critical period. Tregelias or Tregellas is said to have been an ancestor of the Tregellas family of St. Agnes and Truro, several members of which were distinguished for their literary and scientific attainments; notably J. T. Tregellas, whose portrait hangs on the walls of this Institution, and his son, the late W. H. Tregellas, who contributed to the Journal many papers of permanent value.

In 1392, Richard II met his parliament at Winchester, and one of the burgesses for Truro was Robert Bloyow, whose ancestor Blohinus, accompanied William the Norman to England in 1066; he is mentioned in Domesday as holding the manors of Trefrioc, Deliav, Duvenant, Treveheret, and Treuthal of the Earl of Mortain. For many generations this family was one of the most influential in Cornwall; several of its members held prominent positions in the church, and others were recognised as military, as well as political leaders of the people. The male line became extinct in the fourteenth century; Robert must therefore have been one of its last male representatives.

To the next parliament Truro sent Andrew Borlas, son of Noel Borlas, and an ancestor of the Borlases of Pendeen. He was a merchant engaged in trade in the seaports of Cornwall and elsewhere, and had property in Fowey, Penryn, and doubtless in Truro also. On many occasions he appears in the character of an attorney, as in the action which Thomas Arfos brought against Thomas Cary of Tregony, and Odo his son, who, "with force of arms broke into the house of Arfos at Tregony, insulted, beat, wounded, and maltreated him, and inflicted other enormities upon him, much to his hurt and to the disturbance of the peace of the realm." His knowledge of law, and his influence as a merchant, made him a very desirable representative of the town. But his parliamentary honours brought a crowd of vexatious consequences in their train. The king, Richard II, ever in want of money, resorted to most questionable and tyrannical expedients to replenish his coffers; one of his favourite devices was to challenge titles to property, in order that warrants of permission to hold the lands in security might be purchased. Borlas had not long been in parliament before he was selected as a victim of the King's rapacity; probably his prosperous circumstances, coupled with a certain independence of speech in parliament, induced the King to question his right to the paternal estate of Borlas Frank, in the parish of St. Wenn. He and his family were charged with being aliens, and Richard was determined to secure from him a large sum of money, before granting him the privileges of an Englishman. But Andrew Borlas was not the man to submit

quietly to such lawless proceedings; with a resolution and courage, remarkable in those days when so much power was vested in the Crown, he resisted the King's demands, and appealed to the verdict of a jury. After repeated delays and postponements, a jury was empanelled at Launceston, consisting of county gentlemen, who were supposed to know the history of the family, with the result that Borlas proved his case in every particular. His family was shown by evidence to have held the estate "a tempore quo non exstat memoria," and a title to it was established which continued it in the family for three centuries following. ("Genealogist," ii (N.S.) 1885). He died in or about the year 1414.

In the parliaments of 1396 and 1417 John Megra sat for Truro; his will, dated 6th Aug., 1419, is interesting as being one of the oldest Cornish wills extant. It was published in the "Western Antiquary" in 1882, and the following were some of its provisions: "I, John Megre, citizen and pewterer of London. My tenements in Wolnoth and Lombard Street, to be disposed of according to the discretion of my executors. A legacy for an honest chaplain to celebrate *divinia* for my soul, and the souls of others, in St. Mary Church, Trewrewe, in Cornwall, for seven years." In addition to bequests to his wife, Emma, and to his daughters, Margaret and Luce, he left legacies to the Church of St. Kelnewyn (Kenwyn), to every poor bed-lier in Truro and Kenelwyn, to the blind, etc., in St. Kea, to John Nicholls of Trewrowe his kinsman, to John Nicholls the elder, 13s. 4d., to William Nicholls, the brother, 13s. 4d., and to Philip Taylor of Trewrew, 13s. 4d., besides others to various institutions and persons in other parts of the county. Both his daughters married; Margaret became the wife of James Nanfan, and had issue two daughers Jane and Beatrix, each of whom received a legacy of 100 marks. Luce married John Archedekne, and had four children, John, William, Matilda, and Isabell; the latter two of whom, like their cousins, received 100 marks each as a marriage settlement. The executors were Thomas Knollys, of London, grocer (Lord Mayor in 1410), who built Rochester Bridge, and London Guildhall; James Nanfan, and John Archedekne, his sons-in-law. Nanfan was returned for Truro to the parliament which met at Leicester in 1425.

William Trethekel sat for Truro in the parliament of 1414; he is probably the same person as William Trethek, who represented the town in 1423, 1429, 1430, and 1432, and Helston in 1420; it is also probable that he was a member of the family residing at Trethake, in Lanteglos-by-Fowey, or at Trethake in St. Cleer.

In 1422 (1 Henry VI) and again in 1424, John Butte of St. Gennys, represented Truro. At the Assession Court of the manor of Tintagel, held on 20th March, 1422-23, he took the site of the castle called "the Island," with the rabbits there, until the next Assession, at the yearly rent of 6s. 8d. (Sir J. Maclean, Trigg Minor, iii, 202), an interesting proof of the ruinous state of this famous castle, even at that early date.

William Trethake's colleague in 1430 was Thomas Roscrow or Rostruuk, one of the last members of the ancient family of Roscrow, of Roscrow and Treluswell;—a family which must not be mistaken for that of Harrie which settled at Roscrow in the reign of Henry VIII, and which, like the Taillefers of Borlas, the Peres of Tremayne, and many other families of that period, adopted the name of their family seat.

Of all the representatives of Truro at this period, none were more highly esteemed than Sir Nicholas Aysshton, the famous judge, a man of unbending integrity, of wide sympathies, and of profuse liberality. He is said to have built the church at Callington, and is justly regarded as one of the greatest benefactors of that town. He was made Serjeant-at-law in 1443, and two years later was appointed one of the justices of the bench. His eldest son, Edward Aysshton, represented the town in 1467 (1. Ed. IV.)

Gregory Tretherf took his seat for Truro in 1436. According to tradition, the family of Trethurffe was settled at Trethurffe, Ladock, before the Conquest; it is rather singular that until now, no member of this ancient and honourable, but now extinct family, living in the vicinity of Truro, should have been selected to represent the town in parliament. John Trethurffe, possibly brother of Gregory, was a Knight of the shire at the same time, and had Sir Nicholas Aysshton as his colleague.

Very many other extinct Cornish families had political relations with Truro during the period under review; thus we find an Egloshayle representing the town in 1335, a Beville also in 1335, and another in 1371; a Trenowith in 1377; a Tregarrick in 1383; and a Tredenham in 1454.

Another county family, and happily one not extinct, furnished Truro with a burgess in the person of John Trelawney in 1448; he was one of the Coroners for the county, and is said to have been returned for Lostwithiel to the same parliament;—a duplication which frequently occurred, especially during the earlier half of the fifteenth century; and one which, by its frequency, seems to indicate a certain amount of confusion in the returns for the two boroughs.

As may be supposed, the records of this early period, 1295-1467, are very imperfect, and anything like a consecutive history of the subject is impossible. Of many burgesses who represented the town, nothing more than this is known; of many others we only know that they were returned to other parliaments for other constituences; and of some we can only conjecture that they were allied to Truro by the fact that their names are the names of manors, bartons, etc., in its neighbourhood, of whom Alan de Moreske, 1327, and William Conderow, 1427, may be taken as examples. Nevertheless, the subject is one of great interest, and there can be little doubt but that by a more diligent search than has been possible to the present writer, many important particulars that have escaped his notice, may be found.

THE SUPPOSED PRIESTS' HIDING PLACES, AT GOLDEN, PROBUS.

By H. MICHELL WHITLEY, F.G.S., Hon. Member Royal Institution of Cornwall
Hon. Secretary Sussex Archæological Society.

The old mansion of Golden, in the parish of Probus, possesses a curious interest in the singular cells which are hidden by a belt of evergreens on the lawn; and which tradition states were used as hiding places for Roman Catholic Priests during the sixteenth century.

So singular are these cells, that I am induced to send for publication in our Journal a plan and sketches of the same, made by my kinsman the late Mr. Walter H. Tregellas. As far as I know, the structure is almost unique.

The buildings which, as I have before stated, stand on the lawn, consist of two domed cells connected by a wall now about 6 feet high.

The westernmost of these subterranean chambers is about seven feet in diameter, and 6 feet 6 inches high, and the spring of the dome is level with the external ground line, whilst the easternmost cell is practically of similar dimensions.

Tradition has fixed the name of "The Dungeon" on the former, and asserts that Cuthbert Mayne was here concealed.

It is approached by a flight of steps, with hinges for a strong door still remaining, it is lit by a curious hidden window, and there is also a recess or cupboard in the thickness of the wall opposite the entrance.

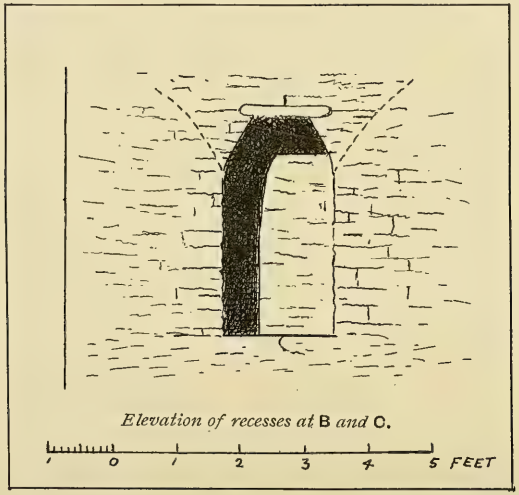
The easternmost chamber is known as "the oven," and there is a hole or flue leading from it to the air above as shewn on the plan. Tradition states that in this oven the protestants were roasted, and a house now used as a labourer's cottage close by, bears the name of the "slaughter-house," where it is supposed the cattle were killed for the priests' dinner.

It is also asserted that an underground passage leads from "The Dungeon" to Probus Church, this statement is constantly met with, and simply refers to the large drains of mediæval

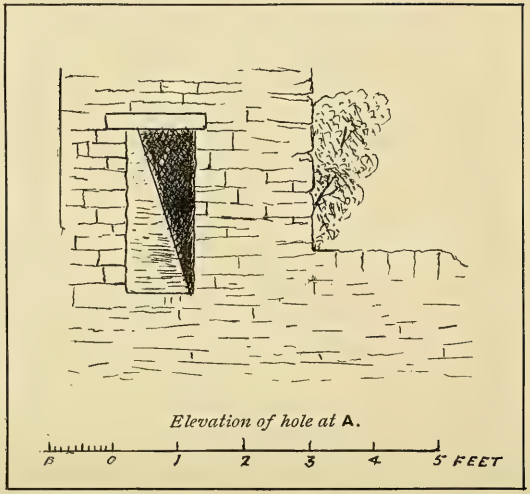
GOLDEN FARM, PROBUS,

Formerly the Residence of FRANCIS TREGIAN.

ROUGH SURVEY of the supposed hiding-place of CUTHBERT MAYNE, a recusant Roman Catholic Priest, who was hung, drawn, and quartered at Launceston, 1577.



Elevation of recesses at B *and* C.



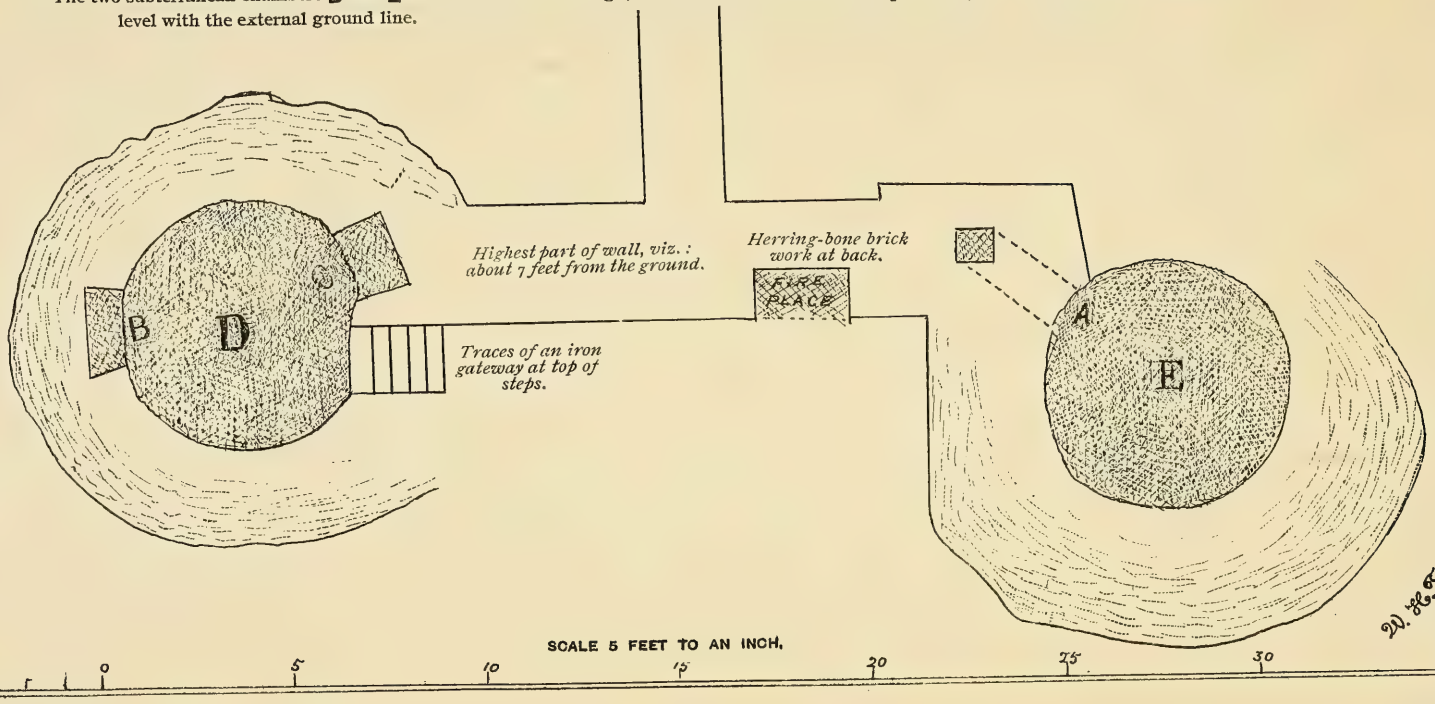
Elevation of hole at A.

(N.B.—The Elevations are on a scale of 3 feet to an inch.)

The buildings are surrounded by a thick belt of evergreens, now about 40 feet in diameter, and about 15 feet high in the centre.

The walls are built mostly of slate stone, with dressed granite quoins, &c.; and partly of bricks of various sizes, some of which measured 7" x 3½" x 1¾"

The two subterranean chambers D and E are about 6 feet 6 in. high, and show traces of internal plastering. The spring of the Domes is level with the external ground line.



times. A singular adjunct to these remains is a fire place with herring-bone brickwork back, the use of which it is difficult to conjecture.

It is evident, however, that the whole structure is fragmentary. The "slaughter-house" previously referred to, now a cottage, is an ancient brick building, coeval with the old house, with stone doorways and windows.

It is interesting as being an example of mediæval brickwork unusual in Cornwall, the bricks being of small size, and closely resembling those used in the construction of Herstmonceux Castle, Sussex.

A short note on Cuthbert Mayne may well follow. In 1577 the owner of Golden was Mr. Francis Tregian, then a young man of 28 years of age, who was strongly attached to the faith of his ancestors, and was consequently accused of being a recusant.

On June 8th, 1577, the Sheriff of the County (Sir Richard Grenville, of Stow) accompanied by several justices of the peace and about one hundred soldiers, visited Golden in search of Cuthbert Mayne, a Roman Catholic Priest, who was believed to be concealed there.

The story runs that their quest was fruitless, but that after dinner when Sir Richard expressed his pleasure at the result of his search, Mr. Tregian thoughtlessly confessed that Mayne was concealed at his honse; when a stricter search resulted in his discovery, and subsequent execution at Launceston, whilst his host lost his estates, and suffered a long term of imprisonment in the Fleet prison, which was voluntarily shared by his noble wife. Cuthbert Mayne's head was set on a pole at Wadebridge. A portion of the skull is still preserved at Lanherne, and shows the hole pierced by the spike on which it was placed at the bridge.

NOTES ON THE FAUNA OF FALMOUTH FOR THE YEARS 1895-96.

By RUPERT VALLENTIN.

The severe easterly gales we experienced during February of 1895 had a very marked effect on the fauna of this district. The egg-cases of Scyllium catulus, which had hitherto abounded, were very scarce, and many of the smaller species of decapod crustacea were absent during the greater part of the year. At Helford, the fauna over an area some acres in extent was completely changed. Immediately in front of the coastguard flag-staff, and extending for more than a quarter of a mile to the westward, there existed, previous to these gales, a large mud-bank which was left bare when the tide receded. Here, two species of Polychæte annelids, Myxicola Steenstrupi and Sabella penicillus, abounded. On visiting the locality during March, I was surprised to find that a fine uniform layer of dark sand, several inches in thickness, had been thrown up from the main channel of the estuary and spread over this mud-bank. The Myxicola had vanished; and only a few examples of Sabella could be discovered at the extreme western edge of this locality. A short time later the tubes of Lanice conchilea began to appear, and during September they were so numerous that they resembled a dense forest in miniature. Since that time I have paid periodical visits to this locality, and have noticed that these Lanice conchilea are more numerous than ever, and seem likely to alter the fauna in that spot in a very marked degree.

As on previous occasions I will now record the various changes observed in the surface-fauna during these two years, and later note the various interesting specimens captured during that time.

Surface Life for 1895.

March. During the early part of this month minute Ephyræ became abundant, the first specimen being captured on the 7th, and towards its close, when the presence of the gelatinous alga (Tetraspora Poucheti Hariot)[1]* rendered surface

* These numbers refer to Bibliographical list at end.

netting impossible, more advanced specimens of this medusa could be ladled from certain spots in the harbour. I am quite certain that during the time I have been observing the changes of the fauna in this locality, I have never seen such quantities of Aurelia aurita; and this fact is all the more remarkable seeing that this species was exceptionally scarce during the previous year.

April. With the exception of noting a rapid increase in quantity and size of Aurelia aurita, no other forms of interest were observed till the following month.

May. There was a steady rise in the surface temperature of the sea during this month, and a corresponding increase in surface life observed. On the 1st, the surface temperature of the sea at 10 a.m. was 51°F. By the 7th it had risen to 52°F., and had increased to 53·6 F. on the 13th, on the 24th to 54·3 F.; 56°F. being recorded on the 29th.

The most important forms secured during this month were examples of Bolina hydatina, Lizzia octopunctata, and Sarsia tubulosa. On the 2nd, a few Noctiluca were captured, and these infusorians continued to be present in all the gatherings made during this month.

From the 20th to nearly the close of the next month the sea in certain protected places in the harbour was almost solid with examples of Tiaropsis multicirrata. This species was identified for me by Mr. Edward T. Browne, who has made this class of animals his special study. Especially abundant in the structureless layer of the umbrella of this species were numerous examples of a very singular larva of a species of Trematode. Both medusa and parasitic larva have been abundant in the harbour during 1896. Mr. Browne[2] has recorded the presence of....“a species of Cercaria which lives in the mesoglœa....” of Phialidium temporarium (Browne). He very kindly sent me some specimens of this parasite to see if it agreed in structure in any way with mine: microscopical examination, however, shewed them to be quite different. It has not been unusual for me to find from three to as many as eight of these larvæ present in the structureless layer of a single medusa; and in one specimen of Hormiphora plumosa upwards of ten specimens

were observed. The same parasite has been observed in the structureless layer of Tiara octona, but has always been found wanting in the Siphonophores. I have spent a considerable amount of time during two summers in attempting to trace the further developmental changes of this singular parasite, but so far I have been unsuccessful. The following is a brief description of this larval form. The average length of a fully expanded specimen is 1 m.m. The body is annulated, and covered externally by an immense number of bodies resembling tactile setœ. Owing to the opacity of the integument one cannot trace very closely the course of the gut; the following parts are, however, easily distinguishable in the living animal. An oval shaped mouth placed at the anterior extremity immediately passes into a muscular pharynx; beyond this one is unable to see anything definite. The anus, which is placed at the other extremity, is median and terminal. The most striking feature about the animal is the presence of a comparatively large and powerful sucker, which is placed mid-way between the two extremities on the ventral aspect. In nearly all the living specimens there were numerous highly refractive bodies occupying the posterior third of the body.

On the 21st, two diatoms, Chœtoceros and Rhizosolenia, began to appear in a gathering made about three miles S.E. of the harbour; and during the two following months were never absent from surface-net gatherings. On the same day, 21st, two specimens of Corycœus anglicus each with ova attached were secured. A solitary specimen of Tiara octona, measuring upwards of 18 m.m. in height, was dipped from the sea close to the lighthouse on the 24th. Strangely enough, this was the only specimen seen during this year.

June. A still further rise in the surface temperature of the sea was again observed during the whole month. On the 1st the surface temperature of the sea at 10 a.m. was 56°F.; on the 4th, 58°F.; 5th, 58·9°F.; 8th, 59°F.; 10th, 59·9°F. On the 12th, a series of surface temperatures were taken in the neighbourhood of the following places:—1 mile due south of Coverack at 12.30, 55°F.; 1½ miles south-east of the Lizard, 55·3°F.; and close to the Manacle buoy at 3 p.m., 56°F. Returning now to Falmouth harbour. The surface temperature on the 17th was

58°F.; 18th, 59·9°F.; and on the 24th, 60°F. From that day to the end of the month the surface temperature of the sea remained very uniform, being 60°F.

Specimens of Tiaropsis multicirrata continued to be very abundant in the harbour; few, however, were found in the bay. In copepods, Dias longiremus and Centropages typicus were both very numerous. On the 12th, in the neighbourhood of Coverack and the Lizard, Sagitta bipunctata, Calanus finmarchicus, and Oithonia spinifrons were all abundant on the surface On working the net at a depth of from 25-30 fms. near this place, Centropages typicus, Evadne, and Podon, were most numerous.

July. The following changes in the surface temperature of the sea were recorded during this month :—On the 2nd, 60·9 F.; 3rd, 59·9 F.; 4th, 60 F.; 5th, 59°F.; 6th, 59°3 F.; 8th, 58°3 F.; 10th, 59°9 F.; 12th, 58°F.; 15th, 57°6 F.; 17th, 57°3 F.; 20th, 60°F.; 23rd, 58°F.; 29th, 57°F.; and 30th, 59°F.

During *August* the following changes were noticed :—From the 1st to the 5th, the surface temperature remained at 58°F. On the 6th, 57°F.; 9th, 56·6 F.; 12th, 57·6 F.; 13th, 58·6 F.; 15th, 58°F.; 16th, 60·3 F.; 17th, 60 F.; 18th, 62 F.; 28th, 60·3 F.; and 31st, 61·3 F.

I have taken these two months together because the weather during most of that time was unsettled with rain, and it was not till the 18th of August that the surface fauna began to show that increase in richness and variety which usually accompanies the commencement of autumn.

From the 1st of July to the 18th of August, veliger larvæ, a few Actinotrocha, Sagitta bipunctata, and Beroe, were usually to be found in the tow-net. On the 30th, a single female of Centropages typicus with ova attached was observed. Plutei, and the medusiform stage of Obelia gelatinosa were very numerous both in the bay and harbour during the whole of August. Owing, however, to the wind being off shore during most of the days other forms were scarce.

September. A very agreeable change took place in the weather during the early part of this month, which lasted till November. There was also a considerable rise in the surface temperature of the sea. On the 2nd, the surface temperature

of the sea was 61·6 F.; on the 5th, 62°F.; on the 6th, 62·9 F.; 10th, 61·9 F.; 14th, 60·9 F.; 26th, 62° F.; and it remained unchanged till the end of the month.

On the 5th, one of the richest and most varied surface gathering was made about four miles S.E. of the lighthouse during this afternoon at high-water. The wind had been light to moderate from the south-west during the past few days, and this fact, coupled with a strong tide, will account for this exceptional gathering. On transferring the contents of the tow-net to the collecting jar, the Plutei were so abundant that they formed a separate layer immediately beneath the surface. In addition to these there was a fair quantity of each of the following: Auricularia larvæ, Tornaria, Doliolum, and Muggiœa atlantica. One Amphioxus with twelve gill slits and measuring 5 m.m. in length was also secured. During the summer of 1890, this portion of the coast was visited by shoals of a very interesting species of Pteropod; and during August of that year it was by no means unusal for one to find some hundreds of specimens in a single tow-net gathering. There was a great diversity of opinion at that time as to whether this animal was an adult or larval form, and I believe no definite conclusions were ever arrived at. These animals disappeared from here as suddenly as they appeared; the last being secured at Plymouth about the middle of September of that year. Since that time up to present this interesting form seems to have vanished from the coast. On closely examining the collection made this day, I fortunately found in the rubbish on the bottom of the jar, in which this gathering had been placed, a few fully contracted but living specimens of this Pteropod; and on placing them in a separate jar of fresh sea-water, I was gratified to find them the next morning swimming vigorously about. On making a careful examination of several and comparing them with sketches made in 1890, I found them to be identical. In spite of the utmost care these specimens died a few days later, and since that occasion I have not met with any more examples of this Pteropod. It was not till six days later that any specimens of Doliolum appeared in the harbour. From that day (11th) till the end of the month examples of that species, together with Ceratium tripos were very numerous. A few isolated specimens

of Polygordius larvæ were also detected during that time in the tow-net.

October. The following were the principal changes in the surface temperature of the sea during this month. 2nd, 61·6 F.; 4th, 60·3 F.; 5th, 59·6 F.; 8th, 59 F; 10th, 57·6 F.; 11th, 57 F.; 19th, 55 F.; 22nd, 54·6 F.; 30th, 52·6 F.

On the 2nd, after an on-shore wind lasting some hours, a rich surface gathering was made during the afternoon by working the net across the harbour during high water. Several large Doliolum were secured on this occasion for the last time this year; and with them one or two Polygordius larvæ. Many Evadne were also noticed carrying the single winter egg, and two male Corycœus anglicus were also seen. On and after the 5th the surface temperature of the sea remained permanently under 60°F., and by the 10th, Sagitta bipunctata were noticed to have considerably increased in numbers. Muggiœa atlantica were also numerous on the same occasion, but they were all dead; the surface temperature (57·6 F.) being doubtless too low for them to exist in. The 13th of this month was the really last fine day we enjoyed for the year. The sky was overcast, the wind light, and the sea exceptionally smooth. I spent the greater part of the day about three miles to the south-west of the Manacle buoy, and worked the tow-net in that locality at intervals. On such an exceptionally fine day I was able to make a rough examination of each gathering as it was made, and separate those animals I wanted for further study from each gathering as it was made.

During the flood tide an immense quantity of Ceratium tripos appeared, and with them a few of C. fusus and C. furca. On placing one gathering aside till the next day, these infusoria were found to have collected immediately next the surface, and to have formed a distinct yellowish layer at least five milimetres in thickness. On sinking the net and working it in thirty fathoms of water a considerable quantity of Actinotrocha, Plutei, and spinid larvæ in an advanced stage of development were secured. I found later that the Actinotrocha eagerly devoured the Ceratium tripos. Rhizosolenia contined exceptionally abundant in all the surface gatherings; and during the afternoon were so noticeable, that, on turning the contents from the end of

the tow-net, after working it for twenty minutes, into a jar, the water was quite turbid owing to their presence.

A few days later the exceptionally strong autumnal spring tides began, and most of the days were spent shore hunting.

November. The weather was unsettled and cold during most of this month. On the 6th, the surface temperature was 54°F.; 10th, 55°F.; 13th, 55·3 F.; and 22nd, 52·6 F.

Only two surface-net gatherings were made during this month, and both shewed a considerable decrease, both in quantity and variety in surface life.

On the 6th, a few Sagitta bipunctata and Clausia elongata were the only forms observed in the gathering made during that morning. On the 22nd, the common copepod Clausia elongata occurred in considerable quantities, but no other forms were detected. This was the last gathering made during this year.

FAUNA NOTES.

INFUSORIA. While engaged in an attempt at rearing lobsters in captivity during the summer months, I found attached to the "berries" of those females which were procured from depths ranging from 20-35 fathoms some exceptionally fine colonies of Zoothamnium arbuscula.

MEDUSÆ. It was not till the 16th of March that an example of Rhizostoma pulmo was seen in this neighbourhood. From that day till the fall of the year only an occasional specimen was seen; a striking contrast to my last year's experiences.

Some remarkably fine specimens of Bolina hydatina were dipped from the sea with a cup during high water near the extremity of the eastern breakwater at the end of May. Aurelia aurita abounded in the sea during the whole summer. The planulæ were given off during the early part of August.

ACTINARIA. Halcampa chrysanthellum is to be dredged in fair numbers not very far to the westward of Lugo buoy.

ECHINODERMATA. When I first commenced dredging in Falmouth Harbour, the beautiful feather star, Autedon rosaceus, was one of the commonest forms to be met with in the deep water. Since then they have steadily decreased in numbers, and one can scarcely now obtain a single specimen where in previous years they were so numerous. Their place seems to have been

taken by the hitherto rare brittle star Ophiocoma nigra, which abounds in a deep hole near the West Narrows buoy. Here, after strong westerly winds, the dead leaves of Zostera marina have a tendency to accumulate, and one's dredge will frequently come up half filled with decaying portions of this weed, intermingled with splendid specimens of Ophiocoma nigra and O. fragilis.

Crustacea. Portunus depurator occurs in considerable abundance on the Truro oyster beds. I have secured upwards of six specimens of this pugnacious crab in one haul of my dredge on more than one occasion. P. puber was found "in berry" on the 12th of March. This species has long been recognized amongst collectors as the most quarrelsome of its class; an unexpected "nip" from one of these crustaceans while shore-hunting is not likely to be soon forgotten. During the spring tides of March, when the sea recedes beyond its ordinary limit, examples of this crab were fairly numerous under stones. The weather was exceptionally cold during this time, and this fact may in some measure account for the following circumstance. These crabs were found to have lost their usual pugnacity, and under no circumstances could be induced to assume their fighting posture. Later in the year, when the weather was warmer, they were as vicious as ever. The integument in all the specimens on all occasions was hard; no soft crabs of that species could be found in the spring. Galathea squamifera occurs in abundance along all the shores of Falmouth harbour. Indeed it is by no means unusual to find a dozen or more specimens of that species under one stone during low water. A single specimen of Galathea squamifera was found under a stone near St. Just Creek on the 13th of March, with the right side of the cephalothorax abnormally swollen. On dissecting away a portion of the integument a very fine female specimen of Pleurocrypta galatheœ, Hesse, was discovered. Fortunately the diminutive parasitic male was also present, so I was able to make a careful study of both. About twelve months later another example of Galathea bearing a similar parasite was found inside a hollow beam of timber in the Docks. These are the only two specimens of Pleurocrypta I have ever secured.

During the past two summers I have found three specimens of a diminunitive crustacean, which appear to be immature examples of Galathea squamifera. These crustaceans have never been found to exceed 1 c.m. in length, and owing to their exceptionally bright markings, have been at once detected on turning over the stone under which they have taken shelter. My friend, Mr. W. Garstang, tells me he has taken similar specimens in the neighbourhood of Plymouth. The following brief description of a living specimen will perhaps convey to the reader some idea of the extreme brilliancy of the markings. The ground-work of the whole cephalothorax, chelæ, and legs, was ivory white; the chelœ and legs being marked with transverse bands of brown pigment, while the same colour was irregularly distributed over the whole animal. The cervical groove was very distinctly shewn, owing to the presence of a bright blue line of pigment which clearly marked its course. Faint blue patches were also visible on the whole body of the animal, these being especially clear in the region of the telson. These colours were only visible in the living animal, and quickly faded when the specimens had been dead a short time.

Several specimens of Anthura gracilis have been dredged from the deep water in the harbour. These sessile-eyed crustaceans have only been discovered after placing stones, shells, and other rubbish in pans of sea-water, and allowing them to remain undisturbed for a day or two, when the animals crawl out from their hiding places. A single example of the same species was found during the spring tides of March in a small pool of water near Trefusis point.

Mollusca. A singular and in many ways unique habitat for the young of Acera bullata was observed during the early part of last summer. Towards the end of May, while examining some very fine specimens of Aurelia, my attention was attracted to what at first sight seemed to be a sessile-eyed crustacean, securely hidden in one of the sub-genital pits of a single individual, but which was found to be an immature specimen of this mollusk. Curiously enough, on the 31st of May an adult specimen of Acera bullata was observed swimming in the sea close to my hut, and on being secured in a tin bailer, was almost immediately given to me. Being unable to obtain any

information relating to this mollusk in any of the Fauna lists in my possession, I wrote to Mr. G. T. Tregelles of Barnstaple, who kindly furnished me with the following information:—"Akera bullata (Müller) has been found at Falmouth (Journal Royal Institution of Cornwall, 1866), at Scilly by Lord Vernon, and by my late friend, Clifford Burkill. I did not find it in Mount's Bay."

Montague[3] records the capture of this mollusk at Poole. Clarke[4] writes concerning this mollusk as follows:—"Twenty years ago I observed hundreds of these creatures swimming and creeping on the fine mud in the lakes of the Mount Pleasant Warren near Exmouth; they, however, suddenly disappeared from the locality, and not one has been seen for many years." I placed the adult specimen, as soon as it came into my possession, in a large glass jar filled with fresh sea-water, but the mollusk must have been damaged in some way, for it remained fully contracted till the evening, when I preserved it for further examination. The two young specimens which came from the sub-genital pits of Aurelia also remained motionless. The shell of the single adult specimen measured 11 m.m. in length, while the shells belonging to the two immature specimens measured 3 m.m. and 5 m.m. in length respectively. Acera bullata is unquestionably rare at present in this district. I have made a special point of hunting for examples of this species since May, 1895, and up to the present time have not succeeded in finding one.

Early in September some numbers of Antiopa cristata suddenly appeared on some large balks of creasoted timber which had been placed under the Eastern breakwater during the previous February with a view to strengthen that structure. They were exceptionally large, the average length of six expanded specimens being 5·1 c.m. Two weeks later the beams, which are always left dry for at least an hour during every tide, were fairly sprinkled with the mollusks; most of whom soon began to deposit their delicate coils of ova. By the 20th of this month they had considerably decreased in numbers, and by the 4th of October only one could be seen, and this was found not to have deposited its ova.

Towards the end of October numbers of Polycera quadrilineata were noticed depositing their imperfect coils of spawn on the blades of Zostera marina in the docks. Only one coil of spawn of this species was noticed on a frond of Laminaria digitata.

Early in November a single specimen of Æolis punctata was detected depositing its spawn on a floating raft belonging to the Dock Company.

During the past few years I have invariably observed that the common whelk (Buccinum undatum) begins to deposit its spawn during November. In the Firth of Forth the nidi of this species were never found till the end of January.

PLANKTON FOR 1896.

It was not till the commencement of May that any forms of exceptional interest were secured in the tow-net. The first Ephyra seen for the year was captured on the 23rd of March, the surface temperature on that morning being 51°F., and after that date they gradually decreased in numbers. About this time the gelatinous alga (Tetraspores) began to appear; and the tow-net had to be abandoned till the commencement of June.

During May, doubtless owing to the exceptionally early summer, there were an immense number of Clytia Johnstonii, and Phialidium temporarium (Browne) in the harbour, and I found it possible to secure a very representative gathering by mooring my small boat near the extremity of the Eastern breakwater, and dipping these delicate forms from the surface of the sea as they were swept past me by the flowing tide. At this time Tiara octona occurred in abundance.

An exceptionally early larva of Phoronis was secured on the 11th of May. This specimen was captured quite by accident, being dipped from the sea with some medusœ. It was not till August that another Actinotrocha was secured.

On the last day of May, when tow-netting could again be resumed owing to the rapid decrease in the quantity of the Tetraspores, the following forms were observed in a gathering made while the tide was as flood. Dias longiremus, Clausia elongata, Evadne with embryos, spinid larvæ, and ascidian tadpoles were all abundant. A single specimen of Sagitta bipunctata was also noticed.

June. The weather during this month contined exceptionally fine and warm. The following variations in the suface temperature of the sea were observed during this period :—1st, 60°F.; 5th, 60°3 F.; 8th, 61°6 F.; 10th, 62°F. From this date till the end of the month the surface temperature of the sea remained very uniform, varying from 60°9 F. on the 17th to 62°F. on the 30th.

The prevailing northerly winds were again observed to have an appreciable effect on the floating fauna both in the bay and harbour.

During the first few days of this month, Phialidium temporarium (Browne) were very abundant in the harbour ; and by the 11th not one specimen could be captured either by the tow-net or by means of dipping from my boat. The next day in a gathering made in the bay no medusœ were observed. Sagitta bipunctata, Corycœus anglicus, and Dias longiremus, were found to be fairly numerous. Not more than two or three specimens of Centropages typicus were observed.

During the past four years I have secured in my tow-net during this season of the year a very interesting Ectoparastic Isopod attached usually to the back of Calanus finmarchicus, Clausia elongata, and Temora longicornis. The animal is figured and described by the Rev. Thomas R. R. Stebbing[5] as Microniscus calani, Sars., and on comparing my specimens with the brief description given in that gentleman's book they seem identical. Owing to the extreme minuteness of these animals, the largest hardly measuring 2 m.m. in length, they are exceedingly difficult to detect, so it is quite possible that I have on several occasions failed to identify them when they were present in my tow-net gatherings.

It seems that Microniscus is able to detach and refix itself to any passing copepod ; for on one occasion a single specimen of Calanus finmarchicus was isolated in a watch glass with an individual on its back. With a needle I transfixed the copepod and with another removed the parasite without apparent damage, I then introduced a specimen of Clausia elongata, and in an instant the Microniscus fixed itself to the back of the new host. This parasite does not always attach itself to the back of its host. I have a specimen of Temora longicornis with the

Microniscus firmly fixed to the right side. Another interesting feature is the extreme difficulty, I may say the impossibility, of finding any staining fluid which will colour these parasites in at all a satisfactory manner. I have nine mounted specimens, and all save one is hardly tinted at all; the single exception being stained with carminic acid.

On the 26th, a single dead specimen of Doliolum was secured.

July. The surface temperature of the sea was exceptionally high during this month, and was never found to be under 61°F. on the 1st, and varied from that to 62·6 F. on the 31st, but the continuance of off-shore winds effectually prevented any oceanic forms from being carried into the bay and harbour.

On the 8th, Centropages typicus and Temora longicornis were fairly abundant in the bay, and with them were a fair quantity of Corycœus anglicus and Clausia elongata. On the 14th, a few Evadne and Podon were detected; and on the 20th, Appendicularia and various plutei were abundant. On the 24th, a fresh breeze from the south, and afterwards from the south-west, considerably increased the quantity and variety of the plankton in the bay. Cyphonautes, Evadne, Podon, Corycœus anglicus, Plutei, and Temora longicornis were all fairly abundant. A single specimen of Ceratium tripos, and three Acanthometra elastica, unfortunately dead, were also observed.

August. The surface temperature of the sea during this month was far higher than any previous year, and varied from 64°F. on the 3rd to 63°F. on the 13th. After that date there was a steady fall in the temperature; 62°F. being recorded on the 15th, 62·6 F. on the 17th, 61°F. on the 26th, and from that date to the end of the month the surface temperature of the sea remained unchanged.

On the 6th, an exceptionally prolific haul of Clytia Johnstonii was made with the tow-net in eighteen fathoms of water near West Narrows Buoy. On the 16th, favored with a light north wind, I made a surface-net trip to the Dodman, and spent some hours working my net at various depth about two miles from that well-known headland. The surface temperature of the sea being 61·3° F at 1 p.m. In bottom net the following forms were

secured:—Oithonia spinifrons were exceptionally numerous, many of the females being laden with ova. Two Tornaria larvæ, and two very advanced specimens of Actinotrocha, and several small Saphenia mirabilis were also noticed. Appendicularia, Sagitta bipunctata, and Corycœus anglicus seemed very equally distributed, while Rhizosolenia occurred only on the surface.

No other forms of interest were secured in the tow-net during the remainder of the month.

Fauna Notes.

The attractive gonozooid of Cladonema radiatum was first observed on the 28th of May swimming on the calm surface of the sea in the tidal docks. During that morning upwards of six specimens of that species were secured in a tin cup. These lived in a jar of sea-water in my hut for some time, but gradually died as on previous occasions without undergoing any further developmental changes. I have noticed this year that all my specimens of this gonozooid agree in structure with those found by M. Dujardin, viz.: they invariably possess eight arms on the umbella, and the manubrium is furnished with only five lobes; whereas the specimens described by Mr. Holdsworth in the Rev. Hinck's monograph,[6] possess ten arms and seven lobes. These last named specimens were procured from the tanks in the Zoological Gardens, whereas both my specimens, and those secured by the French investigator, were found in the sea. This slight increase in the number of arms and lobes round the mouth was probably due to the conditions under which they were reared; and in my opinion must not be looked upon as a specific distinction.

Nemertea. On the 2nd of March, at extreme low-water mark, a single specimen of Micusa fusca. (M'Intosh) was found under a stone amid a mass of decaying Zostera. When at rest in a glass pan, the specimen measured about 95 m.m. in length, but this measurement could easily be doubled without any apparent effort. The caudal extremity invariably measured 6 m.m. in length. Like many other animals of the same class, this species is able to live in a jar of sea-water for a considerable time without any attention, and during the many months I had it in my possession, no change other than a slight decrease in length was observed.

Chætopods. Quite a number of the neat little houses built by Pectenaria belgica can be picked up during low-water in Helford estuary. Strangely enough, I have not so far been able to find one containing the annelid, although twenty years ago they seem to have been abundant.

Tomopteris onisciformis has not been seen for a number of years; the last specimen being taken in the tow-net early in September of 1890. I have not heard of its being caught anywhere on the south coast since that year, although in the neighbourhood of Jersey it seems to be fairly abundant every autumn.

Crustacea. Upwards of five specimens of Atelecyclus heterodon were removed from a trammel which had been set over-night on Kennack Sands in twenty fathoms of water.

The first specimen of Leander serratus seen for the year was observed under the Eastern breakwater on the 15th of April, and the 30th of the same month the first female carrying ova was secured.

Since March I have been fortunate enough to obtain four specimens of Praniza ceruliata. The first was removed from a mackerel net early in February. The most interesting feature in connection with this specimen was that the greater part of the pereion was of a most brilliant blue colour, a feature not observed in any of the other specimens. Two others were removed from a Pollack caught during March off the Lizard. The last specimen was found on a young Brill (Rhombus vulgaris) captured in a tin cup in the Docksearly in May. The fish was in its pelagic stage, and measured 11 m.m. in length.

Mollusca. One of the most interesting finds of the year was a living specimen of Lucina borealis. This mollusk was found under a stone at extreme low-water mark not far from Greatwood. The valves measured 38 m.m. in length.

A living specimen of Cytheria chione was dredged off the lighthouse early in April. The dead valves of this species are very abundant on most of our beaches, and also at Helford, especially after gales of wind,

Archidoris tuberculata were found in abundance early in January under the Eastern breakwater; and on the 2nd of February quantities of ova deposited by these mollusks were noticed. On the 29th of March, several specimens of Aplysia hybrida were seen depositing their ova in St. Just Creek. Upwards of six specimens of Doris Johnstonii were found at low-water mark during that morning.

Pisces. Centronotus gunnellus is a common fish on the Cornish coast, being according to my observations especially abundant in the higher portions of Helford estuary and Falmouth harbour. Although I had made repeated efforts to discover the eggs of this species, I was not successful till the spring of 1895, when a mass of ova was found under a stone during low-water near St. Just Creek. During this spring I have been more fortunate, having secured as many as ten separate masses of ova deposited by this species during a single tide. Mr. Ernest W. Holt[7] has given a full description of the eggs of this species, together with an account of the various naturalists who have observed the interesting way the fish curls round its eggs till they are hatched. He writes as follows :—"The eggs of this fish (Centronotus gunnellus) first engaged the attention of Mr. W. Anderson Smith (P.R. Ph. S. Edin., vol. ix, 1886, pt. 1), who found them between tide marks on the west coast of Scotland. They were next observed by Mc Intosh and Prince occurring in masses, "about the size of a Brazil-nut," in cavities (holes of Pholas) at the Pier Rocks, St. Andrews, with the parent fishes coiled beside them." All my specimens, with two exceptions to be noticed later, were found near low-water mark in small pools of water which were covered with comparatively large flat stones. On turning over one of these during the spring, one finds besides a collection of various species of crustacea, nudibranch mollusca, and worms, one or more specimens of this fish coiled round its ivory mass of ova. These masses were found to vary very considerably both in size and shape; most being generally speaking oval, and measuring about 25 m.m. by 35 m.m. One mass of ova however exhibited features of extreme interest. Owing to the mass of ova being too large for the fish to encircle, it had constricted off a portion by thrusting its tail through the mass, and so had almost divided

it into two portions. When first discovered the fish struggled for some moments before it was able to free itself from the eggs. This point seemed to me of some interest, for it at once suggested the question: "Do both sexes share in protecting the eggs?" I made a careful dissection of six specimens of C. gunnellus which were found coiled round the eggs, and in every instance found them to be females. Two specimens of this fish were found on two separate occasions securely hidden and coiled round their eggs in the hollow interior of a root of Laminaria bulbosa. This weed is to be found in abundance on the vertical rocks in the neighbourhood of Trefusis Point, and is left dry during low-water spring tides. These roots afford shelter to numerous crabs, various species of Polyzoa, and other forms of interest. The water here is deep, the rocks extending vertically some two or more fathoms before the sea bottom is reached, so these fish must have some considerable free swimming powers.

Quite a number of Monk-fish (Squatina angelus) were caught on this section of the coast during the spring in the trammels set by crabbers. From one trammel alone I saw no less than six specimens removed. Three of these specimens I assisted to clean for baiting crabpots, and on dissection two fish were found to contain fully developed young, which when placed in the sea at once swam away. This species must be very prolific, for one female had nine, the other twelve fully developed young in the uterus.

Note. On the 15th of August, 1895, I placed about 500 cement-coated tiles in St. Just Creek, and as soon as they were arranged, numbers of various species of nudibranch mollusca, crabs, small conger, and other forms of life immediately took shelter underneath them.

The following notes relating to the growth of the undermentioned animals may be of interest, for as far as I can discover, but few investigators have paid much attention to this subject.

On the 3rd of the following April, numerous examples of Anomia ephippium, varying in diameter from 5-7 m.m., were noted. Large growths of Botryllus ——— ? were abundant, and

measured about 80 m.m. by 30 m.m. A few Cione intestinalis were also detected, the largest measured 33 m.m. in height, and the smallest 8 m.m. only.

The common Bowerbankia imbricata abounded, the largest growth observed measured 15 m.m. in length.

The following notes refer to animals removed from the exterior and interior of the lobster hatchery.

This hatchery, after remaining on shore all the winter, was moored in the tidal docks on the 12th of June: and owing to circumstance over which I have no control, was removed from the sea on the 25th of the following month, 1896.

Specimens of Bugula turbinata were exceptionally numerous both on the exterior and interior of the hatchery. The colonies varied in height from 7-9 m.m. Obelia gelatinosa was also very abundant, and varied from 20-25 m.m. in height.

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A LETTER OF ELIZABETH TRELAWNY.

Contributed by L. H. COURTNEY, Esq., M.P.

Searching at the British Museum many years ago for another purpose, I lighted upon a collection of papers (add[l] MSS. 11,314, fol. 15), containing letters, accounts and memoranda of the Mohun family, of Boconnoc.

It seemed as if the papers might have been swept out of a cupboard when Boconnoc was sold to Governor Pitt. Several of the papers would be interesting to local antiquaries, but one letter which I copied may perhaps be printed after so many years in the Journal of the Royal Institution of Cornwall. I copied it partly on account of its intrinsic merit, partly because I was already interested in the writer. Elizabeth Trelawny was daughter of the first baronet of that name, and was one of the earliest to accept the teaching of George Fox, who often mentions her in his Journals. The first occasion was at Plymouth in 1655, when he writes (vol. 1, p. 315): "At this Meeting was one Elizabeth Trelawny, daughter to a Baronet; she being somewhat hard of hearing came close up to me, when I spoke; and she was convinced." This picture of the pious Puritan sitting at the feet of the inspired man may make the letter I now give live again.

"My Hono[ble] Lady

and Dearest Grandmother; allmighty God fill y[r] La[pp] wth true comfort and consolation and revive y[u], according to y[e] time y[t] hee hath afflicted y[u], and for y[e] yeares in w[ch] you have suffered adversity and doubtleffe hee will madam; for God doth many times prepaire his children by castigations & then bestows greate blessings on them y[t] they might bee y[e] more saintified in y[e] inioyem[t.]: david's night of heavineffe saw a morning of Joyfulneffe. Job's unspeakable torture of body; loffe of children & estate is salved w[th] double retournes of gods fauour and bounty, as afflictions are testimonyes of gods love unto us by putting us in mind of o[r]selves, soe continuall

profperity witneffith his displeafure as in thofe whom david speakes of, god gave them thier hart's defire, but wth all fent leaneneffe into their soules, they came not into trouble like other men; as many as I love I rebuke & chasten says ye lord. ah madam, I dare not put my suffrings in ye ballance wth your La^{pps}, yett may truely say, y^{t} full of sorrow have binne ye dayes of my pilgrimage. god make mee his & doe wth mee what hee please. hee hath binne exceeding gracious unto mee in giving mee a power to beare what he hath Lay'd on me. I have left Trelawne for a while to try what change may doe for y^{e} recov'ry of my health & I praise god I find it very advantagable. I begge y^{r} La^{pps} parden for my tediousnes, & this coarfe paper and p^{e}sent y^{r} La^{pp} my humble duty beseeching y^{r} La^{pp} to vouchsafe y^{r} Blessing unto

y^{r} La$^{pp's}$ most dutyfull

Elizabeth Trelawny."

"To my hono^{ble} Deare Grandmother the Lady Mohun att Hall p^{e} fent these."

It will be seen that the letter is without a date, but from its position in the MSS. it may be inferred that it was written before 1645. It was certainly addressed to her step-grandmother the 3rd wife of Sir Reginald Mohun, and as it was addressed to her at Hall, we may perhaps safely infer that it was written after she had become a widow in 1639.

It remains to be added that Elizabeth Trelawny was subsequently to 1657 married to Thomas Lower, of Creed, like herself, a convinced Friend; but she must have died before 1670, when he had become the husband of Mary Fell, a step-daughter of George Fox.

CONTRIBUTIONS TO THE KNOWLEDGE OF THE NATURAL HISTORY OF THE LOBSTER AND CRAB.

By J. T. CUNNINGHAM, M.A., Oxon, Lecturer on Fishery Subjects under the Technical Instruction Committee of the Cornwall County Council.

1.—The Lobster.

The breeding of the Lobster, both the European and American species, has been much studied and investigated in recent years. It has been proved that the eggs are produced in summer and autumn, are carried, attached to the abdominal appendages, for about 9 or 10 months, and then hatched in the summer of the following year. The investigations have been made chiefly by an indirect method. The sequence of events has not been usually followed in particular specimens, but the condition of lobsters taken at various times, in all months of the year, has been carefully noted, and the necessary conclusions have been obtained. The direct method of study offers various difficulties. The animals must be kept in confinement, in order that they may be identified, and when so kept, they are generally under more or less unnatural or novel conditions which may affect their health, or may produce some change in the processes and habits of spawning, so that the normal and natural succession of phases remains still uncertain. Experience has, however, shown that the result of confinement is usually to suppress the reproductive processes, or to prevent their complete accomplishment, and not to hasten them or produce increased fertility, and also that the injurious influence of confinement is less in proportion as the conditions under which the animals are kept, approximate to the natural state in which they live when free.

The naturalists who have studied the lobster have all come to the conclusion that the female does not generally, after hatching a brood of eggs, produce another brood in the same year, but that there is at least a year's interval between the hatching of one brood and the laying of the next. The chief reason for this conclusion, and a very important one, is that in the winter months a large proportion of the females captured are not carrying eggs. A female,

when she has spawned, carries her eggs under the tail, therefore if every female spawned once a year, in the summer and autumn, it would necessarily follow that in January and February every mature female would be carrying eggs, and this is not the case. Another reason given by the American investigator is this: when a female, whose eggs are hatching, is killed, it is found that the ovary inside does not contain eggs nearly ready to be laid, but is in a condition which shows that many months must elapse before a new crop of eggs is shed. This, however, is a matter in which erroneous conclusions might easily be drawn.

Ehrenbaum, a German naturalist, who studed the lobster at Heligoland, took careful notes of the proportion of egg-bearing females among the lobsters captured at various times of the year. He found that on the average not more than 25 per cent. of the females carried eggs, and it follows from this that the lobster on the average only spawns once in four years. It has been pointed out, however, that this is only the proportion in the lobsters caught, and that the egg-bearing lobsters may be more difficult to catch, may avoid the traps, and in that case the real proportion of egg-bearing females would be different.

It is evident, however, that in the uncertainty which prevails upon the question, it is of considerable importance to try by keeping females in confinement whether they ever do spawn immediately after hatching a brood of eggs. Last season (1897) at Falmouth, a number of egg-bearing or "berried" female lobsters were obtained and kept in a box in order to obtain larvæ from the eggs, and to try to rear these. Concerning the rearing experiments, I do not desire to report here. But after all the eggs were hatched, I kept the females alive. They were kept in a box floating in the water at Falmouth Docks, and were regularly fed. There were five of these females, and I put two males with them, in order that they might be able to breed if they were capable of spawning the same year. When I examined them, on Oct. 14th, I found one of them had beneath the tail a full and healthy crop of newly spawned eggs.

This observation conclusively proves that the same female may, after hatching a brood of eggs in summer, produce a new brood a few months later in the autumn. In such a case the female would

hatch once and spawn once every year. It does not follow, however, that this is continued every year without intermission. It proves that it may and does happen in two successive years.

2.—The Crab.

It is well-known that the young crab when first hatched from the egg has the form known as the Zoæa, which swims about freely in the water. After a time, the Zoæa changes into the Megalopa, which is also a swimming form, and this into the young crab, which ceases to swim and walks about on the ground. Last summer I was desirous of finding and capturing some of the little crabs directly after the transformation, and as small crabs from $\frac{1}{2}$-inch upwards are common between tide marks, I searched in August and September for the still smaller specimens which must have been produced from the Zoæas hatched in the summer. For some time I could not find any small enough to be recognised as the new season's brood, but while spending a few days at the Laboratory of the Biological Association, at Plymouth, I obtained some specimens. These specimens were 10 in number, and were found among a quantity of coralline brought from the shore of Wembury Bay near the Mewstone. The smallest was 2·5 mm. ($\frac{1}{10}$th inch) across the carapace, the largest 7 mm. (a little more than $\frac{1}{4}$-in.) The largest specimen was quite similar to the adult, but the smallest were somewhat different. Instead of the blunt lobes at the margin of the carapace in the adult form, there were 10 pointed teeth, alternately larger and smaller. The length of the carapace also was greater than the breadth, while the reverse is the case in the fully developed crab. In these and other points these small specimens resembled strongly the Circular Crab *Atelecyclus heterodon*, which is not uncommon off our coasts. I have, however, no doubt that they were really the young of the edible crab, as some of the specimens showed an intermediate condition, in which the pointed teeth were in process of transformation into the blunt square lobes of this species, and no larger specimens of *Atelecyclus* were present. Moreover, Prof. S. I. Smith, in America, has shown that the young of a species of Cancer on the American coast has pointed teeth in its earliest stage.

The Circular Crab, *Atelecyclus*, has always hitherto been classified in the family Corystidæ, with the Masked Crab *Corystes cassive-*

launus. The resemblance between the young *Cancer* and *Atelecyclus* led me to compare carefully the two forms, and I have come to the conclusion that the Circular Crab has been erroneously classified. In both Cancer and Atelecyclus there are 10 teeth on the margin of the carapace, in Corystes there are only four; the two former also agree in the form of the external manillipeds, in the shortness of the antennæ, in the short and robust character of the pincher-claws or chelipeds, and in the form and teeth of the rostrum, in all of which points they differ from Corystes.

Atelecyclus, then, must be in future be considered as a member of the family Cancridæ, and it is an interesting fact that the young *Cancer*, immediately after its metamorphosis, has the pointed teeth of *Atelecyclus*, which it also resembles somewhat in the form of the carapace. Afterwards changes occur, which produce the condition of the adult *Cancer*. The young of the edible crab has not hitherto been described, at least these peculiarities in it have never been before described, although, as already mentioned, they have been noted in the newly-developed young of the American form *Cancer irroratus*. I hope to publish a fuller description of these specimens, with figures, in the Proceedings of the Zoological Society of London.

THE ADVENTURES AND MISFORTUNES OF A CORNISHMAN 100 YEARS AGO.

Communicated by FRANCIS J. STEPHENS.

The following letter bearing date August 4th, 1799, was handed to me by a relative some time ago, and as the contents chronicle a peculiarly interesting and adventurous career even for that most exciting period, I have thought that others might also find it of interest.

The writer of the letter John Debell or Deeble was a Cornishman. He was the son of a ropemaker, one Robert Deeble of Looe, who carried on business at Copperhouse, Hayle, between 1754 and 1780, and was succeeded there by the writer's great grandfather. Some memories of this John Deeble are still handed down as traditionary lore. He seems to have been a very powerful but rather reckless man, and on one occasion is said to have entered the ropery at Hayle and to have lifted bodily off the "stakes" a huge cable reeking with tar, thereby destroying utterly a "sponger" new coat which he wore. The John Hannam to whom he writes was also a Cornishman. Both names still occur in the county.

Little is known of Debell's after life, but there is every reason to suppose that fortune "turned her wheel," and that the ill-luck which so persistently seems to have dogged his steps left him at last in quieter waters.

The letter is as follows :—

London, August 4th, 1799.

"To John Hannam, Jun., Merchant,
Plymouth Dock.

"Dear Hannam,

"Referring you to my letter of Friday last, I now proceed to acquaint you with various matters which have occurred since I had last the pleasure to see you in this city. Having reached Harwich [date circa 1793 F.J.S.] I embarked on board the Packet for Halvoetluycht, where I safely arrived in about 19 hours, and in

the second day afterwards I was at home at Amsterdam. This was in the beginning of May. I had purchased in London on credit during my stay there about two thousand pounds worth of goods, which were all shipped to my address speedily afterwards and arrived safe."

"I had an excellent house in Amsterdam, situated in the centre of the city and most admirably calculated for business, and where I should, beyond doubt, have made a fortune in a few years if the cursed French had not come and ruined me as well as thousands of others. I made quick payments for the goods above mentioned, and had about eight thousand pounds more forwarded to me from different parts of England in less than six months afterwards; but by this time apprehensions began to be entertained, both in England and Holland, that the enemy would, in the course of the winter, get possession of the United Provinces (which turned out to be but too true). The consequence was the English merchants would no longer give any credit, and others as well as myself were obliged to spin out the sale of our goods on hand as well as we could in order to keep the doors open. I kept, however, remitting everything I could, and by the month of January had reduced my debts very low, and I had not then left above five or six hundred pounds worth of goods in the house."

"On the 16th of the above month, news arrived that the enemy were at Dordrecht and also at Utrecht (close at our doors). I immediately, in conjunction with others, shipped every thing moveable except common necessaries on board a Dutch Schuyt, and ordered the Captain to proceed to the Texel forthwith and wait there for orders, as we who were concerned in the cargo wished first to see how the enemy would act on their arrival and whether it would be safe to retain our property or not. On the 19th, in the morning, about 60 French horse galloped into the city and drew up on the Dam before the Stadthouse, no resistance being made, and immediately despatched an express overland to the Texal to lay an embargo on every ship there."

"Thus our goods were all stopped and ourselves completely outwitted, and in a fortnight afterwards they were all brought back to Amsterdam, and being British manufacture, were sold (after condemnation) for a song, to our entire loss."

"By this time I had quitted Holland and arrived with my wife and child from Flushing in the packet to Deal, where, after coming up to London, I left them, and went back to Holland in a smuggling vessel and got again to Amsterdam, where my former employer (when I was clerk there) sent me to Moscow, in Russia, to settle a long and very intricate amount and for other purposes, which I effected to their satisfaction. After several months absence I then came over to England again and brought my family from Deal to London, and soon afterwards got a temporary employment of £150 a year, but as I was in debt I found it necessary to keep quiet and say nothing to anybody." [a very candid confession on the part of Mr. John Debell].

"In a little time afterwards a gentleman of great fortune, formerly a merchant at St. Domingo, arrived in London, and having a great deal of business to settle wanted a clerk. I was recommended to him, and as he spoke but little English and never was in this country before, he found me of so much service that he earnestly desired me to go with him to France and Italy, where he had likewise many long accounts to wind up, he agreeing to maintain my family during my absence * * * * * * Seeing nothing better to be done, I assented to it (he having procured me a passport as an American); we accordingly set out and went to Bordeaux, afterwards to Genoa, Nice, Leghorn, etc., etc., and after ten months absence I returned by way of Hamburgh, leaving him at Lyons in France."

"I then got a temporary situation in the house of Schneider and Co., here in London, which lasted but three months. At this time the gentleman I had left at Lyons returned to England again and once more employed me."

"Knowing that I had property in America [it is not quite clear whether Mr. Debell refers to himself or the gentleman from San Domingo] to the amount of £90 a year, and that I had never been able to get any remittance, I determined, if possible (there being six years rent due) to go there, and accordingly gave security by bond to my old employers in Amsterdam for £100, which a friend here was to pay to my wife during my absence at so much a month."

"This being settled, I sailed from Gravesend on the 4th December last, in the "Caroline," Capt. Cook, and proceeded to

Portsmouth to join a convoy, from whence we again sailed on the 16th with the African fleet, and seven days after, having parted with it, we were taken by the "Spartiate" French Privateer and carried into Teneriffe. Here both ship and cargo were condemned and we all put into prison, whence (through the good offices of a Mr. White) I got off, having lost everything, to a Portuguese brig bound to Lisbon where we safely arrived and from whence I procured a passage on board the "Mary," Captain Hicks (one of the last Portugal fleet), and arrived safely here but miserably emaciated and distressed both in mind and body."

"Having made various applications for employment without finding any place vacant that would suit me, I determined to write to you, and, in the meantime, to go to work as well as my strength would permit as a ropemaker, which I find however very irksome and difficult, but by the blessing of God I hope to be better off bye and bye, and if I could but get the American rascals to remit me some of my rent I should do tolerably well."

"Thus you have a narrative of particulars of the last five years of my life, which, as you see have been various and unfortunate and in some respects singular, and at different times my mind has been affected with sudden transitions from grief to joy and *vice versâ* ten times a day. Upon due reflection, without any substantial reason for either, such is the weakness of human kind."

"Upon the whole, I think I may safely say I have had a tolerable share of experience in the world, and I feel myself the better for it. * * * * * * Hoping to hear from you and assuring you that you have been always borne in my mind with real affection and regard, I am

Dear Hannam,

Your unfortunate but faithful friend,

JOHN DEBELL."

"* * * * * * My most respectful compts. await your good lady * * * My love to my mother and sister. I cannot finish my letter to them to-day, but will send it in a post or two."

As the writer truly remarks, his experiences appear to have been both varied and singular. It is to be regretted that his account was not more detailed in parts. We should have been

interested in reading how he accomplished his journey to Moscow, through a country torn and distracted by the horrors of active warfare, to a city which was so soon to be devastated and made historical by the lurid disasters of the retreat of the French army. It was a time when England stood alone, cast entirely upon her own resources, and when the odds against her seemed almost insurmountable. A little later the genius of Jervis and Nelson won the great battle of St. Vincent, and in 1805, six years after this letter was written, the crowning victory of Trafalgar once more gave Great Britain the supremacy of the seas.

ON THE ORIGIN AND DEVELOPMENT OF ORE DEPOSITS IN THE WEST OF ENGLAND.

By J. H. COLLINS, F.G.S.

Chap. V.—The relative ages of the West of England Ore Deposits.*

The facts set forth in the foregoing chapters, show clearly that eruptive rocks (granite and "elvan" or felspar-porphyry) have in some cases been forced into stratified rocks which were already mineralized, as in the case of the tin stockworks in the Killas. But these eruptives have themselves been broken through by still newer eruptives (the later elvans), while mineral veins of many kinds have been formed subsequently in the complex so produced. These veins have been classed according to their prevailing directions and varying contents as "elvans," "lodes," "cross-courses," "flucans," "slides," "trawns," "guides," &c.

It is now generally recognised that the more important of these veins nearly always occupy fault-fissures, and that they are of very different ages.

Nearly eighty years ago, Mr. Joseph Carne read a most important paper on this subject before the Royal Geological Society of Cornwall.† In this communication, after drawing a very just distinction between what were then called "contemporaneous veins (veins of segregation, &c.) and true fissure veins (lodes, cross-courses, &c.), he gives examples of such veins.‡

* Continued from Vol. XII, p. 75.

† On the relative ages of the Veins of Cornwall, Trans. Roy. Geol. Soc. Cornwall, 11, page 49 (Oct., 1818.)

‡The following are examples of such veins :—

Veins of granite in granite.
,, felspar in granite.
,, mica in granite.
,, schorl in granite and in slate.
,, schorl-rock in granite.
,, quartz in granite and slate.

Of the said "contemporaneous veins," probably none are truly contemporaneous. Most of them seem to be segregations into shrinkage cracks of small longitudinal extent and very irregular form, results of chemical reactions in the rocks themselves—or re-arrangement of particulars, &c., &c., while the elvan-courses may be looked upon as injections into fissures, which often exhibit evidence of faulting.

Adopting the well recognized principle already indicated in Chap. II and Plate X (see Journ. R.I.C., 36, p. 140), that the traversing lode is newer than that traversed, he grouped the lodes, &c., of Cornwall under the following eight categories:—

1.—*The oldest Tin lodes*, mostly underlying northwards.

2.—*More recent Tin lodes*, mostly underlying southwards.

3.—*Oldest East and West Copper lodes*, mostly with a northerly underlie.

4.—*Contra Copper lodes.*

5.—*Cross-courses.* Bearing generally within 20° of North.

6.—*More recent Copper lodes.*

7.—*Cross-flucans.*

8.—*Slides.*

Actynolite and thallite in slate and greenstone.
Axinite in greenstone and slate.
Garnet rock in greenstone and slate.
Prehnite rock in greenstone and slate.
Chlorite in greenstone.
Irestone (ferruginous greenstone) in slate.
Serpentine in greenstone and serpentine.
Greenstone in greenstone.
Asbestos in serpentine.
Agate in serpentine.
Calcite in limestone.
Jasper in mineral veins.
Opal in mineral veins.
Fluor spar in mineral veins.

And the following doubtful veins, viz:—

Veins of granite in slate.
,, steatite in serpentine.
,, calcareous spar in serpentine and in slate.
Elvan courses.
Certain veins of oxide of tin in granite.

For many years the classification of the Cornish mineral veins as regards age, has remained pretty much as Mr. Carne left it, and even now there is very little to correct in his statement except perhaps his too sharp distinction between "copper lodes" and "tin lodes" and the classing of the Elvan courses as "doubtful veins." But I think it may be shewn that including his eight sets of mineral veins and some others since recognized, at least 15 (or perhaps 16) distinct systems of fissures, all ore-bearing to some extent (except perhaps Nos. 14 and 15) have been produced in the district in post-carboniferous times. It is highly probable that there has been motion of the rocks at greatly more than 15 distinct epochs, probably no long time has ever elapsed without some movements, but of these fifteen sets of movements, there are still abundant traces visible. The following are the systems referred to :—

1.—*Older Elvan faults.*
2.—*Faults of the Granite junctions.*
3.—*Oldest Tin lodes.*
4.—*Newer Elvan faults.*
5.—*Older Tin lodes.*
6.—*Newer Tin lodes,*
7.—*Oldest E. W. Tin and Copper lodes.*
8.—*Older Caunter Copper lodes.*
9.—*Older Cross-courses.*
10.—*Newer E. W. Copper lodes.*
11.—*Newer Caunters.*
12.—*Newest E. W. Tin and Copper lodes.*
13.—*Newest Cross-courses and Flucans.*
14.—*Newest Flucans and Slides.*
15.—*Alluvial faults.*

In each case it is of course the first opening of the fissure which is adopted as a basis of classification. There is good reason to believe that very few, if any, of these fractures have been unaccompanied by faulting, although in some instances the displacements have certainly been very small, while in others favourable opportunities of viewing the actual intersections have

been wanting,* yet, we find that in a large majority of cases of intersection, displacements have been actually observed.†

As each new set of dislocations tends to modify, and to a certain extent obscure all those which have preceded it, the ideal reconstruction of this ancient district will perhaps be best followed by working backwards from the most recent to the most ancient fissures. We will therefore commence with those which appear to traverse the alluvial or at any rate the superficial deposits.

Class XV.—*Alluvial Faults.*

Under this head it will be convenient to refer all movements of the strata which have occurred since the formation of the tin-gravels and other more recent (post pliocene ?) detrital valley deposits. So far as is yet known they are not very numerous and of but small extent, but they are important as shewing that movements have taken place in comparatively recent times.‡ It

* Mr. Thomas says :—" As the changes of strata accompanying the lodes were not the objects of search with the miners, there has not been so much notice taken of them as to furnish any useful data towards the determination of this question (displacements of strata occasioned by lodes as distinguished from cross-courses), and in all probability we should not have learned anything satisfactory about heaves, had the tin and copper and other metals been contained in the cross-courses and not in the veins which are intersected by them." Report on the Chacewater Mining District, p. 24.

Again, Mr. Carne says :—" It is not at all strange that so few instances have been met with of the intersection of cross-courses by cross-flucans and slides; for however frequently these may occur they are not likely to be discovered except in adits which may be driven in the same direction, or unless they happen just at their intersections of metalliferous veins; for in general these cross-veins have nothing valuable themselves to make them worthy of pursuit." Trans. R. Geol. Soc. Corn. II, p. 111.

† Mr. Henwood says :—" Of 272 *lodes* traversed by *cross-veins* in different parts of Cornwall, 57 or 20°/₀ are intersected but not (heaved) displaced." As the " average displacement " of the remaining 80°/₀ throughout the County is close on 16 feet, it is probable that many of the 57 so-called intersections, without displacements, are really accompanied by small displacements which would scarcely be noticed in the intersections of lodes several feet wide, bounded in many cases by capels or walls of not very distinct mineral character."

‡Examples of such faults are given by Mr. S. R. Pattison (Trans. Roy. Geo. Soc. Corn., VII, p. 36) and by myself (Report Min. Assoc. of Cornwall, &c., 1872, p. 70). I may here mention that in some mines near St. Austell I have known the timber caps of levels, not more than thirty inches wide at top, to be gradually crushed together—sometimes after being placed only a few weeks and when timbers 10 inches square were used for the said cap-pieces.

is scarcely to be doubted that sensible earth-movements are still taking place in many parts of our mining districts, and in this connexion it is interesting to note that according to Professor Milne and other observers, a movement of a quarter of an inch is quite sufficient to produce such earthquake shocks as are commonly observed in the West of England and in Wales. Every such movement must occasion an earthquake, or at least an earth-tremor, and it is well-known that few years pass without such movements being experienced in the West of England. The enormous local pressures sometimes experienced underground are also probably due to similar local earth-movements.

Class XIV.—*Newer Flucans and Slides.*

"Slides may be defined as fault fissures containing clay and having a great underlie" (*i.e.*—a low inclination from the horizontal); flucans as similar fissures haviug a moderate underlie.*

Slides and flucans traverse and usually displace all the metalliferous veins as well as the spar veins or stony cross-courses of a district. Their bearings are very frequently near to those of the various metalliferous veins of their respective districts whether "Champions," "Caunters," or "North and South lodes."† They are no doubt in some instances, at least, very ancient as compared with the faults which I have called "Alluvial," but as they rarely contain either metallic ores (except sometimes oxide of iron) or quartz, and as they cut through every kind of metalliferous vein, it is probable that they have been formed since the circulation of metalliferous solutions has practically ceased. According to Mr. Henwood‡

* In some parts of the district, the terms *flucan* and *slide* are applied indiscriminately to all veins which are composed mainly of clay, in others only clay veins of low underlie whose bearing is nearly that of the lodes, are called slides, *all* other clay veins being called flucans; but more usually the terms are used as stated above. In this paper the term slide is applied only to clay veins whose inclination from the horizontal is less than 25°, all other clay veins being called flucans.

†Champion or right-running lodes have their bearings within 25° or 30° of that of the main axis of Cornwall, which is very nearly magnetic E.W. Lodes bearing within 20° or 30° on either side of the magnetic meridian, are known as North and South lodes. Those whose bearings are intermediate are known as Caunter or "Contra" lodes.

‡ Met. Dep., Trans. Roy. Geol. Soc. Corn., Vol. V, 282.

(and my own more recent observations agree with his) they sometimes dip away from the nearest granite, and sometimes in intermediate directions, but never directly towards it, and they are thought not to occur *in* the granite. Their breadth rarely exceeds one foot and is sometimes not more than two or three inches.

The amount of faulting produced by slides seldom exceeds a few feet, so that their mechanical effects on the strata are usually not great. The faulting due to the newest flucans, those belonging to this group, is perhaps usually greater than that due to the slides—the greatest of them however, that which heaves all the veins at Polgooth, only produces a vertical displacement of about 19 feet.*

In connexion with the slides proper we may here consider the "slidy ground" which has been met with locally in many parts of Cornwall. The so-called "Great Flucan" which traverses the Wheal Eliza lodes between St. Austell and Par is an example of such "slidy ground." Its width has been variously stated at fifty, eighty, and one hundred fathoms. Good examples of "slidy ground" were met with also at Wheal Trelawney, Wheal Mary Ann, and Herodsfoot, all near Liskeard. At Wheal Mary Ann, a broad band of broken ground which runs nearly E.W. and dips to the south, cuts off the lode completely in the South part of the mine after twisting it out of its course. This "slidy ground" nearly a hundred fathoms wide appears to be newer (i.e. its slidy character appears to have developed more recently) than the flucan in the same mine, which also intersects the lead lode.†

At Herodsfoot the "slidy ground" dips northward and also cuts off the lode. The nature of this "broken" or "slidy ground" met with in connection with the lead lodes of this district is very remarkable and well worthy of attention ..... The whole strata seem broken up by a succession of disturbances of a nature between cross-courses and slides ..... This broken

* In the case of what has been termed "slidy ground" the cumulative effect may be very much greater than is here stated. As a rule I believe the amount of vertical displacement increases with the increase of inclination of a fault from the horizontal—as might indeed be expected.

† Mining and Smelting Magazine, 11, 222.

ground generally extends for a considerable width, shattering and indeed obliterating the lodes to a great extent, although now and then detached pieces, sometimes rich, are found in it .....in Herodsfoot.....it shortens (narrows) in depth, as in my experience I have found to be almost invariably the case in the broken channels of ground of this kind.* The "Caunting Slides" (N.E. and S.W.) of Penhalls probably belong to this group.

CLASS XIII.—*Newer Cross-courses and Flucans.*

These usually contain more or less clay, especially where they cut through a Killas country. Very often too, they contain much crystallized quartz of the kind known as "cross-course" spar, believed by the miners to be a sure indication of poverty as regards ores of tin and copper at least. Not unfrequently there is a good deal of brown hematite present, as in many of the so-called "guides" of the St. Just district.

The amount of faulting occasioned by these veins is often very considerable. The "great cross-course" of the Redruth district is an example. They appear to have been formed after the deposition of the sulphuret ores had pretty nearly come to an end in the respective districts. As examples of veins belonging to this period (which however are probably not of *precisely* the same age) the following may be given:—proceeding from East to West.

1.—The flucan of slaty clay which crossing the lode diagonally at Wheal Franco heaves it 16 to 20 fathoms to the right.

2.—The similar flucan at Wheal Robert, Sampford Spiney, which heaves both cross-course and lode.

3.—The great spar course at South Caradon. Its contents are chiefly quartz and earthy red iron ore.

4.—The iron lodes at Restormel, near Lostwithiel, may be provisionally placed in this group, although they are perhaps much older. Here are two parallel lodes which have been somewhat extensively worked upon at intervals over a range of about two miles. The principal lode certainly can be traced

* H. C. Salmon, Mining and Smelting Magazine, II, 213.

much farther to the northward than this, as far at any rate as Blackpool and Balscalt. This fissure has certainly been re-opened a great many times. It exhibits the most extensive (although not the most varied) examples of combed structure I have ever seen, in its alternations of crystallized or radiated iron ores with white or yellowish quartz.* It has yielded many thousands of tons of iron ore of excellent quality, mostly brown hematite, but including *hundreds of tons* of finely crystallized Göthite, together with small pockets of oxide of manganese and lithomarge. In some years the yield from this mine has been as much as 30,000 tons, and in several years over 25,000. The Iron lode which has been partially opened up at Stonybridge some distance to the South, is probably of the same age as this and runs parallel with it.

To this period I believe we may refer the series of N.S. veins of quartzose brown hematite which has long been worked at intervals, but with only small economic success, in the parishes of Luxulyan, Lanivet, Roche, Bodmin, St. Wenn, Tregonetha, and many other places. These veins must not be mistaken for and confounded with the much more valuable veins of red hematite, which have been worked in a band extending from the Ruby Mine on the South, to Pawton on the North, and are referred to under Class IX.

5.—The extensive fault which coincides with the Fal Valley for a distance of at least 5 miles and has been worked upon for iron ore at Treviscoe, Kernick, Tolbenny, and other places, is probably of the same age as the Restormel Lode. A parallel lode passes through the "Churchtown" of Stephens, and farther south is known as St. Stephens cross-course; several minor ferruginous fissures are known in the district having a similar bearing and contents.

6.—The Penhalls cross-course, is of this period, also the cross-course which is nearly coincident with the Porthtowan valley, and may be readily traced from Porthtowan through North Downs mine and on past Redruth Highway. It appears to intersect and generally to heave all the other cross-courses and lodes which it encounters in its course. It falls in with the

* See Moissenet, Lodes of Cornwall, English Translation by J.H.C., p. 85.

"great cross-course" near Treskerby Mine at an acute angle and heaves it considerably to the right. It also heaves the junction of granite and slate in the same direction. Delabeche speaks of the great cross-course as heaving the granite junction, but a close examination of the district shews that the great cross-course is also itself heaved at this point. The heaves by this cross-course are similar in direction to those by the great cross-conrse, but generally much less extensive. Several other cross-courses in the Redruth, Illogan, and Camborne district appear to belong to this period, among them probably one or more of those which traverse the United Mines and possibly that which divides Dolcoath Mine from Cook's Kitchen.

7.—The so-called "trawns" of the St. Ives and Lelant district are probably some of this age and some older. None of them contain either tin or copper ores (except perhaps close to their intersections of such lodes). Occasionally there is a little iron ore present, but usually they contain granitic matter only while passing through granite, and slaty matter where they pass through slate.

8.—A great many of the "guides" of the St. Just district belong to this period, others appear to be older.

Class XII.—*Newest East and West Tin and Copper Lodes.*

These are probably very numerous, but they seem to occur chiefly in the mining districts from St. Agnes to Gwinear, the "West Central District" of Mr. Robert Hunt. Up to the present we have perhaps no absolute proof that some of these are earlier in origin than the cross-courses and flucans of Group XIII, but their earlier type of filling would seem to indicate that such is the case; and at Penhalls mine the E.W. tin-bearing slides are certainly older than the Penhalls cross-course.

The following lodes also belong to this class, in all probability, viz.—

Wheal Duffield, Holman's lode.
Relistian lode.
Trevascus lode.
Dolcoath, North Entral lode.
,, South ,,

East Pool, North lode.
,, South ,,
Wheal Buller and Beauchamp, Davey's lode.
North Downs' lode.
Wheal Peevor, copper lode.
Constantine, iron lodes.
Wheal Trannack (Sithney), copper lode.
Pawton East and West iron lode.

Class XI.—*Newer Caunters.*

These often contain lead ores, and they are faulted by the veins of Group XII. The following are probably of this period, viz.—

St. Ives, many of the "trawns."
Binner Downs, the Silver cross-course.
Providence Mine, Gwinear, the caunter lode.
West Wheal Darlington, North lode.
East ,, ,, South lode.
United Mines, Bawden's flucan.
The Perran Iron lode.

Class X.—*Newer E. W. Lodes.*

These mostly contain copper, but there is often tin in depth, some also contain tin as the cementing material of a breccia which in some instances at least contains fragments of an older coppery "leader." The following are probably of this group:—

Herland Mine, Bull's lode.
,, ,, Manor lode.
,, ,, Half-penny lode.
Binner Downs, South lode.
West Wheal Darlington, South lode.
East ,, ,, North lode.
Carsize lode.
North Downs, Wheal Peevor lode.
Great St. George and W. Leisure, South lode.
,, ,, ,, Kernick's lode.
East Wheal Charlotte lode.
Wheal Towan, Great lode.
South Wheal Towan, South lode.

Wheal Devonshire, Carn lode.
Wheal Prudence, North lode.
East Crofty, Longclose lode.
Tincroft, High-burrow lode.
,, Dunkin's lode.
Dolcoath, Main lode.
,, Harriett's lode.
South Crofty, Pryce's lode.
North Roskear, South lode.
United Mines, Bawden's South lode.
,, Nicholls' branch.
,, Mundic or Buzza's lode.
,, Old lode.
Consolidated Mines, Glover's lode.
Wheal Buller and Beauchamp, South lode.
Tresavean lode.
Fowey Consols, Jeffery's lode.
,, Black's lode.
Marke Valley, Old Sarum lode.
,, Marke lode.
Gunnislake Clitters, main lode.
Devon Consols, main lode.

CLASS IX.—*Older Cross-courses and Flucans.*

These generally contain an abundance of quartz, often mingled with clay in parts of their courses, and very frequently with ores of lead. Sometimes the lead is accompanied by ores of copper either intimately mixed or forming distinct bands or pockets. Chalybite is also a very common component.

It is doubtful whether any of the N.S. faults to the east of Dartmoor can properly be referred to this period, except the important group which has been somewhat extensively worked for lead ore barytes and carbonate of iron at Christow, Frank Mills, and South Exmouth, in the valley of the Teign. The principal fissure in this group has been traced along the valley of the Teign for five or six miles in a direction a few degrees of north, and is nearly coincident in its northern extension with the little tributary which enters the Teign at Lea Cross.

At Ilsington and Hennock, near Haytor, several iron-bearing cross-courses are known which course a little to the

N. of W., parallel to the Bovey River. It is quite possible that these are of later origin than the Teign Valley lode, but they may be provisionally placed in the same class.

Proceeding westward, another galena-bearing cross-course, having a very similar bearing, has been traced for a distance of several miles at Holestock, near Belstone Consols, on the north of Dartmoor. Two miles further to the west, still another crosses Okehampton Park in a N.E. direction.

Still proceeding westward, in the trough between Dartmoor and Hingston Downs we meet with a very important group of cross-courses. Within a distance of not more than seven miles there are no fewer than ten or eleven great fault fissures besides a considerable number of smaller ones. These fissures are of two, if not three, different ages, and run in as many different directions. All are, however, included within an angle of about 45°, from 10° E. of N. to 35° W. of N.* The once famous lead lodes of Beeralston belong to this series, their course is a few degress W. of N.

The most easterly of this group is first seen at Wheal Reform, one mile east of Lydford, it cuts through the western part of Wheal Betsy and Wheal Friendship in a direction 5° to 10° E. of N., underlying W. Another which accompanies it has a course about 20° W. of N., it passes between that just mentioned and the town of Lydford. A very important cross-course occurs a little farther to the west, whose course is about 22 W. of N. It is first seen at Blackdown, and passes southward through Mary Tavy and Burford to Penycombe Creek, a distance of over four miles. It has a companion about half-a-mile to the east, which passes just E. of Petertavy and forms Wheal Friendship great cross-course.

Another, more to the west, has a similar course, passing through the eastern part of Wheal Franco. In cutting through the great elvan course which lies to the north of the mine it heaves it about a quarter of a mile to the right.

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*"Cross-courses are very numerous, and their *heaves* rather considerable; at Wheal Betsy and Redmoor, which are both in slate, they have yielded large quantities of Galena mixed with carbonate of iron." Henwood, Trans. R.G.S.C., V, p. 139.

Another runs 10° to 15° W. of N. through the western part of Wheal Franco—it does not appear to heave the elvan.

The next two pass through Tavistock; the seventh has been traced from Down House farm, half-a-mile west of Tavistock to the Virtuous Lady mine,—a distance of three miles,—its course is about 22° W. of N.

The eighth has the same bearing, it extends from Mill Hill Slate Quarry to Morwell Downs, through several mines now abandoned.

The ninth and tenth bear 35° W. of N., from Greenaver Wood to Rumley, ¾-miles S.E. from Calstock.

The eleventh is 5° to 10° W. of N.—it passes from 1¼-miles above Calstock to the Tamar, near Hall's Hole—a distance of over 4 miles. Its prolongation passes right down the valley of the Tamar past Saltash. It has been worked extensively in several places for lead—notably at the Beeralston mines.

The twelfth is parallel to the eleventh, and about half-a-mile to the westward—it has also been worked for lead. Its prolongation corresponds with an important reach of the Tamar.

About a mile farther west is Gunnislake Clitters copper mine, where the "great" cross-course running almost exactly N.S. and dipping westward, heaves the lode several fathoms to the left. It is accompanied by several minor parallel courses of similar bearings, which similarly affect the lode.

Still proceeding westward we pass over a band of three or four miles, in which no notable cross-veins have been discovered, after which we arrive at the group of Holmbush, Kelly Bray, and Redmoor, a little to the west of Kit Hill.

The most important member of the group is that which passes through Holmbush and Redmoor mines. It runs a little E. of N., underlies W., cuts through Johnson's lode, the great Gozzan lode, and Trelease's lode. The heaves are very slight except in the case of Johnson's (underlying S.) which at the 20 and 30 is heaved 5 feet to the left. This cross-course has been worked for lead, and in one place about 120 fathoms deep, where the writer saw it in the Holmbush mine in the year 1892; it consists of a mass of siliceous breccia in which galena forms the

principal cementing material. One member of the group appears to extend northward as far as Venterden, near Stockeclimsland.

Passing over another band of 3 or 4 miles, we arrive at another important group of nine or ten lead-bearing cross-veins, all of which occur within a space of 2 miles. The most notable first appears near Egloskerry, passes through North Yeoland to Wheal Trelawney and Wheal Mary Ann—a distance of 10 or 12 miles.* Its course is very nearly 5° to 10° W. of N., it dips E. about 85°, and it has yielded immense quantities of rich galena at the two mines named. This is one of the very few veins in Cornwall which has yielded Barytes as a veinstone. Near Holloway's Cross it carries the boundary line of the Upper Devonians suddenly one-third of a mile to northward. It is crossed at an acute angle at North Yeoland by a vein running about 25 W. of N. The vein which has been worked further S.W. at Herodsfoot for lead belongs to this group also.† It runs from 8 to 12° W. of N. and dips steeply to the E. It is nearly parallel to the Valley of the Duloe.

Wheal Ludcott is about 1½ miles N.N.E. of Trelawney. Here are two parallel lodes running nearly N.S., and dipping E. 70° to 80°. These lodes are very close together, and about half-a-mile E. of the Trelawney lode.

A little to the north and west of the Trelawney mine is the very rich Caradon district, where a group of 3 or 4 cross-courses is associated with some of the richest copper veins ever discovered in the West of England—all of which, however, are now abandoned.

The great cross-course at Phœnix mine bears very nearly true north like the Trelawney lead lode. It intersects and heaves the Phœnix lode to the left and the Wheal Prosper lode

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* This is the lode traversed and heaved by the "slidy ground" already referred to.

† Herodsfoot is situated at the boundary of the parishes of St. Pinnock and Lanreath, about 7 miles S.W. of Caradon. It is "the oldest mining work in the neighbourhood of Liskeard, is rather curiously situated at the confluence of four steep valleys, through the principal of which the Duloe flows nearly due south to its junction with the Looe."—Salmon, *M. & S. Mag.*, 11-211. From 1844 to 1868 the following profits were made:—Wheal Trelawney £56,914, Wheal Mary Ann £65,585, Herodsfoot £49,348.—Henwood, VIII, 719.

to the right, it also intersects and heaves the E.W. lodes in the Caradon and Gonamena mines.

On Mr. Symons's map another cross-course is marked a little to the east of the above, and two to the west, the latter passing southwards through West Caradon mine. All three heave the lodes they intersect, and all bear some 10 or 12° W. of N. The junctions of these cross-courses with the great Phœnix cross-course have not been seen. The middle cross-course which passes through S. Caradon mine affords a fine example of successive openings and partial fillings of a fissure. In the mine itself it consists of three separate branches, running respectively N.S., 8° E. of N., and 18° to 24° W. of N. These branches separately and similarly heave the lode, but passing southward they form one vein of several distinct "combs," each of which similarly heaves the lode.

About 3 miles farther to the west is the N.S. (22° W. of N.) lead lode of Bodithiel, and a mile or two farther is the lead lode at Wheal Jane, a little to the east of Glynn Park. This latter in its southern prolongation corresponds pretty accurately with the iron lode which has been worked at Rye Downs, near Bodmin Road Station. A little farther to the west is another lode running almost exactly N.S., which has yielded copper, lead, and silver, at Beacon Hill, near Lostwithiel.

The next vein which appears to be of this age is the lode of red hematite, which runs 18° W. of N. and dips E. 85°, and has been worked at Wheal Treffry above St. Blazey, and traced northward for several miles. For some considerable distance its course is parallel with the beautiful Luxullyan Valley.

About 2 miles farther to the west is the first of a series of red hematite veins, which may be traced almost from sea to sea, across granite and slate alike, in many separate over-lapping veins (*en echelon*), each of which has a direction a few degrees W. of N. and dips a little W. Where the country rock is hard these veins often become mere strings, but where it is moderately soft they swell out to 3, 6, or even 12 feet wide, yielding considerable quantities of very pure hematite, and in one instance the deeper parts of the workings yield chalybite also. The most extensive workings on this series of veins are those of the Ruby mine, 2 miles N. of St. Austell, where the vein has been followed to a

depth of over 60 fathoms from the surface. Proceeding northward and westward, veins of this series have been worked to a greater or less extent at Knightor and Treverbyn, Rosevear, Treskilling, Lanjew, Coldbriggen, Withiel, and Pawton, the depths attained hitherto in these mines varying from 20 to 40 fathoms from the surface. The Pawton lode* bears 18° W. of N., and underlies eastward about 1 foot in a fathom; it varies from about 1 to over 30 feet in width, averaging from 6 to 8 feet, where worked. The lode is in one place heaved by an E.W. vein which perhaps belongs to class XIV, it underlies about 1½-feet in a fathom northward. This vein is generally very quartzose, and the iron lode is much more siliceous than usual near the junction, while the intersecting vein itself contains some iron ore near that point. It has not been explored to any distance away from the iron lode. Parallel lodes containing iron ore are known to exist on either side of the main lode, but these have only been worked on to a very small extent. These red hematite veins, which are usually very free from quartz, are crossed by a series of veins of brown hematite containing much quartz at Coldreath, Savath, Canna, and other places, as already stated.

More to the north are a number of lead lodes, coursing about 20° W. of N., some of which contain copper ores also. That which passes down Halwin Creek and crosses the Camel near Cant Hill, is probably the direct continuation of the Pawton lode; another which passes from Little Petherick to the head of Credis Cove, has been worked somewhat considerably at Credis mine; and a third having a similar direction has been slightly worked a furlong or so westward of St. Merryn churchtown. Between the Halwin and Credis veins is the great N.S. fault which cuts through Padstow, extending from Dinas Cove to the Day-Mark, a distance of nearly 4 miles. I am informed that this also has yielded lead ores in the neighbourhood of Padstow.

Keeping along by the N. coast and passing westward for several miles farther, we arrive at the group of lead veins, bearing almost exactly N.S., which have been worked in the neighbourhood of Trewollock, Trewinnick, Trewinnel, and Trethollan, in the neighbourhood of St. Columb and Newquay.

* Collins, *Rep. Miners' Assoc. Corn. and Devon*, 1875, *p.* 27.

None of these have proved very rich in the localities named, but the Trewollock vein followed southwards leads to the N.S. veins, which formerly yielded so largely at East Wheal Rose,—the Trewinnick vein corresponds in direction with the veins of Sheppards and Gwarnic (Garras), and followed still further, Trefusis. The Trethellan vein is nearly in line with the great fault, which traversing the Chiverton district, passes by Treworder, through Liskes, and on by New Bridge, Killiow, Devoran, and Carclew, and finally reaches the sea at Swanpool.

The lead vein at Wheal Golden, which bears about 30° W. of N. is perhaps of somewhat newer date than those just mentioned —it may correspond in age with the principal cross-courses of the St. Agnes, Redruth, Camborne, and Illogan Mining districts. It is probable enough that some of these latter, like the West Golden vein, would yield lead but for their proximity to the granite, which in Cornwall and Devon has always proved "uncongenial" for this metal. There is indeed a little lead in the cross-courses at North Busy, Wheal Jane, Wheal Falmouth, and a few other places.

The next group of lead-bearing cross-veins is that which has been worked on the south coast at Wheal Rose, and Wheal Penrose, near Helston. These veins run a few degrees W. of N., the greatest deviation being at Wheal Penrose, where the chief lode runs about 14° W. of N. underlying E. about 75°.

The lode at Wheal Rose which has yielded considerable quantities of lead and some copper ore, followed northwards becomes known at Woolf's cross-course, where it crosses the Metal and Vor lodes and yields quartz only.* The same vein (so it is believed) still farther to the north in Godolphin mine has yielded much rich grey copper ore.

I do not think any of the veins farther west have as yet been satisfactorily indentified as belonging to this series, though possibly some of the Marazion veins may be hereafter found referable to it.

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*It is said with traces of gold, and it is worthy of note, that the pyrites of the western end of the Wheal Metal lode contains traces of gold also. I mention this as a matter of mineralogical interest, but I do not think the gold "payable" or likely to become so hereafter.

Class VIII.—*The Older Caunters.*

These are essentially copper lodes, but some have yielded tin in depth, and probably all would do so if followed down sufficiently. So far they have only been definitely recognised in the country between Truro and Penzance. I am disposed to refer the following to this series:—

Providence (Gwinear), Caunter lode.
Herland ,, Fancy Caunter lode.
North Roskear, Caunter lode.
Dolcoath, ,,
Carsize, ,,
East Pool, ,,
East Crofty, Longclose Caunter lode.
Wheal Prudence, Caunter lode.
Consolidated Mines, "Elvan Slide"?

Class VII.—*The oldest E. W. Tin and Copper Lodes.*

These have often been worked to considerable depths, but almost exclusively for copper, although their gozzans and sometimes their capels have yielded small quantities of rich and highly crystallized tin ore. It is probable that all would prove to be mainly tin lodes if followed down beyond 100 to 150 fathoms.

The *St. John's Gozzan lode* at Wheal Peevor, long ago described by Mr. J. Williams, who states that it had been traced for about a mile in length (Trans. Geol. Soc, London, Vol. IV, p. 139) is apparently a typical example of this group. The following additional examples may be placed here:—

Great St. George Mine, Calloway's lode.
United Mines, Bawden's lode.
North Roskear Mine, Engine lode.
Fowey Consols, Cross-path lode.
,, Bone's lode.
,, Williams's lode.
,, Trathan's lode.
South Caradon Mine, Jope's lode.
,, Clymo's lode.
,, Main lode.
,, Kitto's lode.

South Caradon Mine, Jope's South lode.
,, Pearce's lode.
,, Dowling's lode.
,, Vivian's (N.) lode.

CLASS VI.—*Newer Tin Lodes.*

These appear to be essentially tin veins, only containing copper exceptionally, and then apparently as a filling after re-opening. Veins of this age are particularly numerous in the St. Agnes district. The following may be taken as examples:—

The Wheal Peevor tin lode, which courses nearly E.W. and underlies south, about 2 feet in a fathom. This lode varies in width from 3 to 30 feet, with an average width of about 8 feet, "and has been generally found richest where it is widest." (See J. Williams, Trans. Geol. Soc., London, IV, p. 139).

The Penhall's "dowright" lodes are also apparently of this period. They are 3 or 4 in number—course nearly E.W., and average 1 foot in width. Some of the lodes at Polberrow (South House lode and Great Gozzan lode), at West Pink Mine (Great Gozzan lode, and Carrow's lode), the Great Flat lode on the south side of Carn Brea Hill, and the Budnick Caunter lode are probably of this age.

CLASS V.—*Older Tin Lodes.*

Of these some (in the Parish of St. Just) have a N.S. course; others in the St. Agnes district and near Redruth course E.W., and are either perpendicular or dip northward, intersecting and heaving any elvans they may encounter. The following list includes all the lodes that I have been able to assign provisionally to this age:—

Botallack, Crown's lode.
,, W. Hazard lode.
Boscaswell Downs lode.
West Spearn, Great Work Scovan.
,, Spearn Scovan.
West Bellon, West Owles lode.
North Downs, Main lode.
,, Pendarves's lode.
,, Tenpenny lode.

West Pink, Tin lode.
Wheal Prudence, South lode.
Penhall's, North underliers.
Polberrow, South branches.
,, Trevaunance lode.
,, Pye's lode.
Polgooth, Little Bound's lode.

Class IV.—*The Newer Elvans.*

The well-known elvan courses which cut through stratified and unstratified rocks indiscriminately, appear to occupy lines of fault as may be readily seen by carefully comparing the country rocks on either side of them.* Often there is a difference of hardness or of colour, occasionally of mineral character or of strike, and like the lodes they sometimes include portions of the country rock.† They may be regarded as fault-fissures with granitic filling. The dips and strikes vary a great deal, and there are often curves and branches on a small scale, but in most cases there is a general coincidence observable between the direction of the elvans and of some one set of joints or lodes in any particular district. The dips are usually from 40° to 60° from the horizontal as stated by Mr. Henwood, this is considerably less than the mean dip of the tin and copper lodes.

Some able practical geologists have been much troubled to account for the occurrence of elvans, considered as masses of matter which have been forced from below into the solid rock. Thus Capt. Charles Thomas says:—"referring to the great elvan at Dolcoath, some geologists would have us believe that this mass of elvan, several miles in length, of nearly a uniform breadth of 60 feet, was thrown up at some period or

* Mr. Thomas long ago saw this analogy between elvans, lodes, and cross-courses. He says:—

"It is very probable that at the opening of some of those chasms in which the elvan courses are formed (if they have been formed in this way), or of some of those fissures in which are the lodes, the ground may have been shifted in a similar way to what appears to have happened at the cross-courses... ..... some circumstances relative to the walls of the lodes bordering on the granite ground, being on one side granite and on the other side killas, will further countenance such an opinion." (Rep. in the Chacewater district, p. 23).

† As for instance the well-known Pentewan Elvan.

other, from unknown depths in a molten state; that it could be upheaved with such force as to cleave asunder and throw back the stratum of clay state, rise throughout its whole length exactly to the surface and leave no impression of the effect of intense heat, no signs of disturbance in the regularity of the stratification or the uniformity of its dip. This elvan course has recently been cut through in Dolcoath Mine 200 fathoms below the surface. At that depth the breadth is still nearly the same as at the surface; the inclination of 45 is still preserved, and the clay-slate on both sides rests as evenly against it as if it were a mass of fleshy fibres surrounding an animal bone. Can you believe such a theory with such facts as those before your eyes? I think not."* If we regard the elvans as injections of granitic material in a semi-fluid (pasty) state into previously formed fissures, most of the force of this able miner's objections disappear at once.† Doubtless we must avoid confounding the forces which produced with those which filled and perhaps enlarged the fissure.

Excluding a few elvans which have special directions, and which at the same time be it remarked often have special mineral characters, the most important elvans occur in four natural groups, characterizing as many localities as follows :—

1. The great series extending from Penzance to Truro; some of these elvans have been traced for 8 or 10 miles, their general bearing is from 20 to 30 S. of W.

Sub group (*a.*) Elvans of Carn Marth and north of Carn Menelez.

Do. (*b.*) Elvans of Perran-ar-worthal and south of Carn Menelez.

Do. (*c.*) Elvans of St. Agnes and Perran.

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*Remarks on the Geology of Cornwall and Devon, Lecture 11, p. 13, (1859).

† It will be remarked that Capt. Thomas himself falls into error in stating the case. It may be that in the particular case he refers to, there are no signs of disturbance in the regularity of the stratification of the country rock, but such signs of disturbances are far from uncommon. Again he ignores some leading "elements" of Physical Geology—effects of denudation and the like—when he uses the words "rise throughout its whole length exactly to the surface." Further, no one would expect the effects of intense heat which come from such comparatively insignificant intrusions of moderately heated matter, probably not more than 700 or 800° if so much, to be visible.

These all strike South of West, although of the sub-group *b*, some turn very much northward near Perran and Penryn. In the main all the sub-groups strike with the strike of the rocks, although the dips or underlies are often different.*

2. St. Austell series. General direction, a few degrees N. of W. Sub-group *a*, St. Mewan, N.N.E. These elvans mostly make acute angles with the strike of the rocks.

3. E.W. series, St. Neot to Watergate Bay. These mostly run nearly or quite in the strike of the rocks.

4. E.W. series, Bodmin granite to Dartmoor. These also correspond pretty accurately with the strike of rocks.

Although the elvans cut indiscriminately through stratified and unstratified rocks, they can rarely be traced very far into the hearts of the various granitic masses,† and when they are so formed, their mineral character is usually much altered, more particularly they are often seen to be fine-grained and much decomposed.

The veins of fine-grained granite which frequently cross the ordinary granite, and the "veins of granite" in the lode at Wheal Vyvyan, are probably faults with granite fillings just like the ordinary elvans. These still remain as lines of weakness in some instances, as for example, at West Gwallon and Ting Tang, where the lodes for some distance have a wall of elvan on one side and of killas on the other. Probably many other such instances exist, but are undiscovered because of the absence of mineral riches in the secondary fissure, as already stated. Many of the elvans are notably stanniferous or cupriferous.

Class III. *The Oldest Tin Lodes.*

Of lodes older than the bulk of the elvans, very few examples are certainly known, but they are probably more numerous than is generally supposed. Those that are known, invariably

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*"It is not usual for the strike and *dip* of elvan-courses to run parallel with those of the laminae of the schistose rocks, this coincidence, however, occurs at Herland." Henwood, V, 115.

† It has been suggested as an explanation of the difficulty of tracing the elvans into the granite masses, that perhaps these masses were still soft and pasty in the interior, and so could not remain open as fissures at the time when the elvans were injected.

contain tin. The "St. Martin" and "Screed" lodes at Polgooth Mine are certainly heaved by the "great elvan," as already stated,† and it is not unlikely that some of the tin lodes of the parish of St. Just are of similar antiquity. Here, too, should, I think, be placed the stanniferous deposit (Stockwork) of Wheal Vyvyan in Constantine, which is thus described by Mr. Henwood.

"It has the character of an enormous granitic lode, bearing 20-30° S. of W., and dipping 35-50° N., is from 5 to 10 fathoms wide, and in some places even more. Its composition differs little from the *country* near it, except that, perhaps, it contains a rather smaller proportion of mica; they have both a porphyritic structure with buff and flesh-coloured crystals of felspar. The whole substance of the *lode* is thinly interspersed with tin-ore, copper pyrites, and also with spots of iron pyrites, and here and there a little vitreous copper-ore. These metalliferous minerals are, however, chiefly disposed in small veins and strings, which most commonly have the direction of the *lode,* and generally a northern inclination; the joints in the rock seem to coincide with the veins both in bearing and dip, and where there are crevices in them their faces are commonly coated with fine crystals of tin-ore.

There are also veins of granite in the *lode* which dip S., and sometimes cut off the small strings of tin and copper-ores, throwing them upwards.

The whole of this remarkable deposit resembles those of *Balswiden, Cligger, Carclaze,* and the *Bunny* in granite, and of *Wheal Music* and *Polberrow* in slate, except that in neither of the others do the ores of tin and copper occur together.*"

Here, too, may be placed the lode of West Vor in Breage, where the elvan, according to Mr. Argall (Rep. M.A. of C. & D.), on coming "into contact with the lode, destroyed it, and it could

*It is not, indeed, improbable that there are two sets of tin-lodes existing at Polgooth, one older than the other, and both older than the great elvan. According to the plan given by Mr. J. Hawkins (*Trans. Geol. Soc. Cornwall,* 1, 152.) Vanvean lode is heaved by the elvan and itself heaves Screeds and St. Martin's lodes.

† Henwood, Trans. Roy. Geol. Soc., V, pp. 72, 73.)

not be found after, although a good sum was expended in search of it.....the lode was never found under the elvan." The same elvan passes on to Great Wheal Fortune, where it heaves the lode and branches. At Great Wheal Vor, according to the same author, the elvans pass through the tin lodes without heaving them. Another elvan similarly heaves the No. 2 tin lode, at New Hendra Mine, in the same parish.

CLASS II.—*Faults of the Granite Junctions.*

The maps of the Geological Survey shew the various granite masses as if bounded in general by curves, with the stratified rocks bending round them. This is no doubt correct in many instances, but a close study of these junctions, as seen in mines, quarries, sea-cliffs, road-cuttings, and the like, shows that in many places at any rate the junctions consist of fault-planes which have little or no relation to the strike of the slates and schists. It is true that the granite often sends off veins into the slate, especially, perhaps, where its strike forms a considerable angle with the general line of junction. It is true, too, that the slates are generally elevated considerably around the various granite masses, movements having taken place when both granite and slate were so far beneath the present surface as to be in a soft or pasty condition. Subsequent movements of elevation appear to have taken place along lines of fault, as at Cligga, Ponsanooth, Carclaze, and many other places, and some of the displacements are of considerable extent, as was formerly to be seen on the south side of Carclaze clay-pit. The granite itself, in the neighbourhood of these junction faults, is very much kaolinized, and more or less permeated with schorl or even converted into schorl-rock. This rock frequently contains disseminated particles of tin, although the fissures themselves contain too little tin to be reckoned as tin lodes. The adjoining slates are also highly metamorphosed, sometimes, and particularly around Dartmoor, into andalusite schist—more often into "spotted killas" filled with incipient crystals of andalusite, garnet or other minerals,—sometimes into a wrinkled micaceous schist, and in the centre and West of Cornwall, very commonly into true tourmaline schist, as at Carclaze Hill, Cligga, the flanks of Carn Marth above Ting Tang, Wheal Vor, and many other places.

Class I.—*The Oldest Elvan-courses.*

These are heaved by the oldest tin-lodes, as in the case of the "little elvan" at Polgooth, which is heaved by St. Martin's lode. Probably the elvan at Foxhole, near Nanpean, and other elvans of the St. Austell granite district, having a highly felsitic filling, and sometimes a little oxide of tin in the joints and shrinkage cracks, are of this age. Similar felsitic elvans may be traced to small distances into the granitic masses wherever china clay abounds. A few, too, are known in the killas, as at Newham near Truro, and Trelaver Downs in St. Dennis,* but usually the elvans in the slate are much more distinctly porphyritic in character.

Concluding Remarks.

It appears to the writer that the facts set forth in the foregoing chapter suggest the following as "a working hypothesis, which, if it does not explain every fact, is inconsistent with none."*

1. The stratigraphic relations of the sedimentary rocks of the West of England Mining District were essentially the same as they are now before the granitic eruptions took place; carboniferous rocks resting on Devonians in the eastern part of the region; Devonians resting upon Ordovicians, and these upon still older rocks in the West. It was already a very ancient land which had been elevated and depressed, crumpled and contorted, at many different periods; furthermore, each stratified series seems to have been subject to the intrusion of sheets or dykes of eruptive rock, to as to include thick beds of lava or of volcanic ash.

2. The successive elevations had been followed by extensive denudation, so that in many cases the newer series reposed unconformably upon the older ones below it.

3. The pre-granitic eruptive rocks seem to have been all basic, pyroxenic, or amphibolic, rarely if ever trachytic, and, locally, there was much magnetite and olivine present. Leaving out of consideration the Lizard district, the "serpentines" of

*See Trans. Roy. Geol. Soc. Corn., IX, p. 226.
*Clodd. Story of Creation, Introductory, p. 3.

Duporth, Clicker Tor, and Polyfant, and the pseudo-basalts of Brent Tor were probably among the latest of these pre-granitic eruptives. The latest of all were, perhaps, the mica-traps which have been traced as more or less continuous dykes, running in a meridional direction from St. Keverne, some miles south of the Helford river, up the Truro river, past Liskes and Cargoll to the north side of the Valley of the Gannell near Newquay. This series* is pretty certainly much older than the oldest of the felsitic or granitic elvans, although actual intersections of the mica-traps by such elvans have not been seen except, perhaps, at Treliske.

4. The principal cleavages and jointings of the rocks, as we now find them, were also in existence; but the contact metamorphism which is now so obvious was wanting, and there were few, if any, metalliferous deposits other than certain bands of magnetite in the basic eruptives, and, perhaps, the cupriferous and garnetiferous belt at Belstone, near Okehampton. Fossils were much more numerous, and much better preserved, but there were probably many beds entirely unfossiliferous.

5. The granitic intrusions only slightly affected the then existing strike and dip of the stratified rocks. But the strains occasioned by these elevatory movements could not fail to produce openings in the overlying strata, thus establishing channels through which stanniferous and other mineral solutions could rise from the depths, so as to impregnate and metamorphose the rocks for many hundreds of yards, thus producing what has been called the "granitic penumbra." The mineral springs thus established probably contained a great variety of chemical substances, including especially the characteristic constituents of cassiterite, schorl, and various metallic sulphides.†

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*Described by the author, Journ. Roy. Inst. Corn., Vol. VIII, p. 190. 1884.

† It is pretty certain that soluble compounds of fluorine and boron were more abundant in these early solutions than the tin itself, and these acting upon the iron and silica already present in the stratified rocks, would be sufficient to produce all the tourmaline now seen in the "tourmaline schists" and "schorl rock" which are so characteristic of the junctions of granite and "killas," as well as in that found in the early tin-lodes and in the tin strings of the stock-works.

6. The movements which first gave rise to the mineral springs would open many cavities in which the first deposits from them could be formed, the earliest of all being stanniferous, followed by the sulphides of copper and iron; still later by sulphides of lead and zinc, and, perhaps, last of all, by products resulting from the oxidation of these sulphides.

7. As regards the period of these granitic eruptions, our best evidence exists on the flanks of Dartmoor. Delabeche was the first to show that the Dartmoor granite has broken through lower carboniferous rocks, and that the Permian conglomerates of South Devon contain fragments of granite, elvan, schorl-rock, and lime-stone. In other words we may say that the eruptions were post-lower carboniferous and pre-permian, probably of about the same age as the great basaltic intrusions of the English coal-fields. The rocks which surround the granite masses in Cornwall are all of much older date than the carboniferous period, so that the evidence westward is not quite so clear, nevertheless, the phenomena of all the various granite bosses are so similar and their mineral composition is so nearly identical, that it is natural to conclude that they are in fact portions of the same deep-seated mass, and that all made their way through the strata about the same time.

8. The first elevatory movements of the granitic substratum began at a considerable depth below the then existing surface, and while the over-lying stratified rocks were much depressed below the sea level. The actual elevation may not have been great, for after they had been injected, first by veins of granitic matter, and then by dykes of felsitic matter of nearly the same ultimate chemical composition, they were broken through at various points, and eruptive material, miles in thickness, was piled up over the stratified rocks which surrounded the openings, as well as over the openings themselves.

9. This great accumulation of eruptive material was naturally followed by a period of great depression, preceded and accompanied by an enormous amount of denudation. The Permian conglomerates of South Devon are results of this denudation, their colour being due in all probability to the ferruginous contents of the denuded rock material, aided by the

out-flow of the mineral springs, which must then have been in full operation. There were probably similar conglomerates formed at the same time westward and northward, but if so, they have since been entirely removed by denudation.

10. It is probable that the general schorlaceous and stanniferous impregnation of the "granitic penumbra," and even the early stanniferous concentrations into cavities, took place before the elevatory strains had been relieved by the rupture of the stratified rocks; and at great depths below the present sea-level. The impregnation of the rock masses with sulphide solutions of copper, lead, and zinc, had also taken place in all probability, perhaps at the time of the basic intrusions above referred to, but the concentration of these substances into the re-opened or later-produced fissures seems to have been effected at much later periods for the most part. The "roots of the mountains" have since been exposed by the subsequent elevation and denudation above referred to.*

11. We have seen that the earliest tin deposits are cut through by the newer elvans, whose formation was followed successively by that of our metalliferous fissure-groups, V to VIII. Then the oldest cross-courses, many of them containing lead and iron, were formed and filled (Group IX) and these were followed by the newer E.W. Copper lodes in which tin is nearly or entirely absent; then came the newer caunters containing little besides quartz, and by this time we have probably arrived at post-cretaceous times.

That there were N.S. faults of this period is well-known. Thus at Combe Beacon near Combe St. Nicholas, in the Blackdown Hills, is a N.S. fault which carries down the chalk.

Passing to the south at Wanbrook the lias and greensand are brought into juxtaposition by a displacemment of above 200 feet vertical. Other N.S. faults in the same district are known

* We have clear indications of the great amount of this denudation in Mr. Sorby's observations and experiments already alluded to, and also in the wide extent of the great plane of marine denudation which extends for hundreds of miles around Cornwall, the present peninsula being a mere central strip of the land which formerly existed.

The full consideration of this immense period is foreign to our present subject, which is limited to that portion of it during which mineral veins were being formed.

to be of post-cretaceous date (Delabeche, Rep. &c., p. 290.) It is quite probable that these N.S. faults have their counterparts in the newer N.S. cross-courses of the mining district to the westward.

To the N. of Exeter near Killerton Park there are E.W. faults which are post-permian or post-triassic (Delabeche, p. 294), but probably older than the N.S. faults just referred to. The Upton Pyne manganese deposits occur parallel to the Killerton Park faults and let down the new Red Sandstone. In the Mendip Hills, the existence of a N.S. pressure acting subsequently to the deposit of the lias (?) is shewn by the E.W. ridges or anticlinals.

12.—Still newer E.W. fissures appear to have been produced in Tertiary times, thus the "slides" are referred to this period by Delabeche. Near Bridport and Weymouth there are E.W. faults which are probably of this period, *i.e.* those of the Isle of Wight flexures; at any rate they are of post-cretaceous date. They may very probably be contemporaneous with some of the slides mentioned (See Delabeche Rep., 313, 314). Still later alluvial faults have been formed in a few—perhaps in many places, but being mostly of small extent, they would easily escape observation.

There is little reason for supposing that any of these upheavals or fissurings were of a specially violent character. The initial strain in each case was caused by the elevatory movements, the actual fissuring was an effect of gravity, and may have occasioned notable earthquakes, but the subsequent re-openings and "descents of the hanging wall," although frequent, may have been on each occasion only a fraction of an inch in extent—giving rise only to earth tremors of little intensity,* as already suggested.

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*Respecting the formation of the great chain of the Alps, Lyell writes :—"Talking of Escher and upheaval, I was not a little pleased to find how thoroughly he goes with me in doing things slowly.

No one in Europe is so well acquainted with the stupendous folds and inversions of strata in the Alps, and yet he believes it all took place without any interruption of the habitable state of these mountains. Had man been there, he thinks he would not have known what was going on."

Sir Chas. Lyell, Life, p. 255 (Aug. 1857.)

13. Since the intrusion of the elvans, and perhaps for long periods before those intrusions, there is no evidence of subsidence or marine deposit in this West of England region until we come to the Tertiary period, when there was a considerable depression for a long time while the Pliocene beds of St. Erth and the Bovey Tracey clays and lignites were being deposited, and perhaps, too, some of the high level gravels of West Cornwall. Since then, there have been several rather considerable oscillations, but none of them of really great extent. During all those æons the rocks were being denuded away, so that we now see the roots of the old mountain chain which once extended from Dartmoor to the Scilly Isles, and which may have been as high as the Alps or even as the Andes.*

It is a trite observation among geologists that the poet's "solid ground unchanged for age" does not exist. "Where grew the trees, there rolls the flood." It is plain that in this district, as in all others, changes—chemical, physical, and mechanical have been going on from the earliest times, and are still in progress. There is constant decay and constant re-formation, with a gradual development from minerals of less to those of more permanent character; felspars are converted into kaolin, micas into schorl; olivines, augites, and hornblendes into serpentine; sulphides and carbonates into oxides, while alkalies and other soluble salts are taken up by plants, or carried down to the "changing changeless" sea, on whose "azure brow" "time writes no wrinkle" while she gnaws away the land in lines of cliff to form the great "planes of marine denundation," on which new lands are to be subsequently deposited.

* Could we see the roots of the Alps, it is probable we should find many mineral veins there.

ACCLIMATISATION OF EXOTICS IN CORNWALL.

(First Paper.)

The Falmouth-Truro District.

By Fred. Hamilton Davey.

When Dr. Paris, in his *Guide to Mount's Bay*, emphasised the health-restoring qualities of the Cornish climate, the marked equability of its temperature, and the astonishing geniality of its winters, which he thought might "justly be denominated languid springs," he was as the voice of one crying in the wilderness. The present century was then but sixteen years old, and the climatic advantages which Cornwall enjoyed by reason of its geographical situation were not only not then generally known, but, when casually mentioned, were contemptuously scouted in the face of the prevailing custom among eminent physicians for sending their patients to winter along the northern littoral of the Mediterranean. Eighty years ago, no less than to-day, professional prejudices died hard; and so, to establish his contention, Dr. Paris found he must be content with a slow pace. The contemporaries of Noah were probably not one whit more hilarious at the ark-builder's predictions than was the medical faculty when the learned west-country doctor insisted that the high mean temperature enjoyed by Cornwall gave it priority over many continental towns, which were then much in favour as winter resorts with those whose delicate constitutions caused them to accompany the swallows in their autumnal flight to the sunny south.

In a large measure this prejudice has been overcome. Dr. Paris was the protagonist of a propaganda which has culminated in establishing the salubrity of the Cornish winters on a foundation as firm as adamant. Not to dwell on the unimpeachable testimony of such peers in the medical profession as Sir William Aitkin, M.D., F.R.S., Professor at the Army Medical School, Netley; Sir Edward Sieveking, M.D., LL.D., Physician in Ordinary to the Queen; Sir Joseph Fayrer, Bart., K.C.S.I., M.D., F.R.S.; and Sir James Clark, on the peculiar advantages offered

by the Cornish climate, meteorological statistics obtained from different parts of the county by such careful observers as the late Mr. Nicholas Whitley, C.E., Dr. Barham, and Mr. T. Q. Couch, M.R.C.S., but more particularly in later times by Mr. Kitto, at Falmouth, and Mr. J. Branwell, Jun., at Penzance, have made it clear for all time that within our somewhat insular county we have climatic conditions not enjoyed by places of such world-wide repute as Nice, Montpellier, and Algiers.

It is claimed, and not without reliable data, that the Cornish winters are the mildest in Great Britain; that the mean range of temperature at Falmouth for the winter months is about 5° below that at Cannes and Mentone, 6° below Pau, 7° below Nice, and 8° below Montpellier; and that "the month of January at Penzance is as warm as at Madrid, Florence, and Constantinople." Owing to proximity with the warm waters of the English Channel, which give a mean temperature for February, the coldest month of the year, of 47·5°, the mean temperature of the air at Falmouth Observatory for the same period is 43·3°, which is about the same as that enjoyed by Montpellier, and nearly 2° above that of Pau. From 1871 to 1895 there were five years during which the thermometer never once fell to freezing point at Falmouth; and it is deserving consideration that the average difference of day and night temperature at that place for the four coldest months of the year —November to February—is less than 7°.

In point of bright sunshine Cornwall can also furnish some remarkable figures. Seven years ago the Meteorological Council published statistics of bright sunshine from forty-six stations in the British Isles, extending over the years 1881 to 1890, and in this respect Falmouth stood in a proud position, being second only to Jersy. Taking the years 1881 to 1895, it has been found that the daily average of bright sunshine for this portion of Cornwall amounts to five hours.

However slow invalids may have been to take advantage of the recuperative qualities of this natural sanatorium, it cannot be laid to the charge of our gentry that they have been blind to the situation. For at least a half-a-century they have been quietly voicing the mildness of the Cornish winter by embellishing their

gardens and grounds with some of the most delicate of exotic flora, which, after all that can be said for other testimony, is the most satisfactory test of a climate. To northern horticulturists, what has been done in this respect all along the south coast west of the Tamar must be a convincing proof that we are appropriating every favour which our geographical situation offers. In addition to extensive ranges of hardy ornamental timber, every estate now has its collection of sub-tropical subjects, and plants which are sacredly cared for under glass throughout the midlands and the north not only live out of doors during the winter as if to the manner born, but many which have been known to fall victims to the severity of some of the winters as far South as Turin, actually pass through our own unscathed. As the Englishman has shown adaptability for almost every country under the sun, so the climate of Cornwall has successfully wooed into obedience floral rarieties from the temperate to the equatorial zones. Indeed, it is no exaggeration to say that every known land has been laid under contribution by our gentry in their praiseworthy labour of love. What thirty years ago would have been written down as the hallucination of an ultra-enthusiast in horticulture is to day one of the standing features of our county. No longer have we to go to our stove-houses to see the lordly *Banana*, the stately *Furcræa*, the musk-scented *Olearia*, the Citron and the Orange. We have them all growing in the open, where, summer and winter alike, we may behold them clothed in all their beauty.

Lest it be objected that the majority of our exotics are placed in the warmest and most sheltered corners of our county estates, and are therefore not to be regarded as reliable tests of the salutary nature of our winters, it may be pointed out that the same thing obtains on a smaller scale in hundreds of cottage gardens. It is the easiest thing imaginable to take the carping critic to enclosure after enclosure where sub-tropical shrubs not only live through our winters, but flourish without the least semblance to protection. At Ponsanooth the writer has known the *Aloysia citriodora* to attain a height of over twenty feet. *Solanum jasminoides*, as every one knows who has been over the high road from Penryn to Enys Lodge, and has landed at King Harry, on the river Fal, grows rampageously with no other care

than is bestowed upon the commonest of our indigenous shrubs. Myrtles and Passion-flowers abound in and around Falmouth, heavily festooning the fronts of natty cottages; and wonderfully healthy plants of *Ceanothus azureus*, *Aralia Sieboldii*, and *Yuccas* may be turned up in the most unexpected places in any afternoon's walk.

Nor can the objection that the plants are mostly killed off during severe winters, and are then replaced by others to give the county a cheap popularity, be allowed to pass unchallenged. At Carclew, Rosehill, Penjerrick, Enys, Tremough, Burncoose, and many other estates, plant after plant may be seen which have been in their present positions from twenty to thirty years.

The gain to the county by this wide-spread introduction of plants from warmer lands is three-fold. It cannot be accounted a little matter that, as a result of this extensive rifling of other lands for plants to embellish our own, the face of our county has been improved as by a magician's wand. "Man shall not live by bread alone," is a maxim the force of which Time has not been able to blunt. By contemplating the beauties around him, man learns to cultivate the beautiful in his own soul. So, by expending their wealth in the direction indicated, our gentry have been doing a work which must command the approbation of all time.

From a purely scientific standpoint also the acclimatisation of a sub-tropical vegetation is not without its reward. If Mahomet cannot go to the mountain, the mountain must come to Mahomet. From a state of comparative poverty in varieties of plant-life, many of our estates have been brought to one of marvellous opulence, and have thus been transformed into valuable training places for such horticulturists and botanists as cannot see the plants growing in their native wilds.

It must be confessed, however, that there is a more utilitarian standpoint from which the case must be considered. The gradual decadance within recent years of many of our staple industries has driven us to tap new sources of wealth. The old toast, "Fish, tin, and copper," will scarcely be understood by the generations to come. In its stead they may be called upon to respond to "Health, wealth, and wisdom." For with each

succeeding year the health-restoring qualities of the Cornish climate is becoming a greater source of wealth to the inhabitants by attracting those who have the wisdom to "read, mark, learn, and inwardly digest" the evidence offered by eminent physicians and careful meteorologists, but, above all, by the testimony furnished by gardens and grounds which are the pride of the west.

To fully appreciate what has been done in the Falmouth-Truro district of Cornwall in the way of acclimatising half-hardy and sub-tropical plants, it will be necessary to look at some of the more important gardens in detail.

AT PENJERRICK,

which every Cornishman knows as a bit of the tropics come up to Britain for an airing, the judicious introduction of an exotic flora has produced a scene as ravishing and romantic as any bit of fairyland. If anywhere in Cornwall, it is here that the wizardry and abandon of nature are felt to the full. Under the influences of the genial breezes which play up the dell, sub-tropical vegetation bourgeons with an exuberance startling to a degree. Plants which are the glory of the equatorial belt here attain the dimensions of giants; others which refuse to lay on colour in some of the neighbouring counties become in their season rich cascades of bloom. Bamboos and Palms are grown in this little Eden of fertility as easily as weeds, and as tall as some of the trees in the neighbouring woods; and scores of real greenhouse subjects put forth branch, and leaf, and flower, with an amazing prodigality. Of the many good things which the late Miss Fox and her predecessors introduced into Penjerrick, mention can be made of only the following :—

Acanthus mollis.
,, spinosus.
Bamboos in variety.
Benthamia fragifera.
Callistemons, in variety.
Cassia corymbosa.
Chamærops excelsa
Cistus in variety.
Cotoneaster frigida.

Cyclamen persicum.
Dicksonia antarctica.
Dracæna indivisa, and others.
Embothrium coccineum.
Erica codonodes, and others.
Eryngium pandanifolium.
Gaultheria Shallon.
Ginkgo biloba.
Griselinia macrophylla.
Lapageria rosea.
Leptospermum myrtifolium.
Podocarpus andina.
Polypodium Billardieri.
Rhododendron arboreum.
,, Aucklandii.
,, barbatum.
,, campylocarpum.
,, ciliatum.
,, cinnabarinum.
,, cinnamomium.
,, Falconeri.
,, Hodgsoni.
,, Lady Alice Fitzwilliam.
,, niveum.
,, Roylei.
,, Thomsoni.
Ruscus androgynus.
Selaginella Kraussiana.

In his grounds at

ROSEHILL,

Mr. Howard Fox has reduced Mr. Kitto's meteorological statistics to practical form, and provided the medical faculty with a text on which some of the more prominent members never tire of holding forth. Whatever else may be called into question, Mr. Fox has clearly proved that, as a winter resort for invalids, Falmouth can give point for point to more than one place along the Riviera. At Rosehill the Banana, the Citron, and the Orange have been grown in the open for several years; Dracænas twenty to twenty-five feet high are of common

occurrence; and from one end of the grounds to the other surprises in the way of exotic plants fall so thick and fast that the visitor really begins to doubt his senses. Without any protection, *Abutilons* have reached a height of twenty feet, *Nicotiana calossia* fourteen feet, and *Datura sanguinea* a diameter of fourteen feet, and a height of nine. On the 14th January last it was the writer's good fortune to see nearly a hundred species of exotics in bloom on these grounds. Mr. Fox has also recorded the unusual circumstance of over one hundred and thirty plants flowering during the cold December of 1880. The following list of the exotics of Rosehill is sure to astonish those who have not yet been there.

A. *Plants which survive the severest winters without protection.*

Abutilon crusader.
,, Darwini tesselatum.
,, megapotamicum.
,, Prince of Wales.
,, vitifolium, 20 feet high.
Acacia dealbata.
,, melanoxylon.
Acanthus in variety.
Aloysia citriodora, 8 feet high.
Aralia Sieboldii.
Bamboos in variety.
Berberis ,,
Cantua dependens.
Carpenteria californica.
Cestrum elegans.
Choisya ternata.
Clematis balearica
Clerodendron fœtidum.
Cordyline in variety
Coronilla glauca.
,, juncea.
,, viminalis.
Cyclamen Coum.
,, ibericum.
,, persicum.

Cyrtomiums in variety.
Datura sanguinea, 9 feet high.
Diplacus glutinosus.
Diplopappus chrysophylla.
Eriobotrya japonica.
Eryngium pandanifolium.
Escallonias in variety.
Eucalyptus globulus.
Eugenia apiculatus.
,, Ugni.
Eupatorium Weinmannianum.
Fragaria indica.
Francoa ramosa.
Genistas in variety.
Grevillea rosmarinifolia.
Hedychium Gardnerianum.
Hydrangeas in variety.
Jacaranda mimosifolia.
Justicia carnea.
Leptospermum baccatum, 8 feet high.
Lupinus arboreus, 7 feet high.
Mandevilla suaveolens.
Mirabilis Jalapa.
Muehlenbeckia complexa.
Myosotidium nobile.
Olearia argophylla.
Othonna cheirifolia.
Pittosporum Mayii, 20 to 25 feet high.
,, Tobira.
Polypodium Billardieri.
Polystichum angulare proliferum.
Rhyncospermum jasminoides.
Senecio petasatites.
,, jasminoides.
Spiræa ilcifolia.
,, Lindleyana.
Tradescantia virginica.
Woodwardia radicans.

B. *Plants which survive all but the severest winters without protection.*

Abutilon Boule de niege.
Acacia lophantha.
,, Wynbergi.
Calceolarias in variety.
Cassia corymbosa.
Cobæa scandens.
Cyphomandra betacea, 10 feet high, and bearing fruit.
Edwardsia grandiflora.
Eucalyptus citriodora.
Furcræa longæva.
Iresine.
Libonia floribunda.
Marguerites in variety.
Mackaya bella.
Melianthus major.
Mitraria coccinea.
Nicotiana callosia, 14 feet high, 9 feet in diameter.
Plumbago capensis.
Punica Grantum.
Ruscus androgynus.
Salvia involucrata Bethellii.
Sparmannia africana.

C. *Plants which survive the severest winters with slight protection.*

Dicksonia antarctica.
Citrus Aurantium.
,, medica.
Musa ensete.

GROVE HILL.

From the days of the late Mr. R. N. Fox, F.R.S., to the present Grove Hill has been a name to conjure with when setting forth the mildness of the Cornish winter. Several years ago it was awarded the Banksian medal of the Royal Horticultural Society for what had been done there in the way of acclimatisation, the number of foreign introductions then

amounting to upwards of two hundred species. Many of these, it is true, are of a perfectly hardy type, but the following selection will show that Grove Hill is not altogether wanting in exotics.

Abelia floribunda.
Abutilon Boule de niege, 13 feet high, 12 feet through.
Acacia melanoxylon.
Cannas in variety.
Cestrum elegans.
Chamærops excelsa, 19 feet high.
,, humilis.
Clianthus puniceus.
Colletia cruciata.
Cunninghamia sinensis.
Datura sanguinea.
Edwardsia microphylla.
Eriobotrya japonica.
Eucalyptus globulus.
Eugenia apiculata.
Genistas in variety.
Hydrangeas ,,
Mandevilla suaveolens.
Metrosideros floribunda.
Muehlenbeckia complexa.
Olearia Haastii.
,, macrodentata.
Physianthus albens
Pittosporum Mayii.
Rhyncospermum jasminoides.
Ruscus androgynus.
Solanum Capsicastrum.
,, jasminoides.
Sparmannia africana.
Spiræa Lindleyana, 12 feet high.

ENYS.

On this estate we are everywhere presented with memorials of the wanderings to-and-fro in the earth of Mr. J. D. Enys. Rarities, principally from the antipodes, obtrude themselves at

every turn of the path, some of them being the largest of their kind in the immediate neigbourhood. With Carclew it keeps up a friendly rivalry in respect of a noble Maiden-hair tree, (*Ginkgo biloba*), the two having attained lordly dimensions. During his sojourn in foreign lands Mr. Enys greatly enriched Enys and other grounds by the seeds and plants which he was constantly sending home. Perhaps the most prized of his introductions is the Chatham Island Forget-me-not (*Myosotidium nobile.*) For a time thriving but indifferently in its new home, it has now become so thoroughly established that Mr. Enys finds himself able to pass on plants to his neighbours. The exotics of this estate will include :

Abelia floribunda.
Abutilon rupestris.
,, vitifolium.
Acacia affinis.
Ailanthus glandulosa.
Akebia quinata.
Aloe americana.
Alonsoa orientalis.
Aloysia citriodora.
Alströmerias in variety.
Azalea amœna, and others.
Azara microphylla.
Berberidopsis corallina.
Bignonia grandiflora.
Bocconia cordata.
Ceanothus Gloire de Versailles.
,, Veitchianus.
Cestrum elegans.
,, fasciculatum.
Chamærops Fortunei.
Choisya ternata.
Citrus trifoliata.
Clianthus puniceus
Colletia cruciata.
Corchorus cruciata.
Cordylines in variety.
Corokia buddleioides.

Cuphea emineus.
Dasylirion serratifolium.
Desfontainea spinosa.
Dracæna indivisa.
Edwardsia grandiflora.
Elægnus glabra.
,, pungens variegata.
Embothrium coccineum.
Eriobotrya japonica.
Eryngium pandanifolium.
Erythrina crista-galli.
Eucalyptus coccifera.
Eugenia apiculata.
Eurya japonica latifolia variegata.
Fragaria indica.
Gaultheria Shallon.
Gazania splendens.
Ginkgo biloba.
Grevillea rosmarinifolia.
Griselinia littoralis.
Hibiscus syriacus.
Hydrangeas in variety.
Jasminum viridissima.
Lapageria rosea.
Leptospermum ericoides.
,, scoparium.
Lomaria procera.
Magnolias in variety.
Muehlenbeckia complexa.
Myosotidium nobile (blue and white).
Nymphæa Leydeckeri rosea.
,, Marliacæ carnea.
,, chromotella.
,, odorata sulphurea.
,, stellata zanzibarensis
Olearia Gunniana.
,, Haastii.
Osmanthus ilicifolius.
Phormium Colensoi.
,, tenax.

Piptanthus nepalensis.
Pittosporum nigrauense.
,, tenuifolium.
,, Tobira.
Rhaphiolepis ovata.
Rhododendrons, over forty varieties.
Skimmia japonica.
,, oblata.
Smilax aspera.
Solanum crispum.
,, jasminoides.
Staphylea colchica.
Stuartia pseudo-camellia.
Visnea Mocanera.
Yucca filamentosa.
,, gigantea.
,, gloriosa.

Although it has not made the out-door culture of exotics a speciality,

TREMOUGH

cannot be lightly passed over, for to ignore grounds which have earned a well merited fame for their almost unique collection of Sikkim Rhododendrons, and which have a variety of interesting herbacious material, would be to lay this paper open to condign censure. An enthusiast in gardening in general, it was on Rhododendrons in particular that the late Mr. William Shilson lavished his time and money. With him they ranked as the aristocracy of the vegetable kingdom; and the strong way in which they appealed to him, together with the marked facilities which Tremough offered for their culture, let him to surround himself with an amazing number of the better kinds. Among the exotics grown at Tremough, those worthy of mention are:

Aralia Sieboldii.
,, spinosa, 20 feet high.
Azalea amœna.
,, indica alba, and others.
Benthamia fragifera.
Cassia corymbosa.

Ceanothus americanus.
Cestrum fasciculatum, 30 years old.
Choisya ternata.
Cistus, in variety.
Desfontainea spinosa.
Dracæna indivisa.
Embothrium coccineum.
Eugenia apiculata.
,, Ugni.
Magnolia grandiflora.
Metrosideros tomentosa.
Olearia Gunniana.
Philesia buxifolia.
Phormium tenax.
Skimmia japonica.
Solanum jasminoides.
Rhododendron arboreum varieties.
,, Aucklandii.
,, barbatum.
,, campanulatum.
,, campylocarpum.
,, cinnabarinum.
,, Dalhousiæ.
,, eximium.
,, Falconeri.
,, Gibsoni.
,, glaucum.
,, grande.
,, Hodgsoni.
,, niveum.
,, Roylei.
,, Shilsoni.
,, Thomsoni.
,, triflorum.

CARCLEW

stands among the pioneer places in out-door cultivation of foreign plants. It is said that when Sir Charles Lemon planted out his first Rhododendron he was expostulated with by a friend

who gravely assured him that the experiment was bound to end in unmitigated failure. After braving nearly fifty winters, that plant is still standing, and is the finest Rhododendron in Great Britain. Rich in Camellias, Azaleas, and Indian Rhododendrons, Carclew possesses many other subjects of interest. As stated when noticing Enys, Colonel Tremayne is the proud possessor of a really noble example of the Maidenhair tree (*Ginkgo biloba*). This, and the several plants of *Embothrium coccineum*, are distinct features of the pond garden. The garden walls at Carclew, enlivened with the rich blooms of *Lapageria rosea Berberidopsis corallina* and *Tropœolum speciosum*, are also sights not to be soon forgotten. Several of the subjoined list of the half-hardy plants grown at Carclew have been in their present position over twenty years:

Acacia affinis.
,, armata.
Ailanthus glandulosa.
Aralia Sieboldii.
,, spinosa.
Azalea amœna, and others.
Azara microphylla, 20 feet high.
Berberidopsis corallina.
Berberis, in variety.
Ceanothus Gloire de Versailles.
Chamærops Fortunei.
Choisya ternata, 12 feet in diameter.
Colletia cruciata.
Colutea arborescens.
Cytisus Andræanus.
Desfontainea spinosa.
Drimys aromatica.
Elæagnus longipes.
Embothrium coccineum.
Erythrina crista-galli.
Escallonias, in variety.
Eucalyptus globulus.
Eugenia apiculata.
,, Ugni.
Eurya latifolia variegata, 4 feet in diameter.

Fabiana imbricata.
Gaultheria procumbens.
,, Shallon.
Ginkgo biloba.
Griselinia littoralis.
Halesia tetraptera.
Hedychium Gardnerianum.
Hydrangeas, in variety.
Lapageria alba.
,, rosea.
Olearia Haastii.
Osmanthus fragrans.
Phyllocladus rhomboidalis.
Pittosporum Tobira.
Rhododendrons, in variety.
Skimmia japonica.
Stauntonia hexaphylla.

No account of the exotics of Cornwall would be complete which omitted mention of what Mrs. Powys-Rogers is doing at

BURNCOOSE.

A genuine lover of gardening, Mrs. Powys-Rogers is a determined opponent of that self-assertive style of horticulture which obtains in connection with suburban villadom under the refined name of "bedding out." For correctness in the massing of plants, Burncoose can be cited as an object-lesson, every plant introduced into the garden being placed in position with some definite object in view. What the place has to say on the mildness of our Cornish winters is also important. Here the Chatham Island Forget-me-not (*Myosotidium nobile*), a test for any gardener, is seen in its finest form. *Rhodochiton volubile* is an equally compliable subject; and many other half-hardy wall plants have to be constantly pruned hard to be kept in subjection. The selection of rare Alpine flora at Burncoose, not ranking as exotics, can have no place in this paper; nor can we do more than make a passing mention of the bamboos which Mr. Powys-Rogers is cultivating, as many of them are of too recent introduction to enable one to say whether they are likely to become permanent features.

Aloysia citriodora.
Bamboos, in variety.
Boussingaultia baselloides.
Cassia corymbosa.
Ceanothus azureus.
Cestrum elegans.
Choisya ternata.
Clianthus puniceus.
Coronilla glauca.
Desfontainea spinosa.
Grevillea rosmarinifolia.
Hydrangeas, in variety.
Jasminum viridissima.
Melianthus major.
Myosotidium nobile.
Nandina domestica.
Rhodochiton volubile.

Situation, size, and general arrangement of the grounds, combine to make

TREGOTHNAN

the most ducal of Cornish estates. In common with other residents along "the English Rhine," Viscount Falmouth and his ancestors have bestowed considerable attention on the cultivation of Rhododendrons, and it is satisfactory to know that among the extensive collection of these beautiful plants which there flourish, such tender varieties as *Lady Alice Fitzwilliam*, *Fragrantissimum*, *Edgeworthii*, and *Princess Alice* have proved perfectly amenable to the Cornish climate. In the spring of the year the gardens and shrubberies at Tregothnan are flecked with the richest of colours, and even when winter's icy hand has put a check on vegetation in other parts, its sunnier nooks have a most seductive charm. A selection from its foreign introductions will show how alert the Boscawens have been to the inducements offered by the climate of the county for sub-tropical gardening:

Abelia rupestris.
Acacia affinis.
,, dealbata.
Akebia quinata.

Aloysia citriodora.
Aralia Sieboldii.
Bignonia grandiflora.
,, radicans.
Cassia corymbosa.
Cestrum elegans.
,, fasciculatum.
Chamærops excelsa.
,, Fortunei.
Clematis indivisa lobata.
Clethra arborea.
Clianthus puniceus.
Coronilla glauca.
Daphne indica rubra.
Datura lutea.
,, sanguinea.
Dracæna australis.
,, indivisa.
Eccremocarpus scaber.
Eupatorium riparium.
Oleandra rubrum.
Pittosporum Tobira.
Plumbago capensis.
Polygala myrtifolia.
Rhododendron Lady Alice Fitzwilliam.
,, Fragrantissimum.
,, Edgeworthii.
,, Princess Alice, and many others.
Rhynchospermum jasminoides.
Solanum jasminoides.
Veronicas, in variety.

The wanderings of Mr. C. Davies-Gilbert into remote regions of the globe have been a decided gain to

TRELISSICK.

By keeping an open eye for any tit-bit that he thought at all likely to flourish on the warm slopes of the Fal, Mr. Davies-Gilbert made his travels subserve a two-fold purpose. It must be confessed, however, that, taking into consideration the

favourable situation of Trelissick, the acclimatising of exotics has not taken that important place in outdoor operations that one might have expected. Only very recently has it dawned on the proprietor that around the lily pond every desirable condition exists for the laying out of a sub-tropical garden. When the contemplated remodelling of this corner of the estate is carried out, Trelissick will have had another jewel placed in its crown. At present it enjoys a more than local reputation for its *Richardia* and *Nymphæa* lilies. In July last the writer must have seen no fewer than ten thousand *Richardia* flowers reflected in the waters of the pond, while the surface was gemmed with white and blue and red and yellow stars of the several kinds of *Nymphæa*. On the banks of the pond *Gunnera manichata* grows leaves with a circumference of twenty-four feet. Foremost among the exotics of Trelissick are:

Abutilon vitifolium.
,, ,, alba.
Acacia affinis.
,, longifolia.
,, lophantha.
Aloysia citriodora.
Aralia Sieboldii.
Araucaria Cunninghamia.
Azalea amœna, and others.
Bamboos, in variety.
Berberidopsis corallina.
Buddleia globosa.
,, Lindleyana.
Carpentaria californica.
Caryopteris Mastacanthus.
Ceanothus azureus.
,, Gloire de Versailles.
Chamærops excelsa.
,, Fortunei.
,, humilis.
Choisya ternata.
Clerodendron trichotomum.
Clianthus puniceus.
Cordylines, in variety.

Coronilla glauca.
Desfontainea spinoso.
Dicksonia antarctica.
Diplopappus chrysophylla.
Eccremocarpus scaber.
Embothrium coccineum.
Eriobotrya japonica.
Erythrina crista-galli.
Escallonias, in variety.
Fabiana imbricata.
Furcræa longæva.
Ginkgo biloba.
Grevillea rosmarinifolia.
Hedychium coronarium.
Hydrangeas, in variety.
Lomaria Boryana.
Mandevilla suæveolens.
Melianthus major.
Nymphæa Marliacæ—albida.
,, ,, carnea.
,, ,, Devoniensis.
,, ,, flava.
,, ,, rosea.
,, stellata zanzibarensis.
,, tuberosa.
Olearia argophylla.
,, Haastii.
Ozothamnus rosmarinifolius.
Passiflora Constance Elliott.
Phormium tenax.
,, Veitchianum.
Pittosporum Mayii.
,, undulatum.
Romneya Coulteri.
Rhaphiolepis ovata.
Skimmia japonica.
Solanum jasminoides.
Sparmannia africana.
Woodwardia radicans.

A treatise on Cornwall, in which no mention was made of the saints and superstitions of the county, would be no greater a failure than a paper purporting to deal with the exotics of Cornwall in which no word of praise was found for

PORTHGWIDDEN.

When Goethe penned those pregnant words in *The Sorrows of Werter*, where, speaking of a certain estate, he said "first sight must convince us that native taste has superseded professional skill, and that not a mere gardener, but a man of feeling, has been the chief cultivator," he must have had in view some such place as Porthgwidden and precisely another such passionate lover of flowers as the late Canon Phillpotts. When Canon Phillpotts died, Cornwall lost its greatest authority on horticulture; but of him it can be truly said "he being dead yet speaketh." To tell in full what he did towards making Porthgwidden the Mecca of West country horticulturists and scientists, with what tenderness he cared for the children of his own planting, and his anxiety that every estate in Cornwall should become "a thing of beauty" and "a joy for ever," would be to write a book as interesting as any work of fiction. To be correctly appraised, Porthgwidden must be seen, and, by the owner's consent, its woodland paths and everglades explored; for, valuable as a list of some of its rarer plants may be, it cannot convey with any faithfulness an impression of scenes which

"Seem
The vain productions of a feverish dream."

Abelia floribunda.
Acacia affinis.
Adiantum C.-V. cornubiense.
Berberidopsis corallina.
Ceanothus Gloire de Versailles.
Cestrum elegans.
Chamærops excelsa, 20 feet high.
Choisya ternata.
Clianthus puniceus.
Colletia cruciata.
Desfontainea spinosa.
Dracænas, in variety.

Embothrium coccineum.
Eriobotrya japonica, 10 feet high.
Escallonias, in variety.
Eugenia apiculata.
Eulalias, in variety.
Eupatorium riparium.
Ficus elastica.
,, stipulata.
Forsythia suspensa.
Furcræa longæva.
Ginkgo biloba.
Lapageria rosea.
Lycium barbarum.
Maurandya erubescens.
Melianthus major.
Muehlenbeckia complexa.
Olearia argophylla.
Osmanthus fragrans.
,, ilicifolia.
Pittosporum Mayii.
,, tenuifolium, 30 feet high.
Podocarpus Purdieana.
Pteris serrulata.
Punica Granatum.
Rhynchospermum jasminoides.
Solanum jasminoides.
Tropæolum tuberosum.
Woodwardia radicans.

KILLIOW

has a beauty almost unique among the estates of that locality. If an extensive collection of rare exotics were the infallible test for ornamental grounds, Mr. Daubuz would be the first to recognize the position Killiow would occupy. Fortunately, taste in arrangement and skill in the culture of a few classes of plants are now placed before chaotic and neglected collections; and it is when measured by this standard that Killiow is placed in its proper setting. Dean Hole has said—"He who would have beautiful roses in his garden must have beautiful roses in

his heart. To win, he must woo, as Jacob wooed Laban's daughter, though drought and frost consume." They who have a sufficiency of that knowledge which "puffeth up" as to doubt what the Dean says, should go to Killiow and consider the matter at their own leisure. Whatever the grounds may lose by reason of fewness of treasures, is amply atoned for by a harmony of arrangement which may be recommended to others. Half-hardy subjects:

Aralia Sieboldii.
Arundinarias, in variety.
Bambusas, ,,
Chamærops Fortunei.
Choisya ternata.
Daphnephyllum glaucesens.
Dracæna indivisa.
Edwardsia grandiflora.
Eucalyptus globosus.
Eugenia apiculata.
Ficus repens.
Lapageria rosea.
Phyllostachys, in variety.
Robinia Pseudacacia.
Solanum jasminoides.
Rhododendron arboreum.
,, Aucklandii.
,, aureum.
,, barbatum.
,, calophyllum.
,, campylocarpum.
,, ciliatum.
,, Countess of Haddington.
,, Edgeworthii.
,, Eximium.
,, Falconeri.
,, Gibsoni.
,, grande.
,, Hodgsoni.
,, Thomsoni.

Because a garden is not periodically exploited in the horticultural papers, it must not be assummed that it possesses no attractive features. The beauties of

PENCALENICK

may not be perpetually dinned into the public ear with a fanfaronade of trumpets, but for all that they exist. Like every member of the Williams' family, Mr. M. H. Williams is keen on gardening, and has a quick eye for effect. On a small scale the latter quality was a characteristic of his outdoor operations during his residence at Tredea, but it is seen to a greater degree at Pencalenick, where there is an amplitude of room for such work. Since taking up his abode there, Mr. Williams has spared no expense in making the place a veritable Temple of Flora. Among the half-hardy plants now established at Pencalenick, the following are the most noticeable:

Akebia quinata.
Arundos, in variety.
Azara macrophylla.
Bamboos, in variety.
Berberidopsis corallina.
Bignonia grandiflora.
Cestrum elegans.
Chamærops humilis, 20 feet high.
Cistus, in variety.
Cladrastis tinctora.
Datura arborea.
,, lutea.
Diplopappus chrysophyllum.
Edwardsia macrophylla.
Eulalia japonica.
Fabiana imbricata.
Hibiscus syriacus.
Indigofera decora.
Magnolias, in variety.
Olearia Haastii.
Osmanthus ilicifolia.
Ozothamnus rosmarinifolius.
Philesia buxifolia.

Physianthus albens.
Pittosporum Mayii.
Rhaphiolepis ovata.
Sarracenia purpurea.
Solanum jasminoides.
Umbellularia californica.

To give a faithful portrait of

MENABILLY

in one crisp paragraph, or to put one's finger on any single feature and say "Here is the secret of the persuasive charms of the grounds," is a more difficult task than first consideration would suggest. In more ways than one has fortune smiled on this estate. In point of situation it leaves nothing to be desired. It has also been blessed with an owner who knows exactly what the grounds are capable of, and who has been at the farthest remove from parsimony in stocking them. As far as it is possible to attain the ideal in landscape gardening, Mr. Rashleigh has done so. Far and near Menabilly is the subject of admiration among lovers of gardening, and if there are circumstances under which envy becomes a venial offence, it may well be elvated to the rank of a virtue when it concerns the place now under notice. Nowhere does the visitor see violent contrasts, nowhere is the handiwork of man marred by tame uniformity. There is an abundance of everything, and yet no suggestion of superfluity, or that anything can be spared. Its conifers are drawn from many lands, and are proportioned with almost mathematical precision. Its sweeps of Hydrangeas are in themselves a feature of the estate, and its range of exotics is sure to do good for the county in its struggle for a position as a winter resort, when the climatic requirements of dozens of the plants are considered:

Abelia floribunda.
,, rupestris.
Abutilon alba.
,, purpurea.
,, vitifolium.
Acacia affinis.
,, melanoxylon.

Aloysia citriodora.
Aralia Sieboldii.
,, Maximowiezii.
Arundinaria, 14 varieties.
Azara dentata.
,, integrifolia variegata.
,, microphylla.
Bambusas, 17 varieties.
Callistemon lanceolata.
,, Salignus.
,, speciosus.
Cassine fulvida.
Chamærops excelsa.
,, Fortunei.
Choisya ternata.
Colletia cruciata.
,, spinosa.
Cordylines, in variety.
Desfontainea spinosa.
Dicksonia antarctica.
Drimys aromatica.
,, Winteri.
Edwardsia grandiflora.
Embothrium coccineum.
Eryngium paniculatum.
Escallonias, in variety.
Eucalyptus coccifera.
,, Gunnii.
,, Saligna.
Eugenia apiculata.
,, Ugni.
Eurybia tomentosa.
Fabiana imbricata.
Ficus repens.
Fitzroya patagonica.
Ginkgo biloba.
Griselinia littoralis.
,, lucida.
Hydrangeas, in variety.

Hedychium Gardnerianum.
Illicium anisatum.
Lapageria alba.
,, rosea.
Leptospermum arachnoides.
,, scoparium
Litsea geniculata.
Magnolias, in variety.
Olearia ferrugineum.
,, Haastii.
Osmanthus ilicifolia variegata.
Pernettyas, in variety.
Phormiums, 4 varieties.
Phyllostachys, 16 varieties.
Physianthus albens.
Pittosporum Collinsia.
,, Mayii.
,, Tobira.
,, undulatum.
Plumbago capensis.
Podocarpus andina.
,, australis.
,, Collinsia.
,, Totara.
Rhaphiolepis grandiflora.
,, ovata.
Rhaphithamnus cyanocarpus.
Rhododendron Aucklandii.
,, barbatum.
,, calophyllum.
,, Campbelli.
,, campylocarpum.
,, ciliatum.
,, cinnabarinum.
,, Edgeworthii.
,, eximium.
,, Falconeri.
,, Gibsoni.
,, glaucum.

Rhododendron grande.
,, Hodgsoni.
,, lanceolatum.
,, Maddeni.
,, niveum.
,, Nuttallii.
,, Roylei.
,, Thomsoni.
,, Veitchianum.
,, Wightii.
Rhynchospermum jasminoides.
Solanum jasminoides.
Sophora tetraptera.

At least three generations of the Tremaynes, of

HELIGAN,

have been noted horticulturists. That they have done their work well, a walk over the grounds will clearly prove. Everywhere you come on the finest of foreign vegetation smiling under their new surroundings. A specimen of *Chamærops excelsa* planted by Mr. J. Tremayne forty or more years ago is now over twenty feet in height. *Hedychiums* have been grown in the open a great many years, and have fruited. *Berberidopsis corallina* is perfectly hardy, and *Lapageria rosea* never fails to put on an abundance of flowers each autumn. What the country has to thank Heligan mostly for is the introduction of *Benthamia fragifera*, the first British plant being grown at that place seventy-two years ago by Mr. J. H. Tremayne, from seed brought from Nepaul by Sir Anthony Buller. When the hundreds of trees which line the drive are in full bloom, no finer sight can be imagined.

Latterly horticultural operations at Heligan have been largely under the management of Mr. John Claude Tremayne. In common with his neighbours, Mr. Tremayne has been strongly smitten with the Bamboo craze, and he has already secured specimens of a great many varieties. It only remains to be added that, for obvious reasons, the many scores of rare bulbous plants, orchids, &c., which are established at Heligan must be excluded from a list of the exotics there grown:

Aralia Sieboldii.
,, Maximowiczii.
Arundinarias, 11 varieties.
Bambusas, 30 varieties.
Beschorneria spinosa.
Convolvulus mauritanicus.
Cunninghamia sinensis.
Cyathea medullaris.
Dasylirion acrotrichum.
Dicksonia antarctica
Desfontainea spinosa.
Dimorphanthus mandschuricus.
Dracæna Draco.
Escallonias, in variety.
Eucalyptus pulverulenta.
Francoa appendiculata.
Genistas, in variety.
Hedychium coronarium.
,, Gardnerianum.
Hydrangeas, in variety.
Phœnix canariensis.
Phyllostachys, 11 varieties.
Podocarpus Totara.
Ramondia pyrenaica.
Rhododendron arboreum.
,, Aucklandii.
,, blandfordiæflorum.
,, Boothii.
,, californicum.
,, campanulatum Wallichii.
,, Campbelli.
,, decorum.
,, eximium.
,, exoniensis.
,, Falconeri.
,, fulgens.
,, Gibsoni.
,, glaucum.
,, Hodgsoni.

Rhododendron Lindleyi.
,, niveum.
,, Prince Leopold.
,, Rollinsoni.
,, Thomsoni.
Rhus glabra laciniata.
Romneya Coulteri.
Strelitzia augusta.
Vitis coignetæ.
Wistaria multijuga.
Yucca aliofolia variegata.

This, then, is the evidence furnished by some of the estates in the Falmouth-Truro district to the paramount position Cornwall should hold as a winter resort. Carefully weighed, it cannot fail to help forward that recent awakening of interest in our county which has recognised in the health-promoting qualities of its climate, a safe refuge for such ailing ones as cannot undertake a long sea voyage, and an undeveloped source of wealth for its inhabitants. Meteorological statistics are frequently met with the objection that figures can be made to prove anything; but this cannot be urged against the acclimatisation of exotics. These are Nature's proofs of what Cornwall is not in one winter only, but in many, and should help to make the county not only the playground of England's hives of industry during piping summer days, but the winter resort of those who are forced to flee from the rigours of winter as it is known in the Midlands and the North. On a future occasion the Penzance district will be called upon to contribute its quota, and from the two papers the public will be able to view the dominating idea in its true bearing.

THE PARLIAMENTARY ELECTION IN TRURO, A.D. 1832.

By P. JENNINGS.

No event is more prominent in the parliamentary annals of Truro than the passing of the Reform Bill in 1832; it completely changed the current of local politics, and was fraught with results most beneficent in their character, and far-reaching in their consequences. Until now, the electorate consisted of only twenty-four persons; but by the passing of this Bill, it was increased to three hundred and ninety-two—more than sixteen times the original number.

Much bitter controversy, extending over a number of years, preceded this great reform, and two parties naturally arose, one strenuously opposed to any change, the other ardently longing for a more equitable distribution of political power. The majority of the corporation and their friends were included in the former party, and they remained faithful to the House of Boscawen, and to the traditions of the past; the other, led by such men as Dr. Taunton, Edmund Turner, Humphry Willyams, and Anthony Plummer, was by far the more popular, and in it was found the majority of the inhabitants who could afford to be independent of Lord Falmouth and his supporters. Each party had its newspaper, and between them they managed to keep the town in a very lively state during these stirring times.

An open rupture occurred at the election of 1830, when the inhabitants paying scot and lot contested the right of the limited burgesses to elect the representatives. The excitement occasioned by this election was intense; every man became a partisan, and even staid and respectable people were as ready to enforce their arguments by blows as by legitimate discussion. As was doubtless anticipated, the case was decided in favour of the ancient institution; but this result, together with the general anxiety respecting the progress of the Bill, added fuel to the fire, and throughout 1831 the town was kept in a state of constant turmoil.

For many months the fate of the Bill hung in the balance; the Government vigorously resisted the Opposition in the Commons, but the Lords were determined to throw it out. Their influence

was so strong, that on 9th May, 1832, Earl Grey was compelled to resign. This intelligence roused a terrific storm of indignation throughout the country, and brought it to the verge of revolution. A meeting of the Reformers in Truro was hastily convened and a requisition was addressed to the Mayor, requesting him to call a public meeting of the inhabitants to consider the propriety of adopting such measures as the terrible crisis seemed to demand. The Mayor (Clement Carlyon, M.D.) was a Tory, so in reply he stated that holding the views he did, he could not consistently comply with their wishes, but he would willingly grant the use of the Town Hall. Mr. Edmund Turner, of the Truro Bank, was thereupon selected as chairman, and a series of indignant resolutions was framed. But, in the morning of the day appointed for the meeting, news arrived from London which entirely altered the aspect of affairs. The Duke of Wellington had been unable to form a Cabinet, and it was thought probable that Earl Grey would again take office. The news spread rapidly, and a complete revulsion of feeling ensued. A band of music was engaged, and for an hour previous to the meeting, paraded the town in triumph. At 12 o'clock, the committee, now jubilant and hopeful, met at the Town Hall, which was rapidly filled, and hundreds were unable to gain admission, so that it became necessary to adjourn to the Green. There being no time to erect a platform, the sashes were removed from the window of a neighbouring house, and here the chairman took his stand. The speakers, (among whom were Dr. Taunton, and Messrs. Carpenter, Budd, Bennallack, Milford, Stokes, Plummer, and Baynard), were accommodated on three tables placed side by side underneath the chairman's window; and from this rickety platform they harangued the fifteen hundred listeners throughout the afternoon of that day in May. It is needless to remark that the proceedings were characterised by boundless enthusiasm, and by as good order as could be expected on such an exciting occasion. The late Mr. H. S. Stokes, referring to this incident, says "I was an extreme politician, and I thought the Reform Bill would prove the salvation of the nation. We had a meeting on the Green, and I was called upon to make an oration, and I did make an oration. Then I remember dancing in the streets, and there was a gentleman in a brown suit and broad-

brimmed hat, who was so inspirited, that he jumped into the ring and danced amongst us to the tune of 'Merrily danced the quaker's wife.' "

The Tories naturally felt sore over this episode, and gave expression to their vexation in the columns of their newspaper. Some of the remarks made were more vigorous than complimentary, and they had the effect of rousing the wrath of the more ardent Reformers, who accordingly proceeded to show their indignation by making a bonfire of copies of the offending paper on Castle Hill, and by keeping the town in an uproar throughout the evening. So threatening was the mob, that it became necessary to guard the editor's house by a posse of constables.

But the day of deliverance was at hand; the Bill passed both Houses, and on 7th June the Royal assent was given. Then the battle began in earnest. Both sides put forth their utmost strength, and used every endeavour to secure the victory at the coming election. A requisition, "signed by a number of highly respectable inhabitants" was presented to Lord Boscawen, son of the Earl of Falmouth, inviting him to stand in the Tory interest. As his lordship was not yet twenty-one years of age, his father advised him to decline the honour, and to carry out his original intention, to travel on the continent, before taking an active part in English politics. Application was then made to John Ennis Vivian, Esq., a retired barrister, and he consented to become a candidate. The Reformers selected William Tooke, Esq., a solicitor from London, to fight their battle; the third candidate was General Vivian, Commander-in-Chief in Ireland. As a native of Truro, a valiant soldier, and one who had lost and won other elections in the constituency, he was regarded with much favour by both parties; at previous elections, he had come forward as a Whig, but he now announced his intention of observing the strictest neutrality.*

Now came the question as to how the great Reform should be celebrated. A committee was appointed to collect the necessary

* When the Government plans were being matured, the Ministry supposed that the Borough consisted simply of the parish of S. Mary, and therefore proposed to deprive it of one of its representatives; but before the Committee stage was reached, it was ascertained that the town is situated in the three parishes of S. Mary, S. Clements, and Kenwyn, and its original number was consequently retained.

funds, and in a short time £195 were subscribed. August 24th was fixed as the day for the rejoicings, and right merrily did the townsfolk enter into the proceedings. Seventy cwt. of beef, with an abundance of other good things were distributed, not merely to the poor, but to all whom the committee recommended, to the extent, it is said, of 5,000 persons. The town was decorated, bands of music were engaged, the inevitable public dinner was held in Sambell's timber yard, on the Back Quay, with Mr. Humphry Willyams in the chair, and Mr. Bennallack in the vice-chair; a huge bonfire was lit outside the yard, and the festivities closed with a display of fireworks from a barge moored in the river.

But the most amusing celebration took place two months before this official function. On a certain Tuesday evening in June, the ladies of the town were invited to a public tea-drinking by the supporters of Mr. Tooke. A long line of tables was spread in Pydar Street, and it is supposed that 1,000 persons took tea. During the repast, a band, perched aloft on a triumphal arch, played national airs, and afterwards a display of fireworks was made for the especial benefit of these ladies. The whole affair was regarded as an elaborate joke by the enormous crowd which witnessed it, and throughout the evening the highest good humour prevailed,—Tories as well as Whigs entering heartily into the spirit of the revelry.

The great election was announced to take place at the close of the year, and as the time approached, both parties girded themselves for the final struggle. With the object of impressing the new voters, Mr. Tooke made a public entry into the town. He came in an open carriage drawn by four horses, accompanied by Messrs. Willyams, Taunton, and Bennallack; the carriage was preceded by forty horsemen, a band of music, and a crowd of people. The procession passed under triumphal arches, along streets gaily decked with flags to Pearce's hotel, from the windows of which Mr. Tooke delivered an oration to the crowd.

The Mayor issued a notice that a meeting would be held on Thursday, 13th December, to elect members to represent the borough in parliament; and that, in the event of a poll being demanded, it would take place on the two following days. Hustings

were erected in the High Cross; the supporters of Mr. Tooke and of Mr. Vivian were judiciously accommodated on the left and right hand sides respectively. Sir R. H. Vivian and his friends, having support from both sides, occupied the centre, and thus kept the extremists apart. The Mayor now demanded if any elector wished to propose a candidate. Mr. Turner immediately came forward and proposed Sir R. H. Vivian; Mr. Buckingham seconded, and then Sir Richard addressed the meeting amid general cheering. Mr. Willyams next proposed Mr. Tooke, and another of his faithful friends, Mr. Bennallack, seconded. Mr. Tooke, an out and out Reformer, was credited with having very considerably enlightened the townsmen on the nature of their disabilities and privileges, and was accordingly the object of the especial hatred of the one party, and of the especial esteem of the other. He now came forward, and after being greeted with a storm of cheers and groans, proceeded to deliver a vigorous partisan speech, which tended to make the meeting more lively. Mr. J. E. Vivian was then proposed by Messrs. Joseph Edwards and William Vice. Mr. Vivian's appearance was the signal for another storm, and it was soon evident that the more noisy portion of the community was not in sympathy with him. On finishing his speech he was subjected to a little heckling. Mr. Samuel Milford, amidst uproar, asked him if he would support the separation of Church and State. For a considerable time the confusion was so great, that Mr. Vivian could not hear the question; but as soon as he heard it he answered "No." Mr. Rowe they put questions: "Will Mr. Vivian vote for the emancipation of the slaves?" "Yes." "Will you vote for the ballot?" "I will consider that when it comes under discussion." "Will you vote for triennial parliaments?" To which Mr, Vivian rather weakly replied "You appear to have made up your mind on these points; will you give me time to consider them before I make up my mind?"

The Mayor now took a show of hands, and declared the voting to be in favour of General Vivian and Mr. Tooke; thereupon Mr. Edwards demanded a poll for Mr. Vivian, and the Mayor stated that polling would commence at 9 o'clock next morning.

Three booths were erected, one in each of the three parishes; and as the unprecedented number of three hundred and ninety-two

electors would have the right to vote, it was sagely thought to be impossible to complete the task in less than two days. By 12 o'clock on the first day it was seen that Sir R. H. Vivian was safe, and that the contest between Messrs. Tooke and Vivian would be very severe; it was also seen that if the electors would but come and vote, the whole business might have been concluded in one day; but, being actuated perhaps by weighty considerations of state, though probably by more personal and less worthy motives, a certain number of them preferred to wait and to see what events might be developed before the close of the poll.

At 4 o'clock the books were sealed, and given to the Mayor, who repaired to the hustings in the High Cross accompanied by the candidates, and found an eager throng of two thousand persons awaiting their arrival. The Mayor did not make any announcement respecting the state of the poll, but in those days of open voting, it was easy to see how matters stood, and it appeared from the check books that Sir R. H. Vivian had 264 votes, Mr. Tooke 187, and Mr. Vivian 181, from which it would seem that 316 had already voted, leaving 76 still to vote. All three candidates addressed the crowd; Sir R. H. Vivian was received with general cheering, and spoke in comparative quiet; but the others could not make themselves heard in the confusion which their appearance created.

Friday night was a busy time for the friends of the rival candidates. Every elector in the town who had not yet voted was waited on by members of one or other party; every means of persuasion that could be devised was urged to induce them to vote; and Mr. Tooke's supporters went so far as to organize a watch to prevent any of the opposite party from secretly visiting any of the incorruptible electors who had promised to vote for Mr. Tooke. Some very curious scenes were witnessed, and some questionable agreements made during that exciting night.

Next morning polling commenced at 8 o'clock, and continued languidly until 4 p.m. At about 4.30 the Mayor appeared upon the hustings and fronted a crowd about twice as large as that of the previous day. In the waning light of that mid-winter afternoon, he held up the sealed poll books before the spectators, then broke the seals, and proceeded to make up the numbers, which amid a

great stillness, he announced to be as follows: Sir R. H. Vivian, 291; Mr. Tooke, 203; Mr. J. E. Vivian, 196. He then declared General Vivian and Mr. Tooke duly elected.

The scene which followed was a fitting climax to the years of political strife into which the borough had been plunged. The majority of the Tories, knowing that their candidate was defeated, and chafing under the bitter disappointment, were not present at the declaration of the poll; but the enthusiasm of the crowd knew no bounds; they sent up a shout which could be heard from end to end of the town; grave and reverend seigniors caught the ardour of the younger folk, and almost thought themselves young again; from the richest among them to the poorest, there were handshaking and interchange of congratulations; but none were more vigorous in their expressions of joy and gladness than the ladies who had been the recipients of Mr. Tooke's bounty at the famous tea drinking in Pydar street.

During the hubbub it was announced that the "chairing" of the successful candidates would take place on the following Monday; but having regard to the excited state of public feeling, and wishing to avoid any further collisions between the rival parties, Sir R. H. Vivian declined the honour. Mr. Tooke, however, had no scruples about the matter, so to the delight of the juveniles, and to the satisfaction of his supporters, he was borne in triumph through the principal streets of the town. His opponents rather spitefully declared that it was "a dismal looking train, who could scarcely raise a cheer," and whose appearance resembled "a procession carrying a Guy Fawkes to execution." Each of the candidates invited his supporters to dinner, and Sir R. H. Vivian gave £100 to be distributed in coal and provisions to the poor.

CORNUBIANA No. 2.*

1. Camps.
2. Amphitheatre.
3. Barrow.
4. Hut-Circles.
5. Caves at Carwinion Water.
6. Cross at Helegan.
7. Finds.
8. Folk-Lore.

By Rev. S. RUNDLE, M.A.

Camps.

The following Camps have been examined:—Drim, in the parish of S. Crowan; S. Elvan's, in the parish of S. Sithney; Carlydnack, in S. Mawnan; one in S. Manaccan, and one at Penglodna, in the parish of Godolphin.

1. Drim. This camp is in a most dilapidated state, as the western part has been completely demolished, and pits sunk for the extraction of marl. The vallum still extends to about two-thirds of the circumference of the camp, and is formed of stones and earth. Its width is about five feet, its height ranges from eight to twelve feet, except in the part where the foss still remains, and then it reaches fifteen feet. The foss deeply covered with thorns and furze has an extent of about 30 yards, hardly a tenth of its former dimensions. Its width is, in its fullest part, from twelve to fifteen feet. The circumference of the camp is three hundred yards.

2. Camp at S. Elvan's. Its diameter is 56 yards, and the surface is perfectly level; a path leads right through the middle. Vallum 5-feet deep on the south, 2½ feet high on the inside. Foss 10 yards wide, 8 feet high. The foss remains from N.W. to N. for a third of its former extent, and can be traced as far round as the south. A farm-yard now occupies the east.

3. Carlydnack. This is in almost a perfect state, one of the best that I have ever seen. It occupies about an acre of ground area, is almost a perfect round, and tradition assigns its formation to the Danes. A narrow lane leads to the sea-side, and derives its name from the proximity of the camp to the water.

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* Continued from page 90, vol. XI.

4. Camp at S. Manaccan. This is peculiarly interesting, as it forms with the one at Bosence, the second of the two recorded instances of oblong camps with rounded ends. It has suffered terrible usage from the necessities of agriculture, and has been once more ploughed this year. I was greatly struck when examining it to find out that the site of the similar camp at Bosence was distinctly visible, though at a great distance, and seems to imply that they were intended to be connected by signals of smoke. I may here remark that it is very interesting to notice that every camp but one that I have visited can be seen from another, so that in times of emergency signals could be easily made between them.

5. Gear (Camp) at Pengilley, in Godolphin. Here the name, position, and a very tiny portion of the vallum alone remain.

Barrow at Pengwedna—known by the name of the war-barrow. This is a very large grass-grown structure, portions of which have been removed by successive tillage. In removing the surface, a quantity of greasy material was found.

Amphitheatre at S. Sithney. This still possesses the old Cornish name for an Amphitheatre—Plain-an-Gwarre, and is interesting from its proximity to the birth-place of the last author of a Cornish miracle—the Creation—William Jordan. The Amphitheatre is hardly anything more than a site, as a public road passes through it. A hedge may have been one of its boundaries. There is a large open level space in the centre, which was possibly the scenarium. This places indicates the importance of studying Cornish names, as Plain-an-Gwarre plainly shows its origin. Another Plain-an-Gwarre is known to exist, at all events in name, but is at present, as far as I know, undescribed.

Hut Circle.

A very large and perfect hut-circle has been found and examined below Black Rock, in S. Crowan. It has two entrances, one on the west and the other on the south, and its diameter is 41 feet. The outer circumference is of stone, some of which are of large size. The western opening is 4½ feet wide, the other is 4½ feet. The height of the interior of the ring is 3½ feet, the

exterior 2 feet 8 inches. There is a smaller circle about $\frac{3}{8}$ of a mile from Crowan Beacon. Its diameter is 23 feet 6 inches. Its height in its highest part, 2 feet 9 inches It has a floor of granite, apparently squared, and placed in position.

Caves.

At Carwinion Water we have a group of "workings"—I purposely avoid giving a more definite name—of great interest. A plateau ends in a steep descent facing a beautiful stream of water. We have examined five of them. The entrance is very difficult, owing to the accumulation of debris, but when once ingress is effected, the "workings" open out, and become sufficiently high to stand upright. They extend to a distance of many yards subterraneously, and were said to communicate with the plateau above, but of this communication we could find no trace. Two of these "workings" have entrances contiguous to one another. These "workings" have been labelled by the ordnance survey as a "British village." I, myself, am at present undecided as to whether they really deserve such a title, or whether they owe their existence to mining operations. Against their being due to mining, it is to be urged that they seem to be of the vaguest nature for that purpose. On the other hand, they are very similar to an excavation at Praa-sands, which I found to end in a mine shaft. Their situation, close to a stream, and in a bank facing that stream, seems to point a settlement by Troglodytæ, but against this there are to be placed the two undoubted facts that there are no traces of fire, as must have been the case if there had been human inhabitants, and that they were clearly worked by iron tools, which we cannot say would be used by aboriginal Troglodytæ.

Cross.

At Helegan, the ancestral home of the S. Aubyns, in S. Crowan, I found the head of a cross being used as a stand for flower-pots. It is somewhat irregularly round in shape, with a fracture made probably from the shaft. There is a raised outside rim about $5\frac{1}{2}$ inches in diameter, and the dimensions of the head are 2 feet by 1 foot $9\frac{1}{2}$ in. Inside the outer circle there is a disk 15 inches in diameter, on the rim of this disk there impinges a somewhat shallow Greek cross. It is hoped

that this interesting relic will be removed to S. Crowan churchyard. A supposed cross at Penrose in S. Sithney has also been examined, but on diligent inspection, I feel convinced that it is not a cross.

Finds.

At Pengwedna, in Godolphin ecclesiastical parish, the half of a cast, blackened by use, intended for forming beads, has been found. On the surface there is a channel for the discharge of the metal. In the middle there is an aperture, funnel-shaped, for the formation of the bead. Its surface is marked with strongly defined lines and dots, approaching those seen on the Clog almanacks in character, and strongly reminding one of Runic characters, though there is nothing to connect them with this form of inscription. The date of the cast is most uncertain.

At Gwedna, in the same parish, a stone has been discovered flat on the surface, irregularly ovoid in shape. Though clearly bearing the marks of instruments, it was discovered in what appeared to be virgin ground, about three or four feet from the surface. One of its discoverers, who had been in South Africa, assured me that it reminded him of the stone slabs made use of by the natives for the preparation of mealies. It is interesting, whilst on the subject of cosmopolitan resemblance, to notice how close is the likeness between the spindle-whorl found in the gorge near Godolphin, to the ones unearthed by Mr. Bent, at Zembaye in South Africa, and figured at page 209 in his "Ruined Cities of Mashonaland."

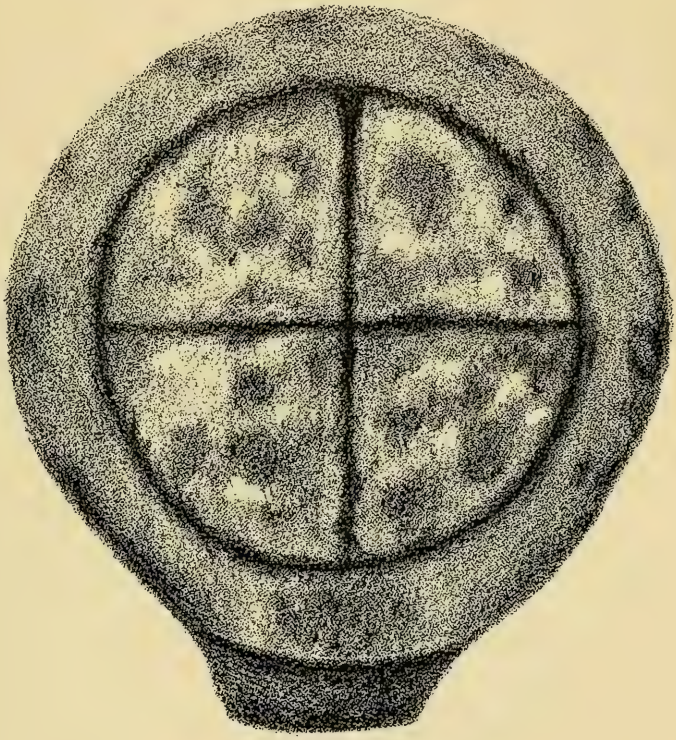
Folk-Lore.

The following practices are to be made use of when a woman wishes to have a vision of her future husband. The woman places her shoes in the shape of a T (=cross) at the foot of the stairs on the evening of the first Friday in the month, goes upstairs backwards, without speaking, and folds her apron in three folds under her pillow, saying :

"On Friday night I goes to bed
Three-fold apron under my head
In my bed I wish to sleep
In my sleep I wish to dream
In my dream I wish to see
Whom my true love is to be

Let him be by sea, or him be by land
Let him come by my bedstead, and stand
Let him be dressed in apparel or let him be dressed in array
Let him come in the clothes he wears by day."

In conclusion, I desire to express my great obligation to Rev. R. Prior for the beautiful drawing of Helegan Cross, which accompanies this paper, as well as for many valuable suggestions and ungrudging assistance.



CROSS AT HELEGAN,

PARISH OF CROWAN.

Length - - - - - 2 *feet.*
Breadth - - - - - 1 *foot* 9½*in.*
Diameter of Circle 1 ,, 3½*in.*
Circle on outer Edge, 3 *inches.*
Probable Width of Shaft, 6 *inches.*

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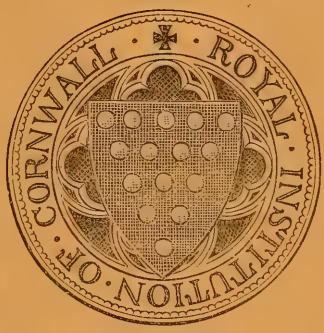

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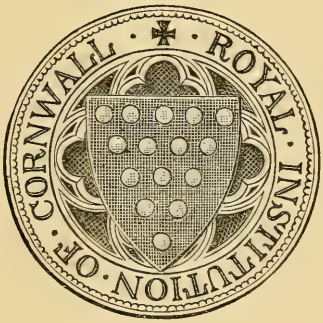

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Royal Institution of Cornwall.

SPRING MEETING, 1898.

The Spring Meeting was held in the rooms of the Institution, Truro, on Thursday, 2nd June, 1898. The President, the Rev. S. Baring-Gould, M.A., occupied the chair, and there were also present Mr. J. D. Enys, F.G.S. (vice-president), the Revs. Chancellor Worlledge, Canon Moor, Canon S. R. Flint, A. R. Tomlinson, W. R. Erskine, S. Rundle, H. L. Wright, H. R. Jennings, R. Prior, H. Edwardes, F. E. Lewis, and G. Lester; Dr. G. Hadow, Messrs. J. H. Collins, F.G.S., Jas. Osborne, F.G.S., T. C. Peter, E. F. Whitley, A. R. Morrison, C. Bassett, Gilbert Rogers, T. V. Hodgson, J. Bryant, B. Williams, H. Barrett, Hamilton James, J. C. Daubuz, S. Trevail, F.R.I.B.A., W. J. Clyma, T. Clark, W. G. N. Earthy, N. Laurie, A. Blenkinsop, P. Jennings, W. J. Martin, J. Barrett, F. A. Cozens, J. S. Gregg, B. Gregg, F. H. Davey, T. Worth; Mesdames Peter, Share, Raffles Flint, Hamilton James, Blenkinsop, Reginald Grylls, Paull, Lloyd, and Rogers; Misses Paull, Daubuz, M. Peter, C. E. F. Peter, Enys, Hedley, M. Bryant, E. White, Share, M. Burrell, M. Donaldson, Tomn, James, and Bosher; Rev. W. Iago and Major Parkyn, Hon. Secs., and Mr. R. A. Gregg, Curator and Librarian. Major Parkyn stated that letters of regret for absence had been received from the Bishop of Truro, Archdeacon Cornish, Canon Donaldson, Messrs. Edwin Dunkin, F.R.S., H. Michell Whitley, F.G.S., Robert Fox, Howard Fox, F.G.S., and A. L. Lewis, F.C.A., London.

Canon Moor, in introducing the President, said he considered it only a formal duty, as the name of the Rev. S. Baring-Gould was known not only in Devon and Cornwall but throughout England. No hand had been more industrious and no pen more prolific during recent years than those of Mr. S. Baring-Gould, and in the midst of his labours he had accepted the presidency of the Society.

They had secured a hard-working man and one who would confer honour on the office. In the name of the Society he offered a hearty welcome to the new President.

The Rev. S. Baring-Gould thanked the members for their kind welcome. He could assure them it was the greatest possible pleasure to him to be amongst Cornish people and to speak to them on a subject very near his heart—the early History of Cornwall,—of which so little was known.

At the conclusion of the President's Address (given *in extenso* in the following pages), Mr. Thurstan C. Peter, on questions being invited, said he did not think anyone would ask anything on the encyclopædic paper which had occupied such an area of time and country, for the president had gone from earliest days down to modern times. It was one of those most valuable papers which they would be delighted to see printed in the Journal. He proposed that the cordial thanks of the Institution and of the ladies and gentlemen present, be given to the President for his address. This was seconded by Mr. Collins, and carried nuanimously, the President suitably acknowledging the compliment. The following papers were also read.

"The House of Godolphin," by Mr. G. E. Hadow, M.A., M.B.; "The Cornish Domesday and Geld Inquest," by Mr. H. Michell Whitley, F.G.S.; "Notes on the Fauna of the Neighbourhood of Falmouth, for 1897," by Mr. Rupert Vallentin; "The Carland Barrows," by Rev. R. Prior, M.A.

The Rev. W. Iago exhibited a stone tablet of small size, illustrated by a diagram on a large scale, for the purpose of clearly shewing its peculiar incised markings. The stone was found in an old hedge in the village of St. Lawrence, in Bodmin parish, where stood the Lepers' Hospital in mediæval times. The age and purpose of the tablet are unknown, and opinions on both points were invited. The stone was kindly lent for exhibition by Mr Sibly, to whom it belongs. The tablet is of slate, and it is incised with four columns on each face, each column containing symbols of various forms, many of which are repeated. It is intended to publish an illustration of it in the Society's Journal, with any notes that may tend to throw light on the meaning of the characters, which are in the form of scorings and picture-writing.

There are no letters on it, and it is supposed to have been some form of record or tally. Mr. Iago added that he wished the authorities of the Royal Cornwall Infirmary would take possession of a very much larger stone at St. Lawrence, also in Mr. Sibly's possession, which he would willingly surrender. It is already put in a suitable frame, and is an ancient record of the Lepers' Hospital. A rubbing of its inscription Mr. Iago had exhibited on a former occasion.

Mr. Thurstan C. Peter showed a panel, which was one of three, all similar, found by Mr. George S. Bray, Lanner House, Redruth, in the roof of a cottage at Carnarton Moor, Illogan. There was one of three pieces of rail found with the panels.

Votes of thanks were accorded to the authors of papers and donors to the museum and library, on the motion of Mr. J. C. Daubuz, seconded by Mr. Trevail; and to the President, for occupying the chair; on the motion of the Rev. A. R. Tomlinson, seconded by Mr. J. D. Enys.

THE PRESIDENT'S ADDRESS.

The Early History of Cornwall.

By the Rev. S. Baring-Gould, M.A.

If we pass by the dusky race or races that occupied our island before the historic period opens, a race or races that strewed it with their rude stone monuments, we shall be able at once to direct our attention to the great Celtic migration.

This took place in two waves. The first was the Goidelic, and it is not possible for us to fix even the approximate date when this took place. The second was the Brythonic, which occurred not earlier than the sixth century before Christ.

The Brythons took possession of the south of our island, penetrated as a wedge into Wales, till they reached the Bay of Cardigan, constituted the people of the Ordovices, afterwards the kingdom of Powys, crossed into Ireland and established themselves in Dublin, Wexford, and Wicklow. If, possibly, the Goidels be the Firbolgs of Irish tradition, the Brythons are, certainly, the Milesians. In South Wales the bulk of the population remained Ivernian, or as they were then called, Silurian, a name still retained in our Scilly Isles. The conquering Brython, however, imposed on South Wales his language and his customs.

There is good reason to think that the cradle whence the Celt sprung was at the foot of the Alps, and that the first ancestors of Goidel and Brython alike lived on platforms upon the lakes.

It was thence that Brennus rushed with his Gauls over the Apennines and took Rome B.C. 390, and a second Brennus who fell on Greece B.C. 279. It was thence that the Helvetian avalanche descended that was met and stayed by Cæsar, B.C. 58.

To the present day the migration from Helvetia continues, and must do so, but in peaceful form. The narrow glens and scant pastures of the Alps will not sustain a vigorous and growing population. Swarm away they must. The Swiss went forth in Mediæval times as mercenaries through Europe, now they go as masons, plasterers, and pastry cooks.

The date of the arrival of the Brythons in Britain cannot be fixed with anything approaching to accuracy, but we may conjecture that before they crossed into the plains of Italy they had invaded and occupied our island, where they would not meet with organised and armed resistance as complete as in Italy, for the aborigines in Britain were at the time ignorant of the use of iron, and with their flint and bronze weapons could offer no effective resistance.

But when the Brythonic Celts had taken possession of our island, they were not to be left in tranquil possession.

The Roman invasion of Britain by Cæsar in B.C. 55 had been preceded by Belgic conquests and settlements. Fifty years or more before Cæsar arrived, the Gaulish King of Soissons had extended his rule over the southern portions of the island.

Belgic tribes had invaded the country for the purpose of plunder, and finding the place to their liking, had remained as colonists. Cæsar could recognise the names of several clans, and could point out the continental states from which the several colonies had proceeded.

But the Brythonic population of Britain had also sent off swarms into Ireland, and we find that not only were there Brigantes there as well as in Britain, but that our own Damnonii had not only a branch of the tribe in Alba, but also in Ireland.*

The conquest of Ireland by the fair-haired Celts led to the subjugation of the dusky race there, as it had in Britain. This latter went there by the name of Tuatha de Danann.

The complete conquest of Britain by the Romans was not achieved till the time when the island was governed by Agricola, from A.D. 78 to 85.

Britain enjoyed comparative tranquility under the Roman rule till the decline of the Empire. That the Romans made any effective settlement in Cornwall is doubtful. Scanty are inscriptions or other traces of these conquerors West of Exeter. They may have had a few camps along a main artery of road. To what extent they worked the tin mines is uncertain.

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*But Damnonia may be a name descriptive of the *land*, and not a race name. It signifies a region of "Deep Dales."

Britain became now exposed to terrible scourges through the invasion of Picts, Scots, and Saxons. It must be clearly understood that the Scots were Irish. It was not till about A.D. 350 at the very earliest, more probably in the first years of the 5th century, that the Irish Scots made their effective occupation of Alba, and it was not till the 10th century that the name of Scot was transferred from the Irish Gael to the dominant tribe of conquerors in what we now call Scotland.

The Irish inroads into Britain began very early, and the Irish Chief King obtained sway over both Wales and Cornwall. In Cormac's Glossary (he was b. 831, and d. 903) is a curious story connected with an Irish envoy sent into Cornwall to collect tribute, and in the same article, Glastonbury is called Glastonbury of the Gaedhil, or Irish.

The passage is sufficiently important to be given. "Great was the power of the Gael (Irish Gaedhil or Scot) over Britain. They divided Alba amongst them in districts, and the Gael dwelt on the east coast of the sea no less than in Scotia (Ireland) and their residences and royal *duns* were erected there. Thence was named Dinn-tradui or the three-fossed fort of Crimthan the Great, son of Fidach, King of Erin and Alba, and down to the Ictian sea (the English Channel), and thence also Glasimper (Glastonbury) was called 'of the Irish' a church on the confines of the Ictian sea. . . . In that part is the *dun* of Map Lethain, in the lands of the Cornish Britons (*i tirib Bretan Cornn.*) *i.e.* the dun of Mac Lethain, for *Mac* is the same as *Map* in British."*

Carausius who made himself emperor in Britain in A.D. 209, checked the inroads of the Irish. A Menapian by birth, and therefore probably of Irish extraction, and a pirate by profession, he was not likely to allow the continuance of these invasions by his country men, on the principle that the best person to catch a thief is one who has been a thief himself.

Carausius employed large bodies of Frankish mercenaries, whom he settled in Britain.

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*"Three Irish Glossaries" with preface by W.S. (Whitley Stokes), Lond., 1862, p. xlviii

During the reign of Constantius Chlorus and of his son Constantine, the Irish, Picts, and Saxons were kept in check; but in the reign of Constantius, son of Constantine, the rapacity of the notary Paulus and the rebellion of Valentinus so weakened the country as to render it an easy prey to these enemies hovering round the borders, and Picts, Saxons, and Irish formed an offensive alliance against Britain. The Irish and Picts reached London and occupied it. The general commanding the Romano-British troops, Fullofaudes, was slain. It required all the skill and ability of Theodosius, the father of the Emperor Valentinian to preserve the island from becoming entirely theirs. He landed at Sandwich, and on his road to London defeated several hordes of the combined invaders, in 368; he is said to have defeated them so completely that the Orcades were drenched in Saxon gore, Thule was warmed with the blood of the Picts, and Ireland had to mourn over the heaps of her sons who had been slain. Probably the Roman fleets pursued the Scots into the Irish ports, but they effected no landing so as to fortify, and to hold in check the stream of adventurers who used their settlements on the British coasts as vantage grounds for pillaging the Roman provinces.

A noble Briton, or as some think a Spaniard, Maximus, the Maxen Wledig of Welsh pedigrees, married to Ellen, daughter of a Welsh prince, was proclaimed emperor by the army in Britain. He drew away the troops quartered in the island, together with the levies of the British, under the leadership of Conan Meriadog, to assist him on the continent in his attempt to establish his usurpation. He was taken and put to death in 387, and his levies never returned to Britain, but were distributed in Armorica, where, as "Milites limitanei" or Laeti, they may have given to Brittany that name of Llydaw or Letavia, which it bore till it acquired the name Little Britain.

Taking advantage of the weakness and exhaustion of Britain, again Scots (Irish), Picts, and Saxons combined to pour on all sides into Britain in 396 and 397. This invasion was headed from Ireland by Niall of the Nine Hostages. Stilicho, the Roman general, seems, however, to have obtained some success over them, for Claudian speaks of Stilicho protecting the island from her enemies when the Scot moved all Ierne, and the sea foamed with hostile oars.

But the war with the Goths in 400-408 led to the recall of Stilicho's legions, and the Irish again seeing their advantage invaded Britain under their King Niall, who fell by the dagger of an assassin near the Muir-n-Icht, the Ictian sea—the English Channel.

The Roman legions appear to have been finally withdrawn in 410; and the last great invasion by the Irish-Scots was led by Dathi, nephew and successor of Niall. He not only traversed Britain but also entered Gaul, and died by lightning on the Alps. His son, Amalgaidh or Awley, brought his body back to Ireland, fighting a succession of battles on the way.

It must have been about this time that S. Patrick, then a boy, was carried away captive to Ireland.

Dathi is described as King of Erin, Alba, Britain, and ruling as far as the Alps.*

Wales—at all events the coast from Anglesea to Carmarthen—was in the hands of the Irish, and Brecknock was possessed by them, conquered possibly by that very Awley† who was the successor of Niall.

But now Cunedda, a British chief in Strathclyde, unable to maintain himself against the Scots pressing into Argyle from Ireland, and the Picts and Saxons from north and east, turned south, and he and his sons drove out the Irish from Gwynedd, Anglesea, and Cardigan. This is said to have taken place one hundred and fifty six years before the death of Maelgwn Gwynedd, about 547, that is to say, sometime between 390 and 401. But this would land us in the time of Niall of the Nine Hostages, and it is more probable that it took place after the death of his successor, when the Scotic power undoubtedly declined, and ultimately ceased altogether in South Britain.

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* "The Genealogies of Hy Fiachrach," E. O'Donovan, Dublin, 1844, p. 14. To this probably refers the passage in the life of S. Carantoc:—"In istis temporibus Scotti superaverunt Brittaniam; nomina ducum quorum Briscus, Thuthaius (Dathi), Macheleius, Anpachus, xxx annis."

†Aulac Goronog is difficult to identify. There was another raid headed by Murtogh Mac-Erca between 470-480. See what I have said on Brychan in my Catalogue of the Cornish Saints; and especially on S. Carantoc.

The first arrival of the Jutes in Britain was in A.D. 447, when invited by Vortigern, the British King to assist him against their former confederates the Picts of Alba and the Scots of Ireland.

He no doubt considered this a clever move, but it proved most disastrous.

It is a mistake to suppose that the first arrival of the Saxons was in 520. Even in the times of the Roman domination they had been pressing in on the East and had colonised portions of that coast; and they had for long been in league with the Irish.

It was not till 557, however, that the West Saxons set their faces determinedly to the setting sun, and by the British defeat of Deorham, the flourishing cities of Gloucester, Bath and of Cirencester were lost to the Britons. The disaster was fatal to the cause of the latter, for not only were these important towns taken from them, but their line of defence was ruptured, and the Welsh and the Damnonii could no longer present to the enemy an unbroken front. In 583, the Cornavii, who had been in peaceable occupation of the Severn valley were harried by Ceawlin, who thrust his way up the river, burning and slaying.

He was, however, defeated at Faddiley and was forced to retreat, and in 591 was utterly routed at Wanborough. In this last struggle, the Britons assisted Ceol against his uncle. Feuds now broke out among the barbarian invaders, and the Britons were able to make terms with the Saxon kings.

Cenwalch, however, resumed the conflict against the West Welsh, as those to the south of the Severn estuary were called, and in 658 drove them across the Parret, which thenceforth for a while constituted the boundary between the races. In 688, the redoubted Ina was king, and in 710 he attacked the kingdom of Dyfnaint or Damnonia. He was met by Geraint the king. A battle was fought between Ina and Geraint on the northern slope of the Blackdown hills, just above Taunton, and the Britons were worsted. Ina then made Taunton a border fortress, but in 722 it was retaken by the Britons.

For a while the westward progress of the Saxons was not military. By some means or other, probably by peaceful compact made with the West Welsh princes, Saxons were

permitted to settle in the valleys, and establish their *tuns* and *stokes* beside the rivers. How this was brought about we know not, but it is remarkable that so early as 700 there existed a Saxon school in Exeter, at which Winifreth could be educated, and his parents, both Saxons, were living at Crediton.

We can hardly doubt that the malevolence with which, when in Germany, he pursued the Celtic missionaries, and ejected them from their churches, was due to prejudices imbibed from his parents when a boy at Crediton, living within a stockade, and looking on the Welsh around as dangerous neighbours, and on their Christianity as schismatical. This antipathy was mutual, and Aldhelm complained of the national British clergy, that "they shrink with abhorrence from communion with us. So much so that they will not condescend to join us in divine worship, nor will they sit by us in friendly fellowship at table. They even cast away the fragments of their food, and the broken meat from their tables to be devoured by dogs and swine."

The Saxons settled in Dyfnaint called themselves Defenas, and there can be no doubt that they increased in numbers, and steadily and surely wrested from the West Welsh the secular authority in the first place, and then took from them their churches. In 813, Egbert "harried the West Welsh from eastward to westward."

In 823 a desperate fight took place between the Britons and the Saxons in Devon at Gavulford. This locality was clearly on the high-road leading from Exeter to the west. Such a spot is Galford, where the hills on each side close in upon the road, and above Coombow (Cwm-bodd) in Bridestow parish, powerful earthworks command the way to Launceston on one hand and to Lydford on the other. Galford is from *Gavul*, a hold fast, and *fordd*, a way.

I do not think that the Saxon settlers in Devon formed more than a noble class. They retained natives in serfdom, although the invasion was not one of military conquest. They suffered the free to hold their land as before, perhaps no longer as alodial estates, and did not force them to adopt English law. William of Malmesbury expressly asserts that up to 926, in Exeter, Welsh and Saxons lived side by side, and that the former enjoyed equal rights with the latter.

In 835, some Danish vessels entered the Tamar, and the Britons joined hands with them against the Saxons. Egbert collected an army, and a battle was fought on Hengesdon, and the allies were routed.

The last relic of the Damnonian kingdom disappeared after Athelstan's visit to West Wales in 926 and 928. Howel, the king, made his submission during the first expedition, but on the second Athelstan expelled the Britons from Exeter.

There for some time, as already stated, Britons and Saxons had lived in contiguous cities. As Mr. Karslake pointed out, a good many years ago, "the area of the British Isca is indicated by the parishes under the patronage of Celtic Saints, SS. Kerian, Petrock, David, and Paul of Leon."

So far I have been summing up briefly what we know of the blows dealt the West Welsh from without, let us now look at what is known of the history that was enacted within the British frontiers.

The advance of the Saxons and the rolling back of the Britons had heaped up crowds of refugees in Wales and in Devon and Cornwall, more in fact than the country could maintain. Accordingly an outlet had to be sought.

The Armorican peninsula was thinly peopled. It had once been occupied by the Curiosoliti, with their capital at Corseult, and the Ossismi further west, who had their headquarters at Vorganium, now Carhaix. But a single Roman road traversed the country, and that ran from Nantes to Vannes, then to Carhaix and thence to the estuary, Abervrach.

South of the Curiosoliti and Ossismi were the Veneti. But in consequence of the exactions of the decaying empire, and the ravages of northern pirates, the Armorican seaboard was all but uninhabited, and the centre of the peninsula was occupied by a vast untrodden forest, or by barren stone-strewn moors. Armorica therefore was a promising field for colonisation.

Procopius says that in the 6th century swarms of immigrants arrived from Britain, men bringing with them their wives and children. These migrations assumed large dimensions in 450, 512-4 and between 561 and 566.

So early as 461 we hear of a "Bishop of the Britons" attending the Council of Tours. In 469, the British settlers were in sufficient force at the mouth of the Loire to become valuable auxiliaries against the invading Visigoths.

The author of the "Life of S. Winwaloe" says, "The sons of the Britons, leaving the British sea, landed on these shores, at the period when the barbarian Saxon conquered the Isle. These children of a beloved race established themselves in this country, glad to find repose after so many griefs. In the meantime the unfortunate Britons who had not quitted their country were decimated by plague. Their corpses lay without sepulchre. The major portion of the Isle was depopulated. Then a small number of men who had escaped the sword of the invaders, abandoned their native land, to seek refuge, some among the Scots (Irish), the rest in Belgic Gaul."

The plague to which reference is made is the Yellow Death that carried off Maelgwn Gwynedd, King of Wales.

The invasion was not a military occupation, the settlers encountered no resistance; every account we have represents them as landing in a country that was denuded of its population, except in the district of Vannes and on the Loire.

Such occupants as were there were of the same race, the Laeti, or colonists from Britain, given lands there after the defeat of Maximus.*

Gildas, in the 6th century, tells how that some of the Britons fled to the mountains before the swords of the Saxons, how that others submitted and were enslaved, but that others again crossed the sea and found refuge elsewhere. That elsewhere was Armorica, to which these refugees were destined to give the name of Little Britain or Brittany.

Eginhard, in the first years of the 9th century, certainly exaggerates when he declares that it was a great part of the population of Britain which was comprised in this migration. Ernold Nigellus in 834, also speaks of it, and states that it was conducted peaceably.

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* See an important article by Dom Plaine, O.S.B. "La colonisation de l'Armorique," Paris, Picard, 1899.

In or about 514, Riwal, son of a Damnonian King arrived with a large fleet on the north-east coast, and founded the colony and principality of Damnonia on the mainland. Others arrived on the west coast, and constituted the colony and principality of Cornouaille. A modern Breton historian* has propounded a theory that Armorican Cornouaille was settled by a company of the defenders of the Wall of Severus, quartered at Carstopitum, near Newcastle. This is based on a statement in the Notitia that some Cornavii were sent to guard the wall, and secondly, on the fact that the new capital in Armorica was called Curiosopitum, and the people styled themselves Cornavii. He argues that Cornwall was not so called till the 10th century.

Now possibly enough, when the Notitia were compiled some Cornavii from Shropshire and Cheshire may have been sent to the wall, but it does not follow that this detachment remained there, after the break up of the Roman rule over the island, for over a century.

The inscriptions found at Carstopitum are generally in Greek, and none lead to the supposition that a native detachment was quartered there.

It may be true, and it is true, that the Romans did not give to Cornwall the name of Cornubia, but included it in the kingdom of the Damnonii; but Damnonia is a descriptive name for the land, so also is Cornu for the Horn of Britain. The designation Cern or Corn for the peninsula is found applied to Glywys, son of Gwynllyw of Wentloog—the Gluvias of the Fal estuary,—and attaches to his church as Coed Cerniw in Monmouthshire. He belongs to the beginning of the 6th century. We have already seen how Cormac employs the word in the 9th century. And Carantog, assistant of S. Patrick in the 5th was called Cairnech, "the Cornishman," in Ireland.†

The name of the capital Curiosopitum is descriptive of its being a cluster of Caerau or forts, and might be applied anywhere that was suitable.

The theory propounded would hardly deserve notice had it not been very generally adopted by Breton writers.

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*De la Borderie: Hist. de Bretagne, Paris, 1896; T. I. 309—11.

†Irish Nennius, ed. Todd & Herbert, Dublin, 1848, p. cxi.

But it was not pressure of refugees alone that provoked migrations. It is possible, even probable, that these had begun before the Saxon invasion. A predisposing cause lay in the Celtic laws relative to inheritance.

Although we have these laws in late texts, yet they are the codification of customs of hoar antiquity.

One of these laws is—"All patrimony is thrice divided in the family; first, among the brothers; secondly, among the cousins; and thirdly, among the second cousins." That is to say, on a father's death there was equal partition among the sons, but should one of these brothers die, there was no repartition among his children till the death of the uncles; and then the original inheritance was divided up equally among all the grandchildren who were cousins. Such a condition of affairs was intolerable to young bloods, and rather than wait to an indefinite future to inherit a small parcel of land, they preferred to carve out for themselves new principalities with immediate possession. There lay but a blue belt of water between them and Armorica almost destitute of inhabitants. The young princes drew about them a host of adventurers and crossed.

We can distinguish four swarms. The first, under one Riothimus, landed at the mouth of the Loire at the close of the 5th century. The second came from Gwent, where life had become intolerable owing to the incursions of the Saxons over the Calder and Wentloog levels, and in the valley of the Usk. This Gwentian colony planted itself in the north-west of the Armorican peninsula, and called it Leon or Lyonesse after the Caerleon that had been abandoned. The third was the swarm under Riwal, already alluded to. It took possession of the north from Leon to the Couesnon, and called the principality Damnonia; either as coming from Devon, or from the character of the land they took.

The fourth swarm called their new territory Cernau, which the French have rendered Cornouaille; because Finisterre projects like a horn into the Atlantic.

By degress Vannes, itself a Gallo-Roman city, was enveloped by the new comers, so that in 590, the Bishop Regalis complained that he was as it were imprisoned by them within the walls of

his city. The Gallo-Roman prelate disliked these British invaders and their independent ways. S. Melanius of Rennes, and S. Felix of Nantes shared his dislike. The prelates exercised much of the magisterial authority of the imperial governors, and to this the newly arrived Britons refused to submit. The Britons brought with them their own laws, customs, and organisation, both civil and ecclesiastical, as well as their own language.

They were at first few in numbers, and did not desire to emancipate themselves wholly from Britain. Consequently, although establishing themselves in clans, they held themselves to be under the sovereignty of their native princes at home.

This appears from the coincidence of the names of the kings in Armorica and in insular Damnonia.

However fabulous and untrustworthy Geoffrey of Monmouth may be, yet his history as it draws towards times of which records remained, must have contained some elements of truth, and cannot have diverged too greatly from facts that were preserved in tradition if not in writing. He represents Arthur as reigning over Brittany as well as over Britain, and committing the government to his cousin, Hoel, and although what we are told of the wars and victories of Hoel are exaggerations, even gross fictions, yet Hoel himself was a historical character of whom we learn from other and more reliable sources.*

It is not very easy to determine the dates within half-a-century of the succession of the Armorican princes. The Welsh give us pedigrees but no dates. The Britons give us legends also without dates. By comparison we are able, but only approximately to determine the chronology.

But it is not the princes alone who bear the same names in Devon and Cornwall as in Armorica, for the saints are the same; and the establishment of a saint in a district implied a good deal more than missionary venture. For where we find a saint we very generally find also a secular chief as well. This

* In the Life of S. Leonore we are told—"Fuit vir unus in Britanicia ultra mare, Nomine Rigaldus (Hoel the king) qui in nostra primus venit citra mare habitare provincia, *qui dux fuit Britonum ultra et citra mare usque ad mortem.*" De Smet, Catalogus codicum hagiograph. in Bibl. Nat. Parisiens. II, 153).

does not apply to the Irish monks who spread over Europe, but it does to the Welsh and Cornish Saints. Moreover, we find that the Saints of Cornwall had their churches in Cornouaille and Damnonia, and passed as they listed from one to the other, and that very readily, for they were among their own people, and, for a time at least, under the same princes.

Let us now see what was the method adopted in colonisation.

Those who came across were chiefs whose prospects were not rosy in Britain where the frontiers were contracting. They headed some of the refugees from the swords of the Saxons, for whom there was no room in West Wales, and they crossed the channel.

All those united under one leader constituted a clan, and it was the duty of the chief to find land and homesteads for every married man in his clan. In return he received an annual subvention and assistance in war.

Accordingly, as soon as a body of colonists arrived, they founded a *plou*, plebs, in Welsh plwgf. Each district occupied was a *pou* or pagus. In the pou were so many *trefs* or homesteads. In Wales a hundred trefs made up a cantref. It was not so at first in Brittany. In Cornwall we know nothing of the clans, but the whole peninsula is strewn with *tres* or trefs. Probably the Deaneries represent the old clan limits. In one instance, Powder, the designation *Pou* combined with *dwr* (water) remains. The chief had his *lis* or court* in which he sat as judge. He had also his *dinas* or palace, and *caer* or fortified castle.

The next thing to be done was to organise the ecclesiastical tribe. Among the Celts all authority was gathered into the hands of hereditary chiefs. Of these there were two kinds, the military chief and the ecclesiastical chief, each had his separate clan and separate lands; but the members of the ecclesiastical tribe were bound to render military service to the Chief Secular; and the ecclesiastical chief on his side provided for the religious needs of the Secular as well as the Ecclesiastical tribe.

A very similar organisation existed among the Hebrews, among whom were nine secular and one ecclesiastical tribe, but there was this difference, that among the Hebrews there was

*In Ireland a *lis* did not mean court but an enclosure. The exercise of judicial rights by princes was late.

no passing from a secular to an ecclesiastical tribe, whereas among the Celts, the ecclesiastical tribe was recruited from the other.

Whether invited or not, a saint came over when a brother or cousin had established a *plou*, and demanded a grant of land. Having been accorded a site he enclosed a small area with a bank. Within this he and his monastic family lived. Outside it he settled his lay attendants. At intervals round his land he set up stones or crosses; and within this was his *minihi* or Sanctuary. It was through the Sanctuary that the Tribe of the Saint in part recruited itself. To it fled those who were being pursued in blood feud, runaway slaves, in a word, all who could not obtain a footing in a secular tribe.

Within the enclosure of earth the saint planted a number of circular huts, bee-hive shaped, and built a church, almost always of timber and wattle. This was his *Bangor*, his monastery, the centre of organisation in ecclesiastical matters.

Now it did not suffice the saint to have one monastery. He set to work to obtain fresh grants of land, and to establish *lanns* (churches) throughout the *pou*. But this could not be done in the manner which seems so natural to Saxon and English minds, that the chief should have the church at his door.

According to Celtic ideas, the secular and ecclesiastical organisations were distinct, the land was distinct, the members of each tribe were distinct, under distinct heads. Consequently the *lann* had to be at some distance from the residence of the chief of the secular tribe. Now you will see how it comes about that in Cornwall the parish church is so often removed some way off from the town or village to which it serves for religious purposes.

The most remarkable case is Callington, three miles from its parish church, Southill; the most scandalous is that of Camelford, two miles off from Lanteglos, without even a chapel of ease in it. It is the same, but in less degree at Launceston, where the ancient monastic centre is S. Stephen's, and Launceston itself is the secular town about the castle; but there, later piety established a church within the town. Something of the same thing may be seen at Marazion, Penzance, Penryn, Hayle, Redruth, Tintagel, and Boscastle.

In Brittany, wherever the city surrounds the great church, as at Dol, Treguier, Quimper, S. Pol de Leon, it is because these were settlements of the Sacred Tribe which survived the Secular Tribe and absorbed its land and jurisdiction. Rennes, Nantes and Vannes are exceptions, but they were founded by the Gallo-Latin church. The Breton cities were capitals of principalities in which the saint was sovereign.

In them the token of ecclesiastical supremacy was maintained through the middle ages. The great prelates allowed but a nominal recognition to the authority of the Dukes of Brittany. The ceremonial of their installation marked their sovereign rights, for the chief nobles were required to hold the stirrup of the bishop as he descended from horseback, to draw off his boots, and to carry him in a chair to the altar.

From what has been said it will be seen that no man or woman—with the rarest exceptions—could be a saint unless he or she were of royal blood, for saintship was a profession, and when, under peculiar circumstances, no one of the royal family was qualified to become head of the ecclesiastical tribe, then another might be appointed, but he had to give securities that when a properly qualified member of the ruling family appeared, he would surrender to him his rule.

Not for one moment do I wish it to be thought that these saints were not full of missionary ardour, and that they adopted the ecclesiastical profession without proper call. Everything we learn about them shows how truly zealous and apostolic they were. But this was an institution of the race that existed before ever it embraced Christianity.

Now, from this constitution of the Sacred Tribe, it followed that jurisdiction, rule, was in the hands of the Head of the Tribe, the Saint, whether male or female, priest or layman. He it was who sent out the several priests to minister in the several *kills* and *lanns*, and he it was who presided in his *lis*, the court of justice of the tribe. This was productive of a condition of affairs very surprising and inexplicable to Latin ecclesiastics. For each saint kept at least one bishop on his staff, and sent him about to ordain and consecrate, but the bishop was invested with no jurisdiction.

The church in Celtic lands entered on the inheritance of the Druids. In Ireland and perhaps elsewhere, there was no forcible disestablishment of Druidism; but the Druids and bards largely joined the Church and became ecclesiastics. Where this was not done, there the kings and princes gave to the saints new grants of land, whereon they constituted their tribes. "The lands given by the piety of S. Patrick's converts for the foundation of these establishments," says Dr. Todd, "often conveyed the rights of chieftainship, and so secured the allegiance of the clan. The church lands called Termon-lands, in Ireland, had their name in all probability from the *Termini*, pillar-stones or crosses set up to mark the boundaries, within which there was a right of sanctuary, and a freedom from the taxes and tributes of secular chieftains."*

The duties of the Druids into whose place the Saints stepped had been to bless the chiefs with whom they were associated, and from whom they received benefits, and to curse their enemies. Precisely these were the obligations laid on the Saints in Celtic lands, and they fulfilled them without scruple. Ethelfred massacred the monks of Bangor, because he saw them on high ground praying for the success of the British arms.

In a word, as Balak required Balaam to bless his Moabites and to curse Israel, so were the Saints in Celtic lands requisitioned by the secular chiefs to attend their forces, bless their arms, and overwhelm their enemies with imprecations. I shall have more to say on this in my address next year.

Like the Druids also, the Saints were the educators of the youths of noble race. Their monasteries were emphatically schools. You will understand the condition better if I quote Huc's description of an analogous state of affairs in Tibet.

"In almost every family, with the exception of the eldest son, who remains as head of the family, all the other male children pass through the Lamaserais. The Tartars embrace this condition because required to do so, not out of natural inclination. They are Lamas, or black-men from their birth, according to the will of their parents, who shave their heads or let their hair grow as they determine. Thus, as they grow up

* Todd: Life of S. Patrick, pp. 504, 160.

they become accustomed to the condition, and in the end acquire a certain religious exaltation which attaches them strongly to it." The lamas are taken with but rare exceptions from the noble class alone. Yet there also, the doors are open to runaway serfs, who on entering the lamaserai become free, and belong thenceforth to the Sacerdotal tribe. Huc says, "no dues, no feudal obligations can be exacted of them thenceforth. They may expatriate themselves and travel the world if they will, and no one has the right to stay them. They are nevertheless members of the Saintly clan."

The Tibetian Lamaserais are Buddhist, but only so because Buddhism has entered into and occupied an institution that pre-existed in Tartary before Sakia Mouni was born.

Very similar again are the Merábuts of North Africa. A recent writer thus describes those at Tripoli. He says—"so far has this peculiar development of religion prevailed that it may be said that at one time Tripoli was almost ruled by these religious orders, and even yet they are distinctly a power, and in such veneration are they held that it is by no means easy for a Non-Moslem to obtain much information on the subject. It appears, however, that the true Merábut is a member of a religious guild. The members are bound, as the name implies, to the strict observance of certain religious forms; and consequently, the fact of being a Merábut neither means a fanatic, nor an impostor, nor a lunatic....The fact appears to be that the Merábuts are guilds of men who follow the teaching or precept of some holy man; so that although here and there we find an individual who from some reason claims to be one on his own merits, the majority are simply disciples or followers. Accordingly the tombs of the originators of the guilds are revered, and often by them spring up little sanctuaries or 'zawichs,' which their followers frequent." (H. S. Cowper: *The Hill of the Graces*, Lond., 1897, p 23).

This Merábut institution has now assumed a Moslem character, but it did not originate with Mohamedanism, it is vastly more ancient, and is a legacy of that primitive Ivernian or Berber race which underlies all others in Northern Africa, as it does in Wales.

On the Steppes of Tibet there is a practical reason for the development of Buddhish monasticism. That elevated and sterile plateau can maintain only a limited population, and it is to keep the growth of the population down that so large a proportion of the males are consigned to celibacy. Precisely the same cause provoked the ascetic and celibate societies of the Druids first and the Christian monks afterwards. When no new lands were available for colonisation, when the three field system was the sole method of agriculture known, then the land which would maintain at least three families now would then support but one. To keep the equipoise there were but migration, war, and compulsary celibacy as alternatives. That this really was a difficulty that confronted the old Celtic communities we can see by a story told in the preface to the old Hymn of S. Colman. In 657 the population in Ireland had so increased, that the arable land proved insufficient for the needs of the country; accordingly an assembly of clergy and laity was summoned by Dermot and Blaithmac, kings of Ireland, to take counsel. It was decided that the amount of land held by any one person should be restricted from the usual allowance of nine ridges of plough land, nine of bog, nine of pasture, and nine of forest; and further the elders of the assembly directed that prayers should be offered to the Almighty to send a pestilence "to reduce the number of the lower class, that the rest might live in comfort."

S. Fechin of Fore, on being consulted, approved of this extraordinary petition. And so the prayer was answered from heaven, by the sending of the terrible Yellow Plague; but the vengeance of God caused the force of the pestilence to fall on the nobles and clergy, of whom multitudes, including the Kings and Fechin of Fore himself, were carried off.*

When the Brythons conquered Britain, they found the Religious Tribal institutions in full vigour, but Christianity infiltrated the Celtic community without subverting institutions. It entered into them and invested them with new significance, gave them a new force, just as in the old empire, Christianity running into the mould of imperial organisations took

*The Irish "Liber Hymnorum," 1898, II, pp. 12, 114.

ecclesiastical shape therefrom. What Dr. O'Donovan says of S. Patrick applies to all the missionaries who worked among the Celts, "nothing is clearer than that Patrick engrafted Christianity on the Pagan superstitions with so much skill that he won the people over to the Christian religion before they understood the exact difference between the two systems of belief."* I would substitute "institutions" for "superstitions."

A few years after the preaching of S. Patrick, we hear of thousands of monks in one monastery, and of monastic establishments peppered over the whole face of Ireland. We hear of the Isle of Bardsey off the coast of Anglesey containing 20,000 saints. This would not have been possible had not Christianity replaced institutions already flourishing. Converts do not become ascetics at a bound. The fact that these communities did exist previously we know from the classic authors. What Christian monks did was to step into the shells lately occupied by the Druids, or else converted Druids continued in their old communities, with a changed faith, and a new worship, but with their organisation unaltered.

It is not my intention here to enter into the characteristics of the Cornish saints, and of their establishments. I reserve that for my address next year.

I come now to an interesting point in Cornish history, of which no proper record exists. Not only did Cornwall send out swarms of colonists, but she was forced, no doubt reluctantly, to receive them, and these not refugees from the east, flying before the Saxons, but adventurers from the north.

If we look at the north-east of Cornwall from the estuary of the Camel at Padstow to Hartland Point in Devon, we find that almost every church is dedicated to a member of one or other of two closely allied royal houses, those of Brecknock and Gwent.

The Royal Brecknock family was Irish. Aulac Goronog at the head of his Goidelic Picts had invaded South Wales and taken possession of Carmarthenshire and Brecknockshire, in the very beginning of the 5th century. His son was Brychan. This Brychan had a numerous family, but his reputed sons and

*O'Donovan: "The Four Masters," 1851, Vol. I, p. 131.

daughters actually comprise grandchildren. Sonship meant no more than relationship carrying with it tribal rights.

If we look at the Welsh Chronicles we see that there was an incessant attempt made by the Irish Picts to establish themselves on the Welsh coast. For instance:

335. Forty thousand Irish Picts slain in the north.

339. Many Irish freebooters taken and burnt alive.

400. Irish Picts came into Cambria and committed atrocious depredations; but at last they were vanquished, unsparingly, and driven back over the sea to their original country.

410. The pike-bearing Irish beset the coast and carried away Patrick into captivity.

430. The Irish Picts made a descent on Anglesey and Arvon, and were joined by the Irish settled there in combined hostility against the crown of the Island of Britain.

436. The Irish Picts came to Cambria.*

These Goidels or Scots achieved the conquest of Pembrokeshire and of Gwynedd. As already said, they had succeeded in establishing themselves in Brecknock. The Armorican coast was also harried by them. They had carried their arms even into the heart of Gaul. London had been in their possession. They were wresting Alba from the Picts and giving it their own name.

It would seem probable that they would not spare the Devon and Cornwall seaboard any more than they did the rest of the west coast. Moreover, we learn from Irish sources that at one time the king of Ireland did exact a tribute from the Damnonii, from Land's End to the Parret.

Now we do know that in Penwith and Carnmarth they achieved a settlement. They were encountered by Tewdrig, who had his palaces at Gooderne and at Riever, and he killed several of them, and those who fell are accounted as martyrs. Their names are met with from Camborne to Land's End. Of this invasion, or rather these invasions, for there would seem to have

*Caradoc of Llancarvan, in Iolo MSS, p. 417.

been two at least, we have a meagre account in the Legend of of SS. Fingar and Piala, and in the notes of Leland from other Legends now lost.

But that there was an invasion on a much larger scale of the North-east of Cornwall and of North Devon is most probable, but of it we possess not even the most meagre detail.

Brecknock was but a basin between lofty and desolate mountains, and could not satisfy the aspirations of a number of princelings, nor that of the horde of Irish who had come over with Aulac and settled down on the land they had conquered.

The Brychan family was allied by marriage with that of Gwent; and the kingdom of Gwent was parcelled up among a number of princes with prospect of further subdivision.

The north coast of Cornwall, if somewhat wind-swept and bleak, had its fertile coombes, and it attracted the eyes of these half Irish, half Welsh princes of Brecknock and Gwent, and they descended on and occupied all the district mentioned.

As I said before, there is no historical record of this invasion, for unhappily the Cornish have preserved no historical records whatever of their past. We conclude that this took place, in the first place, because of the dedications of the churches, all, or nearly all, to brothers, sisters, and cousins belonging to the royal houses of Gwent and Brecknock. In the second place this district shews us camps of the peculiar construction adopted by the Irish Goidels. The Brythonic Celt was not a builder in stone. Wattle and dab were his material. He threw up earthworks, but not stone caerau. The Goidel, however, had learned to manipulate stone from the Ivernian native whom he had subdued and with whom he had mingled his blood. We have at Carn Bré, at Whittor on Dartmoor, and at the Cheesewring, also at Helsborough, camps that are Goidelic, but whether as late as the period of this 5th century invasion is uncertain. What is more to the point is the existence of Oghams in East Cornwall and Devon, and Oghams are only found there, in South Wales, in that part of North Wales which was for some time in the possession of the Irish, and in Ireland itself. Again another point. The inscribed stones belonging to this district bear Goidelic names, Maccodechet, Dobunnus Enobarri,

Ulcagnus (which is the Irish Olcan), Tigernomalus and Broeagan or Brocagn, Maccarus twice, and Gungleus, a name allied to those employed by the Gwent family Gwynllyw, Gwynlleu, Gwodloew, and Gwyddlew.

The Tavistock stone of Sabinus Maccodechet bears on it the evidence of Irish provenance. For *Mac* is the Goidelic form, which in Brythonic is *Map*; moreover the Dechet name is one from Kerry, where it occurs on several inscribed Oghams of Pagan times*

That the colony extended to Exmoor is probable, for we find a dedication there to S. Brendan, but owing to the manner in which Saxon and Norman prelates rededicated churches to Saints of the Roman Calendar, we cannot trace them in Devon as we can in Cornwall.

Beginning with S. Brendan and moving west, we have at Braunton S. Brynach, the Confessor of Brychan, married to one of his daughters. Next, S. Nectan at Hartland, S. Morwenna, follows, and then we are in the thick of them. That these saintly settlers led the exodus is improbable; it is far more likely that they accompanied or followed the military leaders. Of these latter no names have been preserved, except possibly that of Clement the father of S. Petrock. That this colony comprised a number of Irish adventurers is probable. In no other way can we account for the introduction of the cults of S. Bridget and S. Itha, and their extension. One of these was the Holy Mother of Virgins in Leinster, the other her corresponding Saint in Munster, and we may suspect that the Irish who settled here came from both provinces, and brought with them the devotion to the respective Saints of their tribes.

In Cornwall we can pretty nicely delimit the territories acquired by the Irish in Penwith and Carnmarth, and the Cambro-Irish settlers in the Trigg Deaneries. The south of the district between these settlements show us native foundations, by the royal house of Damnonia.

I would point out two characteristic groups. About the Fal estuary you have S. Melor, a prince of the blood royal of Cornwall; S. Budoc, of whom we know little, but who seems to

*Macalister: Irish Epigraphy, part I, 1897.

have belonged to the same family; S. Gerans, the gallant Damnonian king, and S. Just, his son. In S. Kea, Gooderne was the palace of king Tewdrig. At Tregoney, S. Cuby, son of Solomon of Cornwall and grandson of Gerans, also of blood royal; at Grampound, S. Non, his mother's sister.

Now look at the Looe estuary. Quite a family cluster is there: Lansallos, the church of S. Selyf or Solomon; Morval, that of his wife, S. Wenn; Duloe, a foundation of their son, S. Cuby; Pelynt, S. Non, the sister of S. Wenn. But in S. Keyne, East Looe, we have evidence of the Brecknock family extending its settlements even to the south coast.

I may now notice the very peculiar usage of the Celtic church in the matter of dedications. Dedications to dead persons were exceptional. The usual practice was for the saint to spend forty days and nights on a spot in fasting and prayer, eating one meagre meal in the day, and after that the *Llan* was consecrated and bore thenceforth the name of the founder. But there were exceptions to this rule. A *Martyrium* or chapel raised over the body of one who had suffered death for the faith, bore his or her name. But in Ireland this term had a different meaning, and was applied to a consecrated cemetery.

Again proprietorship was expressed by a name. If a monastic institution obtained fresh sites for churches or branch settlements, it gave to these the title of the original founder. Thus there are many S. David's in Wales, not churches founded by David, but acquired by the monastic settlement of Menevia. So with the several S. Bridgets and S. Ithas in Devon and Cornwall. They were not foundations made by these illustrious women, but mark sites where holy women were living under the respective rules of S. Bridget and S. Itha, more or less loosely affiliated to the mother-houses of Kildare and Clon-Credhuil.

It must be remarked that the Celtic Saints seem to have been animated by a passion for founding churches. The parochial system did not exist, it was the only way they had of meeting the religious needs of the people.

That a certain amount of rivalry existed between the monasteries or schools of the several Saints is undeniable. Each strove to extend its influence and authority.

There is reason to surmise that even the great founders in Armorica were not satisfied without branch houses in Cornwall.

There is a Landewednack in the Lizard district, and a Landewennec, the mother house, in Brittany. Both hold S. Winwaloe as their patron. Winwaloe was the son of a Brychan or Fragan cousin to Cado, Duke of Cornwall. After that Winwaloe had made his monastic establishments in Armorica, we are told that he came to Britain to see the monasteries there. Now we have evidence of his activity in the Cornish Landewednack, in Gunwaloe also. In East Cornwall there is a belt of foundations of himself and his brothers. Tresmere and Tremaine are dedicated to him, Lewanick to his brother Winnoc, and Jacobstowe to his other brother, James.

Flodoard, the French chronicler, says that between 900 and 940, a deadly conflict ensued on the marches of Brittany, that is to say in the districts of Rennes and Nantes, between the Bretons and the Normans, and that many of the inhabitants in despair departed the country and crossed the sea.

He does not tell us their destination, but we learn that Mathuedoi Count of Poher fled to Athelstan along with a great number of refugee Bretons, and he took with him his son, Alan, afterwards known as Barbetorte, who was Athelstan's godson. This comes to us from the Nantes Chronicle under date 919 or 920. Athelstan was not king at the time, and it was not till 926 that Howel, king of the West Welsh, or Damnonians, made his submission after defeat. That Athelstan should have planted the emigrants from Brittany in Cornwall before that date is not possible. After 936, he may have done it when he traversed the peninsula to the Land's End.

Now I think that we have some indications of a settlement of these Bretons from the Marches in the peninsula, for certain saints of purely local interest have been intruded there; S. Moderan of Moran, S. Merriadoc of Camborne, and S. Corentin of Cury.

The disappearance of the names of Celtic Saints from Devon, to which I have already alluded, was due to one or two causes. In the first place, when the Saxon thanes settled down on the land and wrested their churches from the Britons, they did not

like to have as patron a saint belonging to the subjected race, who, moreover, they thought would not assist them in heaven, but rather fight against them.

In the second place they looked with suspicion upon them, the Saxon-Roman clergy certainly did, regarding them as tainted with schism if not with heresy.

In the calendar of the Leofric Missal, although it comes from Glastonbury, an old British monastic centre, very few Celtic names are found. Those that filled it were eliminated after the refounding of the abbey by Ina.

In the next place, very little was known of the West Welsh Saints. Their lives had been preserved in Cornish legends and ballads, and the Saxon and Norman clerks did not understand the tongue in which they were composed, and despised all saints who had not a place in the Roman calendar.

In 1330, Bishop Grandisson wrote to the Archdeacon of Cornwall complaining of the neglect and accident which had caused the destruction or loss of the records of the local Cornish Saints, and he directed that those which remained in each church should be transcribed, two or three copies made, and be transmitted to Exeter, to ensure their preservation; and he further enjoined that the parish priests who failed to do this should be fined. Two points of interest connected with this letter deserve attention; first, that there were extant at the beginning of the 14th century a considerable number of these Legendary Lives, and secondly, that copies were most probably stored at one time in the diocesan registry.

What has become of them? To us they would be priceless, as our only means of reconstructing much early Cornish history.

Although Bishop Grandisson was sufficiently large minded to desire the preservation of these records, he by no means sympathised with the cult of the local Celtic saints. When he compiled his Legendarium for the use of the church of Exeter in 1366, he passed over these saints almost without notice, and I believe that to S. Melor alone did he accord proper lections from his legend. One looks in vain therein for the life of even S. Sidwell, who had a church outside the walls, and relics in the Cathedral.

That love for uniformity which prevailed in the Mediæval Latin church led to the effacement wherever possible of local peculiarities. A Saint who was not in the Roman Martyrology had but a poor chance of holding his own.

It is natural to commonplace minds to take their tone from their surroundings, and to disapprove of what is not vulgar. The mediæval ecclesiastical mind was moulded into one form, and it naturally drew back with a sense of dislike from these strange patrons of whom it knew nothing, and could find nothing in the authorised legendaria.

I am not sure that the Bishops were wholly to blame. They thought these Cornish Saints were very strange individuals with queer tales told about them, and some of these tales not very edifying, or not in accordance with what they considered right. They were profoundly shocked to find the confessor and chaplain of King Brychan, to be a married man, and that the Abbot Gildas was father of a family. We have, happily, two versions of the life of S. Gwynllyw—one telling his story as it was, the other doctored by a Latin monk to suit his ideas of what it ought to have been—very contradictory they are. The Mediæval bishops accordingly did their utmost to displace the native patrons, and put in their room saints about whom they could read in the martyrology, and who had received the papal imprimatur.

The same process has gone on in Brittany, and is going on still. Churches dedicated to our S. Gerans have changed their patron to Gereon, a mythical martyr of the Theban legion, and S. Kea has been converted into Caius, Pope and Martyr; even in Brehat, where S. Budoc laboured and died, he has been supplanted by SS. Philip and James.

So also from the calendars of the Breton dioceses, the process of elimination goes on. In that of the united dioceses of Treguier and S. Brieuc for the present year, not one Celtic Saint is noticed in the months of January, February, June, July, August, September, and December. In March only one, Paul of Leon is accepted, from April S. Brieuc could not in decency be excluded. S. Melanius, who was anti-Celtic in feeling, and of Romano-Gothic origin, is included in November. The local

saints in most favour are late, S. William, and S. Ivo; Charles de Bourbon is at the present moment rising rapidly in popular favour. On the other hand, the calendar is invaded by foreigners. Of Italians there are fourteen in January and February, whereas of early Breton Saints there are but five admitted in the entire year.

In that striking story of Ferdinand Fabre "L'Abbé Tigrane," the Bishop of Lormières is represented in his Grand Seminary turning out the Professors as not sufficiently Ultramontane to please him, and when the teachers murmur, he asks with what do they reproach him. "With what?" asks the Professor of Ecclesiastical History. "In your passion for reform you have not suffered us to commemorate our own Local Saints, you have so to speak abolished the Proper of the Diocese, one of the most ancient and most glorious of the Martyrologies of France." What the novelist represents as being done at Lormières has been done ruthlessly throughout Brittany. I rejoice to see that in the calendar of the Truro Diocese, the Celtic Saints are annually included. These men were the fathers of our faith.

It will be said that in treating of the Early History of Cornwall I have spoken more of the saints than of the princes, but that has been inevitable, for of the latter we know very little.

The first of whom we learn anything was Constantine the Blessed, whose brother Aldor, called by the Bretons Audrien, settled in Armorica, and married a sister of S. Germanus of Auxerre.

Constantine was contemporary with Vortigern of evil repute. His death took place about 460. He was the father of Erbin, prince of Damnonia, his brother was the great Aurelius Ambrosius, who headed the opposition to Vortigern, and resisted the Saxons with vigour.

Erbin, I believe, we find at S. Ervan. He was father of Gerans or Geraint I, Prince of Damnonia, who married Enid, one of the most beautiful characters of historic romance. Geraint was killed in the battle of Llongborth or Langport in 522. Geraint and Enid had as son, Selyf or Solomon, Duke of

Cornwall, who married Gwen, sister of S. Non, and daughter of S. Anna, who married Gynyr of Caer Gawch. Their son was S. Cuby. Another son was Cado, Duke of Cornwall, who has been laid hold of by Geoffrey of Monmouth, and much romantic fiction attaches to him. Another son was S. Cyngar or Docwin, whose foundation is S. Kew, one of the finest churches in North Cornwall.

Then we come to Constantine II, King of Cornwall, and Geraint II, King of Devon. They were probably, but not certainly, sons of Cado. Constantine is rather famous. He led a very unruly life, and slew before the altar two princes, sons of Modred, who had joined the Saxons to fight against the Britons. They richly deserved their fate, but Gildas—that ill bird who fouled his own nest—inveighed against Constantine because he had invaded sanctuary. The King was converted about 589, became a disciple at S. David's, and died in Scotland in 600. Geraint II of Devon in 547 received a letter from S. Aldhelm, urging him to abolish Celtic peculiarities in his realm and conform to the Roman Easter and Roman tonsure. From him probably descended Geraint III, who was defeated at Taunton in 705.

After that we hear of no more princes, except Domongart, drowned in 872, and Hoel, who submitted to Athelstan in 926.

I have detained you so long that I have not the courage to speak further relative to the religious character of our old Cornish Saints. That I must reserve for another address.

I think that it is not possible for anyone from these parts who is acquainted with the past history of the old kingdom of Dyfnaint and its princes and saints, not to feel a thrill of joy as he wanders in Brittany and Wales. He is walking on soil associated very intimately with the past of his own land.

Last summer I was in South Wales. I had seen where old Gwynllyw of Wentloog had built his church of wattle and dab, and whence had started Cadoc, and Gluvias, and Petrock. I saw the Lis or court of old King Brychan, from whose loins issued the colony that descended on north-east Cornwall, and called the churches there after their own names. I had visited S. David's church and the bubbling well of Nonn, near which

her great son was born, that Nonn who founded Bradstone and Altarnun churches, which I know so well.

And one day I picked up a little lad of eleven, an intelligent Welsh boy, and we walked and talked together. He was vastly interested to hear about Devon and Cornwall; I told him how that we, the West Welsh, had lost our Celtic tongue, and how they in Wales so loyally and rightly held to it. Then I spoke of the battle of Deorham, and explained to him how before that disaster we had been one people, one in language, one in laws, one in our common form of Christianity, one in our princes, and how that after that fatal field we were separated. He considered awhile, and then said: "But if the Welsh had to rise and fight, the Cornish would help them?"

"Ah!" said I evasively, "Little man, the Severn sea rolls between."

"Bah!" was his quick retort, "Water will not wash out blood."

THE ANNUAL EXCURSION, 1898.

The Annual Excursion of the Society took place on Tuesday, 16th August, when a numerous party, consisting of members and friends of the Society, visited the Land's End district. The weather was everything that could be desired, the heat being tempered by a pleasant breeze.

The excursionists left Truro by the 9.48 a.m. train, and reached Penzance shortly after 11, where carriages were in waiting to take them to the various points it was arranged to visit. The first point of interest was Drift, in Sancreed, where the Treganneris stones and the Tresvennack pillar were seen. Proceeding on their way to St. Buryan they passed the Trenuggo stone, commonly known as the Blind Fiddler, which has been described as the finest and most majestic of the menhirs of the district. St. Buryan was reached about 1, where luncheon was partaken of, after which the party proceeded to the church, when the Rev. R. J. Martyn, rector, read a paper on the early history of the church.

Mr. H. Michell Whitley then made a few remarks on the architectural history of the church. He pointed out that the present building was a typical Cornish church, with nave and north and south aisles. The remains of Norman work in the chancel showed that originally a Norman church stood on the present site, and the early oratory was of a cruciform shape. As the population increased aisles were added, the nave absorbing the transepts. When these aisles were built, the walls of the nave were cut away to allow the insertion of the pillars and the turning of the arches. Then the space below was cut away, throwing the new aisles into the nave, the church being in use during the addition.

Leaving St. Buryan the next halt was made at Rosemodress, in Buryan, to examine the Dawns Myin, or Merry Maidens. The Rev. W. Iago gave a short account of them, referring also

to similar circles found elsewhere. On the way to the Fogou, at Bolleit, the well-known Pipers were pointed out, and some remarks made on the traditions relating to them. The Fogou in the valley, an underground passage, built of dry masonry, excited great interest. It is 36 feet long, 6 feet high, and 5 feet broad, and was traversed by the whole of the party. The Rev. W. Iago here gave a most interesting account of the probable origin and usages of such subterranean passages, which are not uncommon in ancient settlements. A pleasant hour was spent visiting Lamorna cove, which proved very attractive to the party. Trewoofe mansion house, with its ancient highly ornamented doorway, received the attention of the excursionists, and it was suggested that it would afford a good subject for a paper for the Journal of the society.

Lynwood, the charming residence of Mr. W. E. Baily, C.C., near Mousehole, was reached shortly before 5, and a stay of some duration was made that the members might leisurably examine the beautiful and varied collections to be found in his Museum. Mr. Baily courteously accompanied the visitors through the rooms, and explained the various objects of interest. The very fine collection of casts of fish was greatly admired, and it was considered that it was worthy of a place in a national collection.

The party was most hospitably received and entertained by Mr. and Mrs. Baily, tea and other light refreshments being served on the terrace, from which one of the most picturesque and charming seaside views in Cornwall is obtained. At the conclusion of the visit Canon Moor, of St. Clement, in a few graceful words, thanked Mr. and Mrs. Baily, on behalf of the society, for the kind and generous reception they had met with.

Mr. Baily, in gathering together such beautiful collections and throwing them open to the public, is much to be commended, and it would be well if there were others to follow so excellent an example. His efforts in the cause of education are deserving of every success. A pleasant stroll was made to the village of Mousehole, where the quaint old building of the Keigwin Arms was examined with much curiosity.

A short stay was made at Newlyn to visit the Passmore Edwards Art Gallery, and Penzance was left by the 8.10 p.m. train, the party reaching home well pleased with the day's outing.

The excursionists felt that their best thanks were due to Major Parkyn, Hon. Sec., of the Institution, and Mr. Gregg, the Curator, for the excellent arrangements made for the day.

SIXTH ANNUAL ASSOCIATED MEETING OF THE CORNISH SCIENTIFIC SOCIETIES.

The sixth Annual Joint Meeting of the Cornish Scientific Societies, was held in the Museum Buildings, Truro, on Tuesday, 27th September, 1898, the Rev. S. Baring-Gould, President of the Royal Institution of Cornwall, occupying the chair. Amongst a large and representative assembly were Lady Protheroe Smith, the Revs. Canon Moor, S. Rundle, R. Prior, H. Edwardes, D. G. Whitley, T. M. Comyns, Messrs. John D. Enys, F.G.S., T. V. Hodgson (Plymouth), H. Michell Whitley, F.G.S. (Eastbourne), J. C. Burrow, Hamilton James, J. P. Paull, Howard Fox, F.G.S., T. D Jenkins (Blackwater), J. C. Keast, J. B. Cornish, W. Stephens, W. L. Fox, Edward Kitto, James Osborne, F.G.S , W. Teague, H. R. Blunt, Capt. W. T. White, J. B. Hill, Charles D. Bartle, J. Vincent, P. C. Stewart, H. M. Eva, W. J. Stephens, H. W. Halifax, M. Lewis, S. Aldham, R. Jackson, G. W. Eustice, H. J. Harris, T. Graham Martyn, A. Blenkinsop, F. A. Cozens, C. E. Tregoning, W. G. N. Earthy, J. Vivian, R. V. Tellam, Theo. Michell, J. E. Morgan, J. Richards, C. Twite, F.G.S., R. C. N. Twite, H. S. Twite ; Mesdames W. L. Fox, Howard Fox, B. Cornish, E. Kitto, T. C. Peter, R. N. Rogers, Pemberton, G. Dixon, J. G. Stephens, Blight, H. Jones, T. Peter, T. Graham Martyn; Misses L. Paull, W. L. Fox, F. Carlyon, Reynolds, H. E. Rogers, Hext, N. Dixon, M. E. Tregelles, Enys, James, F. James, Clyma, Constance M. S. Henderson, P. Tomn, and C. Tomn, Rev. W. Iago, and Major Parkyn, F.G.S., Hon. Secs., and Mr. R. A. Gregg, Curator and Librarian.

Letters regretting absence were received from the Rev. Sir Vyell D. Vyvyan, Bart., Ven. Archdeacon Cornish, Rev. A. R. Tomlinson, and Mr. Robert Fox.

The Rev. S. Baring-Gould, President of the Royal Institution of Cornwall, on behalf of that society welcomed the representatives of the other societies. The county was so full to overflowing, of interest in matters archæological, and also

botanical, ornithological, geographical, and mineralogical, that there seemed to be no end of fields open for such study, and it was a good thing that the several societies took each its separate department and met together to bring, as it were, into one and to one head, the results of study during the year.

The following papers, which are printed in the present issue of the journal, were then read. "Shafts and Shaft Sinking," by Mr. W. Hopwood, A.R.C.S., representing the Royal Cornwall Polytechnic Society; "The Camps in Cornwall," by Rev. S. Baring-Gould, representing the Royal Institution of Cornwall; "The Men who made Cornish Mines," by Mr. J. B. Cornish, representing the Royal Geological Society of Cornwall.

Mr. W. Thomas, secretary of the Mining Association, said that Mr. D. A. Louis, who was to have read a paper on "The Gold Industry of the Urals," on behalf of the Mining Association and Institute of Cornwall, was prevented by illness from giving his paper, which he would, however, deliver at a subsequent meeting.

Mr. J. D. Enys presented to the Royal Institution of Cornwall a vellum document recently purchased by him at a sale in London, to be preserved as a Cornish relic. It bore the signatures of James Watt and his partner, Matthew Boulton, dated July 1st, 1782, and was the license of the Trevaskus Mine, Gwinear, Cornwall, to use their engines for lessening the consumption of steam and fuel in fire engines. The deed stated the size of the cylinder to be 45 inches, the length 10 feet 11 inches, with 6 strokes per minute, and the schedule of payment Watts and Boulton received on the saving of coal, as compared with the ordinary fire engine. The term fire-engine here signifies a steam-engine.

The Chairman was thanked on the proposition of Canon Moor, seconded by Captain W. T. White, and a similar compliment was paid to the readers of papers on the motion of Mr. Howard Fox, seconded by Mr. C. Twite.

Royal Institution of Cornwall.

AUTUMN ANNUAL MEETING, 1898.

The Annual Meeting of the Royal Institution of Cornwall was held at the Museum, Truro, on Tuesday, 22nd November, Mr. J. D. Enys, F.G.S. (Vice-President), in the chair. Amongst others present were the Ven. Archdeacon Cornish, the Revs. Chancellor Worlledge, Canon Moore, Canon Donaldson, R. Prior, S. Rundle, and A. R. Tomlinson, the Chief Constable of Cornwall (Mr. R. M. Hill), Capt. Henderson, and Messrs. J. Osborne, F.G.S., W. T Kendall, H. W. Vinter, F.G.S., F. H. Davey, T. Clark, P. Jennings, W. J. Clyma, J. C. Daubuz, W. Penrose, Hamilton James, W. Lewis (Helston), H. C. Thompson (Cardiff), H. S. Share, R.N., and G. Dixon; Mrs. Moore, Mrs. Paull, Mrs. and Miss Dixon, Miss Tomn, Mrs. D. G. Whitley, Mrs and Miss Share, Miss L. Paull, Miss H. James, Mrs. H. E. Thompson, Miss Daubuz, Miss Barham, Miss James, Miss Clyma, and the Misses Hurrell (2); the Rev. W. Iago and Major Parkyn, Hon. Secs., Mr. R. A. Gregg, Curator and Librarian.

Letters regretting absence were received from the Rev. S. Baring-Gould (President), the Earl of Mount Edgcumbe, the Lord Bishop of Truro, the Revs. Sir Vyell D. Vyvyan, Bart., Canon Moor, and D. G. Whitley, Mr. H. Michell Whitley, F.G.S., Mr Richard Pearce, F.G.S., Mr. Thurstan C. Peter, Mr. F. J. Stephens, Mr. Howard Fox, F.G.S., and Mr. J. H. Collins, F.G.S. A telegram, conveying the message, "Should enjoy being with you to-day," was read from Mr. Richard Pearce, H. M. Vice-Consul at Denver, Colorado, an old member and supporter of the Society.

The minutes of the Spring Meeting having been read, confirmed, and signed, the Hon. Secretary was called on to read the Annual Report.

80TH ANNUAL REPORT OF THE COUNCIL.

The Council of the Royal Institution of Cornwall have much pleasure in presenting to you their 80th Annual Report. They are happy to say that the Society continues in a sound and improving condition. Your Council report, with much regret, the loss by death of Mr. Robert Tweedy, Mr. J. G. Chilcott, and Dr. Helm. Mr. Tweedy was perhaps one of the oldest members of the Society, and took a great interest in its proceedings. The Institution has always been greatly indebted to the Tweedy family, members of which were amongst its founders, and held the office of treasurer for a period exceeding half a century. In the early days of the Institution they assisted it materially financially, and were ever ready to give a helping hand in furtherance of the interests of the society.

Mr. J. G. Chilcott took a lively interest in the success of the Institution, and was a constant attendant at its meetings. He was always ready to give the Council the benefit of his knowledge and experience, and his loss is much regretted.

Dr. Helm became one of our members soon after his coming into the county, and was often to be seen at the meetings. He will be remembered for the lectures he gave to encourage the younger members of the society.

The work of cleaning and arranging the cases in the museum has proceeded as usual, and the painting of the interior of those cases which were in poor condition has been continued. The collection of flints, pottery, &c., obtained by Mr. Thurstan C. Peter from Carn Brea, has been numbered and labelled that it may be easily referred to, and the greater part of it placed in drawers in the Archæological room. The collection in the Geological room, illustrating volcanic products, has been made more complete by the addition of specimens that had been placed out of sight in the drawers. The setting up and mounting of the butterflies acquired from the Rev. W. A. Hamilton some time since have been completed, and they have been arranged according to their classes in cases in the Conchological room. The result has been so satisfactory that it well repays the the time and attention bestowed on them. With those presented by Mrs. Loring of Antony, last year, they form a very fine collect-

ion of the butterflies of India and Ceylon, which is much admired by visitors. Some of the scientific apparatus which was imperfect or in pieces has been repaired and adjusted so as to be made available for use. A beginning has been made with the beetles, and they are now being arranged that they may be of greater value to the student.

The museum continues to be visited by a large number of persons, a fair proportion of whom are seeking information on subjects which are peculiarly of interest to the county, and every facility has been afforded them in prosecuting their studies. The mineralogical and geological collections, especially, have been taken advantage of by numerous students. The teachers from the Training College and the pupils from the High School have paid several visits, while those from other schools show an equal appreciation of the value of such an institution in the neighbourhood.

The number of visitors were:—

Admitted Free	2891
Members and Friends ..	333
By Payment..	365
	3589

The thanks of the society are again due to the many donors of gifts to the museum and library. Mr. J. D. Enys, F.G.S., has presented a tinder box with flint and steel, and a Scotch form of old oil-lamp (*cruisie*), which form a welcome addition to the series of old forms of lighting; and a very interesting old deed, dated 1st July, 1782, bearing the signatures of Matthew Boulton and James Watt. It relates to the license of Trevaskus Mine, Gwinear, to use the Boulton and Watt engines. Mr. Enys has also given the last report of the British Association, making our set of this important publication complete.

A valuable collection from South Africa was sent by Mr. J. Gerrans of Mafeking, Bechuanaland, consisting of two Lee-Metford rifles which belonged to Lobengula, the Matabele king, the stocks of which have been nearly destroyed by white ants, a Maxim gun swingletree, a Lee-Metford rifle oil-can and cleaning line, and lead from cartridges belonging to Dr. Jameson's

troopers (relics of the now historical Jameson Raid), rubies and garnets from the diamond mines, galena and krokydolite from Cape Colony, South African beetles and black ants, teeth of the rhinoceros and wild boar, beans from the mahogany tree, a native snuff box of deer's horn, and a native-made vase or jar cut out of one piece of wood.

An addition of peculiar interest is a bottle covered in wickerwork, which was once the property of Anthony Payne, the Cornish Giant, whose portrait, presented some time since by Mr. Robert Harvey, now hangs in the staircase of the museum. This bottle was given by the Rev. Robt. Hawker, of Morwenstow, to Mr. Thomas Shephard, of Stratton, a descendant of Anthony Payne, whose daughter, Mrs. Meliscent Shephard, presented it to the Institution.

Mr. Thurstan C. Peter has sent, on behalf of Mr. A. F. Basset, the third consignment of flints and pottery from Carn Brea, the number and quality of which give evidence of the zeal and ability with which Mr. Peter prosecuted his researches at this interesting spot.

Captain W. J. Oates has given some fine specimens of ores of gold and silver from the Cayllomo mines in Peru, which are situated over 15,000 feet above the sea level, and a series of copper ores from the Acari mines, illustrating the occurrence of copper in this district.

One of the most valuable donations the society has received during recent years is a set of three cinerary urns, presented by Capt. Rogers, R.A., of Penrose. They were found on Saturday, July 16th, 1898, at Winnington Point, near Castle Point, Gunwalloe, in a pit covered with a stone, in the remains of a tumulus. The finder was Mr. John Freeman, of Gunwalloe.

Canon Moor has again presented a number of parts of the Royal Geographical Society's Journal, thus keeping this set up to date. A very fine edition of Ludgate Hill, Past and Present, was given by the author, Mr. Alderman Treloar, of the City of London.

The Institution is once more indebted to the Government of the United States for copies of the valuable publications of the Geological Survey, which have been sent during the year.

The Council would like here to mention that their thanks are due to many of the learned societies of America for the valuable journals sent through the Smithsonian Institution, which yearly add to the value of the library.

The library is further enriched by exchanges of transactions and proceedings of kindred societies in this country, the continent of Europe, and of our colonies.

The meteorological observations have been taken throughout the year as usual, and reports furnished to the Registrar-General and the Sanitary Committee of the Cornwall County Council. It may be interesting to note that these observations appear in the Quarterly Return of the Registrar-General, this Institution being one of only 28 stations in England, Wales, and the Channel Islands. Great interest is evinced in the monthly reports which appear in the press, and during the year the rainfall at Killiow, Truro Water Works, Lamellyn, and St. Michael Penkevil has been incorporated with them.

The Council is pleased to report the continued success of the technical classes last session. They were attended by 62 individual students, of whom 32 presented themselves for examination, and 29 passes were obtained. The classes at present being held are again well attended, and, so far, give promise of even better results next session.

Parts 2 and 3 of the 13th volume of the Journal have been issued during the year, and the Council feel sure that their contents will show that the high character of this publication is being well maintained. The papers by Mr. Rupert Vallentin, Mr. J. T. Cunningham, and Mr. F. H. Davey are valuable contributions to the natural history of the county, while those of the Rev. W. Iago, Mr. H. Michell Whitley, Mr. P. Jennings, and the Rev. S. Rundle, are no less interesting, and they place on record subjects, the remembrance of which should not be forgotten. Mr. Richard Pearce, F.G.S., of Denver, Colorado, and Mr. J. H. Collins, F.G.S., contribute papers of great value to the mining and scientific portion of the community. In part 3 will be found the able address of the ex-president, The Right Hon. Leonard H. Courtney, M.P., on The Dispersion of Cornishmen, which proves by statistics, that though the population of the county has been diminishing during recent

years, the Cornish is not by any means a dying-out race, for, outside the county, not only in Britain, but in the colonies and other parts of the world, there is growing up a greater Cornwall whose inhabitants much more than make up for the diminution at home.

The Annual Excursion took place on Tuesday, 16th August, in most delightful weather, when about 40 members and friends visited the district to the south-west of Penzance. The party journeyed to Penzance by train, and then drove to S. Buryan, where a halt was made for luncheon. In the church a paper on its early history was read by the rector, Rev. R. J. Martyn, and Mr. H. Michell Whitley gave a sketch of its architectural history. The excursionists then proceeded to Lamorna Cove, stops being made on the way to inspect the Dawns Myin, Fogou, and other features of interest, brief accounts of which were given by the Rev. W. Iago. At Paul the party were most hospitably entertained by Mr. W. E. Baily, C.C., at his charming residence, Lynwood, and a pleasant hour was spent in examining his exceedingly well-arranged museum. On the return journey a short stay was made to visit the Passmore Edwards Art Gallery at Newlyn.

The annual combined meeting of the Cornish Scientific Societies having been successively held at Truro, Penzance, Redruth, Falmouth, and Camborne, it was this year again due at Truro.

The sixth annual meeting was therefore held in the rooms of the Institution, on Tuesday, 27th September. After the representatives of the various societies had been welcomed by our President, the Rev. S. Baring-Gould, papers were read by Mr. J. B. Cornish on behalf of the Royal Geological Society of Cornwall, Mr. William Hopwood on behalf of the Royal Cornwall Polytechnic Society, and the President on behalf of our own Society. The papers will be printed in the forthcoming journal.

It will be the duty of the Council, next year, to award the fourth Henwood Gold Medal for the best paper which will have appeared in some number of the journal issued within the three years next following the last award. It will be remembered that the late Mr. W. Jory Henwood left a sum of money for the purpose of purchasing a gold medal to be awarded triennially.

The President being elected for two years has another year to serve, and it is proposed that the following comprise the Council for the coming year:

President: Rev. S. BARING-GOULD, M.A.

As Vice-Presidents:

Rev. W. IAGO, B.A., L. Sec. S.A. Lon.
Mr. E. DUNKIN, F.R.S., F.R.A.S.
Rev. CANON MOOR, M.A., F.R.G.S.
Mr. J. D. ENYS, F.G.S.
RT. HON. LEONARD H. COURTNEY, M.P.

Treasurer: Mr. A. P. NIX.

Hon. Sec.: MAJOR PARKYN, F.G.S.

Other Members:

Ven. Archdeacon CORNISH, M.A.
Mr. HOWARD FOX, F.G.S.
Mr. HAMILTON JAMES.
Mr. F. W. MICHELL, C.E.
Mr. J. OSBORNE, F.G.S.
CHANCELLOR PAUL, M.A.
Mr. THURSTAN C. PETER.
Rev. S. RUNDLE, M.A.
Rev. A. R. TOMLINSON, M.A.
Rev. D. G. WHITLEY.

PRESENTS TO THE MUSEUM.

Viper	Rev. A. M. Cazalet.
Water Bag, used in Central Queensland...	Mr. John Hoskins.
Pouch made from the Skin of Foot of an Albatross ...	Mr. John Hoskins.
Crab in berry...	Mr. Rupert Vallentin.
Cuckoo	Mr. Rickard.
Fine Crystal of Tourmaline from Jackal's Water, S. Africa	Capt. J. E. Eslick.
Grey Copper Ore with Calcite and Quartz, from Orange R. Estates Co., S. Africa	Capt. J. E. Eslick.
Specimens of Gold and Silver Ores from S. America ...	Capt. W. J. Oates.
,, Copper ,, ,,	Capt. W. J. Oates.
Owl	Major Parkyn.
Brent Goose	Mr. W. Gill, Falmouth.
Eider Duck	Mr. W. Gill, Falmouth.
Dutch Brick from an old House in Falmouth	Mr. Colliver.
Carved Oak Panel	Mr. G. S. Bray, Redruth.
Tinder Box, with Flint and Steel...	Mr. John D. Enys, F.G.S.
Scotch form of "Cruisie" (oil lamp)	Mr. John D. Enys, F.G.S.
Deed bearing the signatures of Matthew Boulton and James Watt, relating to licence of Trevaskus Mine, Gwinear, to use the Boulton and Watt engines ...	Mr. John D. Enys, F.G.S.
Third consignment of Flints, Pottery, &c., from Carn Brea	Mr. A. F. Basset, per Mr. T. C. Peter.
Specimen from a Silver Lead lode in the Cruccen Mine, Sardinia	Mr. T. Hall Pill.
Specimens of Pitchblende, Torbernite, and Autunite from the Uranium Mine, St. Stephens	Mr. Benedict Kitto.

Two old Rifles, formerly the property of Lobengula, the late King of Matabeleland	Mr. J. Gerrans, Mafeking, Bechuanaland.
Oil Can and Cleaning Line for Lee-Metford Rifle, from Dr. Jameson's Camp at Pitsani	
Swingletree from Maxim Gun, used by Dr. Jameson's Troopers	
Lead from Cartridges belonging to Dr. Jameson's Troopers	
Rhinoceros and other Beetles from S. Africa	
Black Ants from Mafeking, Bechuanaland	
Rhinoceros' tooth from Shasi R., Chief Kama's country	
Wild Boar's tooth from Matabeleland	
Beans from Mahogany tree, Motopo Mountains, Matabeleland	
Native Snuff-box of deer's horn, Bechuanaland ..	
Galena and Krokydolite from Asbestos Mountains, Cape Colony	
Stone from an extinct volcano crater, Otto's Hope, Mafeking	
Rubies and Garnets from Diamond mines, S. Africa ...	
Vase or Jar cut out of one piece of wood by native of King Kama's country	
One-third of a Farthing, Victoria, 1866	Master V. Tregoning.
Bottle, formerly belonging to Anthony Payne	Mrs. M. Shephard, Stratton.
Impression of Official Seal of Falmouth...	Mr. C. Deeble.
Three Urns dug up in an Old Round on the Cliff at Winnington Point, Gunwalloe, 8th August, 1898	Capt. J. P. Rogers, R.A., Penrose.
Specimen of Sphinx Convolvuli	Mr. C. Rendle.
Working Model of Steam Engine	Mr. W. Francis Radmore.
Skin of Otter shot at Truro Water Works	

GIFTS TO THE LIBRARY.

Life of Sir Stamford Raffles	Rev. Canon S. R. Flint.
The History of the Pianoforte	Mr. Edgar Brinsmead.
A Decade of Sunshine Observations in Leeds	Mr. H. Crowther.
Travel	
A Short Orthography of the Malabar Language in Manuscript, together with the Lord's Prayer and the Apostles' Creed	Mr. A. Carlyon.
Newfoundland, its Mineral and other Resources ...	Mr. J. H. Collins.
Cornish Mines and Cornish Miners	
British Association Report, 1897	Mr. J. D. Enys.
Observations relative to the Mineralogical and Chemical History of the Fossils of Cornwall. Klaproth. ..	
Some Account of the Church and Windows of St. Neot's, in Cornwall, by Rev. B. Forster	

Christmas number of the Western Mail, Perth, W. Australia	The Agent-General for Western Australia.
The Humanitarian, Vol. xi, part 5	Messrs. Hutchinson & Co.
The Official Guide to the Isle of Man	Mr. Walter King.
Bibliotheque, De l' Hébraisme, No. 1	Mr. Elie Benamozegh.
Colorado Section of the Climate and Crop Service of the Weather Bureau	Mr. Harry Williams, Butte, Montana, U.S.A.
Neolithic Life in Devon and Cornwall	Mr. A. Lewis, F.C.A.
Royal Societies Club, Foundation and Objects	The Secretary.
13 Numbers Royal Geographical Society Journal ...	Rev. Canon Moor.
Principles of Wealth Distribution	Mr. C.Y. C. Dawbarn.
Ludgate Hill, Past and Present	Mr. Alderman Treloar, London.
12 Numbers Royal Institution of Cornwall Journal ...	Mr. W. L. Fox.
Picturesque Devon and Cornwall	Messrs. Netherton & Worth.
Report on Mines and Quarries	Dr. C. Le Neve Foster.

On the motion of Canon Donaldson, seconded by Mr. G. Dixon, it was resolved that the Report, as presented, be received, adopted, and printed.

The Chairman gave a description of the Cinerary Urns presented by Captain Rogers, R.A., and explained the circumstances in which they were discovered in an old round on the edge of the cliff at Winnington Point, north-west of Castle Point, Gunwalloe, in August last. One was perfect, and the other two were in fragments. At the place of discovery there were remains, evidently of a tumulus, that had been denuded almost to the level of the surrounding ground. The urns are of fine workmanship and of well-baked pottery, and the bones are calcined. The Rev. S Baring-Gould is of opinion that the urns belong to the bronze period.

Rev. A. H. Malan, of Altarnon, contributed a paper on "St. Clether Chapel and Holy Wells," giving an account of the circumstances which led to the reconstruction of the chapel and the preservation of its unique arrangement of holy wells.

Mr. F. H. Davey, of Ponsanooth, read a paper on "Notes of the Past Spring," embodying a number of facts, showing the exceptional mildness of the preceding winter. He also drew attention to the important discovery of the Nitella hyalina in

Loe Pool by the Rev. Bullocke-Webster, of Ely, and Mr. C. P. Hurst, of Oxford, in August last. The occurrence of this plant in the British Isles had not before been recognised. Mr. J. D. Enys mentioned having frequently dredged up this strong smelling plant when fishing in the Loe Pool, but had no idea as to its rarity.

Mr. P. Jennings contributed a paper on "The Parliamentary History of Truro," which forms a continuation of the one printed in the last number of the Journal.

The Rev. W. Iago expressed regret that owing to the lateness of the hour only a portion of the paper entitled "The Cornwall Domesday Book," contributed by Mr. H. Michell Whitley, a former Secretary of the Society, could be read. It was a valuable paper, and is a translation of that part of the Exeter Domesday Book which relates to Cornwall, and when printed in the Journal will afford a means of comparison with the translation of the corresponding portion of the other Domesday Book, which we already possess.

At the close of the meeting votes of thanks were accorded to those who had contributed papers and to the donors to the library and museum, on the motion of the Ven. Archdeacon Cornish, seconded by Mr. H. W. Vinter, F.G.S., and to the Chairman, on the motion of Mr. J. C. Daubuz, seconded by Rev. A. R. Tomlinson.

Summary of Meteorological Observations at Truro, in Lat. 50° 17′ N., Long. 5° 4′ W., for the year 1898, *from Registers kept at the Royal Institution of Cornwall.*

TABLE No. 1.

1898.	MONTHLY MEANS OF THE BAROMETER. Cistern 43 feet above mean sea level.																	
Month.	Mean pressure corrected to 32 deg. Fahr. at sea level.			Mean of monthly means.	Mean correction for diurnal range.	True mean of monthly means.	Mean force of vapour.	Mean pressure of dry air.	Corrected absolute maximum observed.	Day.	Corrected absolute minimum observed.	Day.	Extreme range for the month.	Mean diurnal range.	Greatest range from 9 a.m. to 9 p.m.	Day.	Greatest range in any 24 consecutive hours.	Between which days it occurred.
	9 a.m.	3 p.m.	9 p.m.															
	ins.	ins.	ins.	ins.	in.	ins.	in.	ins.	ins.		ins.		ins.	in.	in.		in.	
January	30·314	30·293	30·314	30·307	·004	30·303	·283	30·024	30·627	12	29·270	1	1·357	·065	·19	2	·41	7 & 8
February	30·045	30·027	30·038	30·036	·003	30·033	·238	29·798	30·440	14	29·003	21	1·437	·113	·39	3	·63	3 & 4
March ...	29·932	29·906	29·932	29·923	·007	29·916	·209	29·714	30·273	10	29·418	30	0·855	·074	·22	26	·45	25 & 26
April ...	29·885	29·885	29·910	29·893	·004	29·889	·258	29·635	30·214	7	29·184	30	1·030	·092	·62	30	·52	11 & 12
May	29·855	29·847	29·850	29·850	·003	29·847	·302	29·548	30·351	7	29·228	11	1·123	·091	·33	12	·61	3 & 4
June	30·010	30·006	30·019	30·011	·001	30·010	·352	29·659	30·274	15	29·471	25	0·803	·061	·23	6	·39	23 & 24
July	30·138	30·135	30·141	30·138	·002	30·136	·419	29·719	30·380	11	29·736	22	0·644	·050	·15	20	·21	19 & 20
August ...	30·005	30·009	30·021	30·011	·004	30·007	·416	29·595	30·293	31	29·681	8	0·612	·070	·43	8	·37	7 & 8
September	30·077	30·066	30·072	30·071	·004	30·067	·400	29·671	30·414	3	29·603	28	0·811	·059	·20	30	·43	29 & 30
October	29·788	29·769	29·783	29·780	·006	29·774	·362	29·418	30·301	2	28·681	17	1·620	·108	·27	29	·46	17 & 18
November	29·809	29·778	29·807	29·798	·004	29·794	·294	29·504	30·304	15	28·628	25	1·676	·091	·30	23	·44	13 & 14
December	30·098	30·090	30·106	30·098	·003	30·095	·293	29·805	30·543	11	29·104	29	1·439	·084	·35	9	·86	29 & 30
Means ...	29·996	29·984	29·999	29·993	·004	29·989	·318	29·674	30·367		29·250		1·117	·079	·30		·48	

REMARKS.—The Barometer used is a Standard, made by Barrow, and compared with the Standard Barometer at the Royal Observatory, Greenwich, by Mr. Glaisher. The corrections for Index Error (+0·008), Capillarity (+0·103), height above sea (43 feet), and temperature, have been applied.

TABLE No. 2.

MONTHLY MEANS OF THE THERMOMETER

1898. Month.	9 a.m. Dry Bulb.	9 a.m. Wet Bulb.	3 p.m. Dry Bulb.	3 p.m. Wet Bulb.	9 p.m. Dry Bulb.	9 p.m. Wet Bulb.	MASON'S HYGROMETER. Mean of Dry Bulb.	Mean correction for diurnal range.	True mean of Dry Bulb.	Mean of Wet Bulb.	Mean correction for diurnal range.	Mean temp. of evaporation.	Wet Therm. below dry.	Mean dew point.	Dew point below Dry Therm.	SELF REGISTERING. Mean of all the Maxima.	Mean of all the Minima.	Approximate mean temp.	Correction for the month.	Adopted mean temp.	Daily mean range.	ABSOLUTE. Maximum.	Day.	Minimum.	Day.	Range.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					
January	47·4	45·1	49·9	47·1	47·2	46·3	48·1	0·4	47·7	46·1	0·3	45·8	1·9	43·5	4·9	51·9	42·5	47·2	0·1	47·1	9·4	58	23	31	10	27
February	45·6	42·5	47·9	44·0	43·5	41·7	45·9	0·7	45·2	42·7	0·5	42·2	3·0	39·1	6·7	50·9	40·0	45·5	0·1	45·4	10·9	59	1	24	24	35
March ...	43·8	39·9	47·3	42·3	41·1	38·8	44·0	1·0	43·0	40·3	0·6	39·7	3·3	35·7	8·8	51·0	35·0	43·0	0·2	42·8	16·0	62	16	25	22	37
April ...	51·9	47·5	54·2	48·4	46·9	44·6	51·0	1·6	49·4	46·8	1·3	45·5	3·9	41·1	5·5	58·1	40·2	49·2	0·1	49·1	17·8	65	27	27	5	38
May	54·3	50·2	55·8	50·7	50·7	48·4	53·6	2·3	51·3	49·7	1·4	48·3	3·0	45·2	6·4	59·4	46·3	52·9	0·8	52·1	13·1	71	23	36	17	35
June	61·0	55·3	62·8	55·8	56·0	53·0	59·9	2·9	57·0	54·7	1·7	53·0	4·0	49·3	7·7	66·5	50·8	58·7	0·3	58·4	15·6	77	11	38	15	39
July	65·8	59·8	67·4	60·3	60·4	57·2	64·5	2·1	62·4	59·1	1·2	57·9	4·5	54·1	9·7	71·4	53·6	62·5	0·3	62·2	17·8	79	15	40	31	39
August ...	65·2	60·2	67·2	61·0	60·7	57·9	64·3	2·0	62·3	59·0	1·2	57·8	4·5	53·9	9·6	71·4	55·5	63·4	0·3	63·1	15·8	81	21	42	25	39
September	63·1	58·2	67·0	59·6	58·8	55·5	62·9	1·7	61·7	57·8	0·9	56·9	4·8	52·8	10·0	70·4	51·8	61·1	0·2	60·9	18·5	81	4	38	1	43
October	55·9	53·7	58·9	55·0	52·8	50·8	55·8	0·8	55·0	53·1	0·6	52·5	2·5	50·1	5·9	61·4	48·6	55·0	0·4	54·6	12·8	72	1	38	11	34
November	47·9	46·2	52·2	49·2	47·9	46·4	49·3	0·6	48·7	47·2	0·5	46·7	2·0	44·5	4·9	54·6	41·7	48·1	0·1	48·0	12·9	64	11	32	24	32
December	49·2	47·2	50·5	47·9	47·3	46·1	49·0	0·2	48·8	47·0	0·3	46·7	1·1	44·4	5·0	52·8	44·1	48·5	0·2	48·3	8·6	58	10	30	21	28
Means ...	54·2	50·4	56·7	51·7	51·1	48·9	54·0	1·4	52·7	50·2	0·9	49·4	3·2	46·1	7·0	59·9	45·8	52·9	0·3	52·6	14·1	68		33		35

The Thermometers are placed on the leaded roof of the Royal Institution in a wooden shed, through which the air passes freely. The Standard Wet and Dry Bulbs are by Negretti and Zambra, and have been corrected by Mr Glaisher.

TABLE No. 3.

1898.	WINDS.																											
	E.			S.E.			S.			S.W.			W.			N.W.			N.			N.E.			AVERAGE FORCE.			
Month.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	9 a.m.	3 p.m.	9 p.m.	Mean.
January	0	2	0	6	5	5	3	1	0	6	11	8	0	1	0	2	2	2	0	1	0	0	0	0	0·6	0·7	0·5	0·6
February	0	0	0	1	0	1	0	0	0	6	6	5	3	4	2	10	13	7	4	5	3	1	0	0	1·2	1·2	0·9	1·1
March ...	0	0	0	0	1	0	0	0	0	2	2	1	3	4	3	4	5	3	5	5	2	9	9	3	1·0	1·2	0·5	0·9
April ...	0	0	0	8	8	1	0	0	2	8	9	6	1	1	1	4	7	1	2	2	1	1	0	0	1·0	1·1	0·5	0·9
May ...	0	1	0	2	6	4	1	1	1	0	3	0	4	4	4	9	5	6	3	5	1	5	4	2	1·1	1·1	0·6	0·9
June	0	0	0	2	2	1	3	1	0	4	7	4	4	5	5	7	9	6	2	2	1	1	2	1	0·9	1·0	0·6	0·8
July	0	0	0	2	4	1	0	1	1	1	3	1	3	2	2	10	12	9	4	6	1	3	2	1	0·8	1·0	0·5	0·8
August ...	0	1	1	3	2	1	1	4	3	9	5	5	1	2	2	4	7	5	4	3	1	4	2	1	0·9	1·0	0·7	0·9
September	4	5	1	5	7	6	0	2	1	9	3	1	0	4	0	6	6	2	0	0	0	2	0	0	1·1	1·0	0·4	0·8
October ...	0	2	0	8	7	5	2	2	1	4	7	3	2	3	1	2	3	3	1	3	0	3	0	0	0·9	1·0	0·4	0·8
November	1	2	2	3	5	4	0	0	0	2	5	2	1	6	1	0	0	1	2	4	0	6	3	3	0·6	0·9	0·4	0·6
December	0	0	0	3	2	2	1	2	1	8	11	6	10	9	7	4	3	3	1	1	0	0	0	0	1·0	1·1	0·7	1·0
Total	5	13	4	43	49	31	11	14	10	59	72	42	32	45	28	62	72	48	28	37	10	35	22	11	11·1	12·3	6·7	10·1
Means ...	7·3			41·0			11·6			57·6			35·0			60·6			25·0			22·6			0·9	1·0	0·5	0·8

The force of the Wind is estimated on a scale from 0 to 6, from *calm* to violent *storm*.

TABLE 4.

1898. Month.	WEATHER. Average Cloudiness. 9 a.m.	3 p.m.	9 p.m.	Mean.	Rainfall. Rainfall in inches. Truro.	No. of days in which rain fell.	Greatest fall in 24 hours, Truro. Depth.	Date.	Mean weight of vapour in a cubic foot of air.	Mean additional weight required for saturation of the air.	Mean humidity of atmosphere.	Mean elastic force of vapour.	Mean weight in grains troy of a cubic foot of air.	Total hours of Bright Sunshine.	No of Days on which the sun shone.	Average Daily sunshine.	Dry.	Wet.	REMARKS.
					in.		in.		grs.	grs.		in	grs.						
January	6·9	7·4	8·0	7·4	1·08	8	0·41	8	3·2	0·5	82	·283	553·0	47·9	16	1·54	87	6	Fog, 1, 4, 6, 10, 12, 17, 25, 28. Frost, 2, 8, 10, 11, Lunar Halo. 2
February	5·8	6·0	5·2	5·7	1·62	23	0·21	25	2·7	0·7	77	·238	555·6	89·1	24	3·18	67	17	Fog, 9, 17, 19, 24. Frost, 19, 23, 24, 25. Hail, 2, 4, 6, 7, 20, 21. Snow, 21, 22. Gale, 1, 2
March ...	4·0	5·2	5·0	4·8	1·82	15	0·55	29	2·3	0·9	71	·209	551·5	167·6	30	5·40	85	8	Fog, 10, 12. Frost, 4, 5, 8, 9, 10, 11, 12, 15, 22, 23, 25, 28. Hail, 1, 2, 30. Snow, 3, 6, 24, 25. Solar Halo, 10. Lunar Halo, 8
April	4·9	4·0	3·3	4·1	2·10	15	0·68	13	2·9	1·1	71	·258	553·7	225·9	30	7·53	81	9	Lunar Halo, 3, 5, 29, 30. Gale, 29
May	5 7	5·8	6·2	5·9	3·97	17	0·68	5	3·4	0·8	79	·302	540·5	197·6	28	6·37	74	19	Hail, 12, 13. Lunar Halo, 27, 31. Swifts arrived 7.
June	4·9	4·4	4·8	4·7	1·54	10	0·53	5	3·9	1·3	75	·352	537·3	246·0	30	8·20	87	3	Mist, 7, 13. Thunder and Lightning, 12. Lunar Halo, 3
July	4·6	4·3	4·0	4·3	0·45	5	0·14	21	4·4	1·8	70	·419	536·5	252·5	30	8·37	88	5	
August ...	6·2	4·9	4·3	5·1	2·34	12	1·08	6	4·4	1·8	69	·416	531·3	193·6	31	6·24	82	11	Heavy Rain, 6. Thunder and Lightning, 18. Lunar Halo, 2
September	4·9	3·5	2·9	3·8	1·14	7	0·36	17	4·3	1·7	69	·400	532·5	211·0	29	7·03	82	8	Fog, 7, 8, 15, 21. Lightning, 11
October...	6·3	5·6	5·1	5·7	7·38	22	1·55	16	3·9	1·0	81	·362	535·1	107·5	26	3·46	73	20	Fog, 2, 4, 5, 10, 12, 31. Hail, 11. Heavy Rain, 16, 17. Thunder, 29. Lunar Halo, 22
November	5·9	5·7	5·4	5·7	4·81	21	1·78	27	3·3	0·5	82	·294	542·4	74·2	23	2·43	73	17	Fog, 1, 6, 12, 14, 15, 16, 22, 23, 25, 30. Frost, 24, 25. Hail, 13, 22, 27, 28, 29. Heavy Rain, 27. Snow, 28
December	6·5	6·6	6·8	6·6	5·02	22	1·08	6	3·3	0·5	81	·293	547·9	54·7	19	1·75	71	22	Fog, 8, 15, 16, 17, 18, 21, 30. Frost, 21. Hail, 27, 28. Heavy Rain, 6. Lunar Halo, 21, 28. 29. Lunar Eclipse, 27
Means ...	5·5	5·2	5·0	5·3	33·27	17	0·75		3·5	1·0	75	·318	543·1	155·6	26	5·12	79	12	

Cloudiness is estimated by dividing the sky into ten parts, and noting how many of these are obscured. The sunshine is taken by a Jordan's Photographic Sunshine Recorder, presented by J. D. Enys, Esq., F.G.S. The rain-guage at Truro is placed on the flat roof of the Royal Institution, at about 40 feet from the ground.

Dr. Mr. A. P. Dix, Hon. Treas., in account with the Royal Institution of Cornwall. Cr.

1897.		£	s.	d.
July 31st.	To Balance	85	12	0
1898.				
July 31st.	,, H.R.H. Prince of Wales	20	0	0
	,, Subscriptions	135	1	0
	,, Visitors' Fees	9	14	6
	,, Sale of Journals	3	8	6
	,, Henderson & Son (Students)	7	11	0
	,, Sundries	0	9	0
		£261	16	0

1898.		£	s.	d.
July 31st.	By Curator	75	0	0
	,, Fire Insurance	2	14	0
	,, Rates and Taxes	2	2	2
	,, Books and Printing	9	12	9
	,, Magazines, &c.	3	4	0
	,, Renewals and Repairs	8	18	3
	,, Museum Expenses	0	17	4
	,, Fuel and Gas	5	17	5
	,, Sundries	8	14	6
	,, Kelly's Directory	1	10	0
	,, Caretaker	5	0	0
	,, Journals	69	9	10
	Balance	68	15	9
		£261	16	0

THE HOUSE OF GODOLPHIN.

By G. E. Hadow, M.A., M.B.

PREFACE.

The following notes upon Godolphin House were collected with a threefold object. In the first place it is my opinion that an historic building can be properly appreciated only in the light of some knowledge of those who built and occupied it. Finding that the references which various writers have made to early members of the Godolphin family were both fragmentary in character, and by no means always in agreement, I determined to compile a connected account of all the members of the family, who had held the property, from the time of Henry VII to that of the extinction of the family name. One difficulty which lay in my way was presented by the often conflicting testimony of various authorities. For example, by combining the information afforded by three such reputable authorities as the Dictionary of National Biography, the Parish Register of Breage, and Col. Vivian's "Visitations of Cornwall," concerning a person as eminent as Sydney Godolphin, Lord High Treasurer of England and First Minister of State under Queen Anne, I find that he was born in the year 1645; that he was baptised at Breage in the preceding year; and that he sat as member for Helston in the Long Parliament. The Long Parliament met in 1640, six years before the member for Helston was christened, and five years before he was born. Similarly I find from other accounts that the "King's Room" in Godolphin House was built by Queen Anne's Treasurer to read his despatches in; that it on one occasion gave shelter to Charles II; and that the style of its decoration is Jacobean. I cannot hope to have avoided all error in dealing with a subject involved in so much obscurity as this, and I am well aware that there are few of my historical statements against which the dictum of some authority might not be quoted. But I have in no case remained content with the opinion of one authority where it was possible to consult others as well; and when their testimony has differed I have endeavoured to present that view of the facts which was best supported

by the evidence. In the second place, I was anxious to follow the gradual growth of the building, and to attempt to realise its appearance as each successive architect added his contribution. Finally, it is hoped that, though slight in extent, a description of Godolphin as it now stands may afford some data to any future archæologist bent upon determining the further changes that the house may have undergone subsequently to the year 1898.

In conclusion, I desire to express my cordial thanks to Mr. John B. Cornish, of Penzance, for much valuable help; and to Mr. Trerice Richards, the present occupant of Godolphin, for his courtesy in permitting me to examine the house.

The House of Godolphin.

The isolated mass of granite that thrusts itself up between Breage and Germoe, through the surrounding slate, rises towards its northern extremity into two peaks, known respectively as Tregonning, and Godolphin, Hill. At the foot of the latter, pleasantly sheltered amid surrounding trees, stands the old manor-house of Godolphin. For nearly three centuries this was the home of one of the greatest families in the west of England; and though a large part of the old house has been taken down, and the remainder strangely altered by modern building, there yet remain traces of its past magnificence.

The name, Godolphin, has given rise to much difference of opinion as to its origin and meaning. It bears little resemblance either in sound or appearance to a Cornish word, and has probably undergone much modification from its original form. Whatever that was, it seems to have been a Cornish territorial name before it became a family one. But its origin either as a place or a family name is involved in much obscurity.

Col. Vivian, in his "Visitations of Cornwall," traces back the pedigree of the Godolphins into the dim regions of dateless antiquity. If the family did exist as early as this, they do not seem to have owned the estates till much later, as Hals mentions several of their predecessors in possession. His account of the sale of the property on one occasion is worth reproducing, owing to the quaintness of the condition attached. I quote his account as given by Davies Gilbert in his "History of Cornwall." It

appears, then, that in the time of Henry VI, the owner of Godolphin was Sir Edmund Arundell of Lamburne in Peransand. By him it was sold to one, Stephens, "upon condition of a kind of domineering, lording, or insulting tenure, and reservation of rent to his manor of Lamburne in Peransand; viz.: that once a year for ever the Reeve of the said Manor should come to Godolphin, and there boldly enter the hall, jump upon the table or table-board, and there stamp or bounce with his feet or club, to alarm and give notice to the people of his approach, and then and there make proclamation aloud three times,—O yes! O yes! O yes! I am the Reeve of the Manor of Lamburne in Peransand, come here to demand the old rent, duties and customs, due to the lords of the said Manor from the lands of Godolphin—Upon which notice there is forthwith to be brought him 2s. 8d. rent, a large quart of strong beer, a loaf of wheaten bread worth sixpence, and a cheese of the like value; which the Reeve having received, he shall drink of the beer, taste the bread and cheese in the place, and then depart carrying with him the said rent and the remainder of those viands, to the lords of the Manor aforesaid."

At variance with the pedigree given by Col. Vivian, the same chronicler, Hals, who claims descent from the Godolphins through the female line, has a curious story to account for the origin of the family name in the time of Henry VII. According to this story the estates were at that time in the hands of a man called John Knava, whose ancestor had acquired the property by marriage with the heiress of the family of Stephens mentioned above. Rising to a position of some influence in the county, the lord of Godolphin was pricked sheriff of Cornwall in 1504 by Henry VII; who, in a fit of Tudor pleasantry "declared his great liking of that gentleman in all circumstances for the said office, but discovered as much dislike of his name; ...and further said that, as he was pater patriæ, he would transnominate him to Godolphin whereof he was lord; and accordingly caused or ordered that in his letters patent under the broad seal of England, for being Sheriff of Cornwall, he should be styled or named John Godolphin, of Godolphin, Esq." This "transnomination," if it ever took place, probably represents the nearest English equivalent to the Cornish territorial title.

The story is regarded by many persons as apocryphal, and may be so; but it is stated that Sheriff John was the first to use the modern spelling of the name, and it is at least curious to find that a family with the unusual name of Knava actually were living near Breage about this time. In the register of that parish is a record of the funeral of a Richard Knava in 1560. If the story be true, he was probably a descendant of a collateral branch of the family.

At all events it appears certain that a John Godolphin was Sheriff of Cornwall in 1504, and that is nearly all that we know about him. According to one authority he was a second time sheriff in 1508. I have been unable to find any record of when he died or where he was buried. His son, William, became a much more prominent figure, and in the course of a long life raised the name of Godolphin to a position of eminence in the county; a position which his successors fully maintained. Some authorities assert that this famous William was a grandson of John, but a comparison of dates renders *son* the more probable relation. He is said to have been a personal friend of Henry VIII, from whom he early received the honour of knighthood. When the French war broke out, Sir William accompanied his sovereign to France, taking with him his brother, Thomas, and his nephew, Francis, who must then have been a mere lad. All three were present at the siege and capture of Boulogne in 1544, where Sir William fought so valiantly, that, on returning to England, King Henry sent him an achievement of the Royal Arms fully emblazoned, as a mark of recognition of conspicuous gallantry in the field. It was, in fact, the Victoria Cross of the period. At home Sir William seems to have been one of those who enjoyed holding public office. He was Vice-warden and Steward of the Stannaries; was chosen several times as Knight of the Shire; and was four (some say five) times Sheriff of Cornwall. He eventually died at an advanced age and was buried in Breage church, July 30th, 1570, according to the entry in the parish register. By what is probably a clerical error, the modern brass tablet that has been placed to his memory in Breage church, records his funeral on July 30th, 1590. He was succeeded by his nephew, Francis Godolphin, a man then well on in middle life. Upon him also the duties of public office fell thickly. He

succeeded his uncle as Vice-warden of the Stannaries. The shrievalty first fell to him in 1580, in which year also he was raised to the knighthood by Queen Elizabeth. At the time of the Armada, in 1588, he was Deputy-Lieutenant for the West of Cornwall, and was in command of twelve full companies of men for coast defence. He was also Governor of the Isles of Scilly, where he built Star Castle. But, perhaps, he is best remembered in the Duchy as the Cornish leader who, in 1595, when the Spaniards having effected a landing near Mousehole burnt Paul church and advanced on Penzance, routed the invaders and drove them from the country. Tradition asserts that he maintained a body of light horse at Godolphin house during these unquiet times to be always ready for any emergency. After the Spaniards had been successfully repulsed, Sir Francis seems to have turned his attention to the encouragement of home industries. Cornish mining was at that time in one of its periodical phases of depression, and Sir Francis, who was himself owner of the principal mine in the county, set himself, if possible, to revive it. Accordingly Carew, a personal friend of Sir Francis, relates how the latter entertained at Godolphin house a "Dutch mineralsman;" who probably brought with him some advanced continental ideas on mining, as Sir Francis is credited with the subsequent introduction of improved methods of mine-working which gave a new impetus to the whole industry.

Sir Francis was sheriff for the second time in 1605. He died in 1608, and was buried at Breage. He was succeeded by his eldest son, another Sir William, who seems to have been a man of many accomplishments. He had received a liberal education, and we find his name entered in 1584 as Fellow-commoner of Emmanuel College, Cambridge. Subsequently he travelled into most parts of Europe, and is said to have acquired a knowledge of several languages. In 1599 he accompanied Robert, Earl of Essex, to the Irish wars, where he much distinguished himself and won his title. He remained in Ireland, holding various posts of responsibility, until the supposed pacification of that country, shortly after the death of Elizabeth, when he returned to England. A vacancy occurring, about this time, in the county representation, Sir William Godolphin was unanimously elected member for Cornwall to the first parliament of

James I. On the death of his father, in 1608, Sir William came into possession of Godolphin, but he did not survive very long to enjoy it. He died in 1613 and was buried at Breage. He was followed by his son, Francis, who stood for the king during the civil war, but was compelled to capitulate to the parliamentary forces. He was, however, permitted to compound for his lands. On the restoration of the monarchy in 1660, Francis became a Knight of the Bath. He died seven years later leaving a large family, most of whom reached positions of distinction. The eldest son, and heir, Sir William, had in 1661 been created by Charles II "the five hundred and fifty-second Baronet of England." The third son was the celebrated Sydney, probably the most famous member of the whole line of Godolphin. He had a long and successful parliamentary career in the governments of Charles II and William III, and finally rose to be Lord High Treasurer of England and First Minister of State under Queen Anne.

Sir William Godolphin died in 1710 without direct heirs; and his next brother, Francis, having also died unmarried, the property passed to Sydney, who was then a peer of the realm with the title of Earl of Godolphin. Sydney died two years later, on Sept. 15th, 1712, and was given a public funeral in Westminster Abbey. His career marks the zenith of the family fortunes; but the name was not destined to survive much longer. He was succeeded by his only son, Francis, who died in 1766, leaving one child, the Lady Mary Godolphin. The earldom thus became extinct in the second generation. Before the death of the second earl, however, the barony of Helston had been conferred upon him, with remainder to the heirs male of his uncle, Henry Godolphin, D.D., who had been Provost of Eton and Dean of St. Paul's. In default, therefore, of a male heir in the direct line, Henry's son, Francis, succeeded his cousin as Baron Godolphin of Helston. But this title also passed away without a third successor. In 1785 Francis died childless, and with his death the great name of Godolphin came to an end. Lady Mary, the only daughter of Francis the second earl, had in the meantime married Thomas Osborne, the 4th Duke of Leeds; and thus the manor-house and estates passed into the hands of a distant family, and the Osbornes became, and still are, the lords of the Manor of Godolphin.

Turning now to the architectural features of the house itself, we find that but a small part of the original building remains for our examination. The greater portion of the old house has been entirely destroyed, and even that part left standing has been much altered. The present building is quadrangular in form. It consists of a north front, containing a corridor and suite of rooms supported upon a granite colonnade, which is divided along its length by a plain wall with an ornamental gateway leading into the central quadrangle. The sides of the quadrangle are formed by two wings at right angles to the front. These wings are connected at the back, and the quadrangle is completed by a solitary wall, pierced by a carved door-way, once the approach to the chief apartments, and by large mullioned windows, through the glassless lights of which the eye looks out over the vacant space where the old house once stood. Tradition says that fifty rooms were taken down to make that piece of farm-yard.

The earliest known drawing of the house, according to Mr. H. Michell Whitley, occurs in a chart belonging to the early part of Henry VIII's reign, now preserved in the British Museum. This drawing, of which he gives a sketch (R. I. C. Journal, Sept., 1889) which I reproduce in Fig. 1, represents a plain two-storied building with a central door, flanked at each end by a more lofty embattled tower. Mr. Whitley considers that parts of this building may yet be found among the oldest portions of the present house. If any such parts do still exist they would be, as he surmises, in the present south wall, which is certainly one of the oldest parts yet standing. On this view the south wall would represent the face of the original two-storied building. There seems little doubt that this wall was once the face of the main building, and it has the appearance of belonging to Tudor times; but it bears so little resemblance to the features of the sketch that I am very loth to identify them. Moreover this south wall is not much, if at all, earlier than portions of the east wing including the dining-hall, of which no trace is shown in the sketch. I think it more probable that this early chart, which shows an already completed house, refers to a smaller pre-Tudor building; and that about the middle of the XVIth century, Sir William Godolphin, the hero of Boulogne, finding either that his

towers were falling into disrepair, or that the house was not sufficiently commodious to support his increasing dignity in the county, determined to rebuild and enlarge his premises. He therefore built forward the east wing, which seems to have replaced the east tower about this period; and probably enlarged and re-faced the front of the house, if he did not rebuild it altogether. Whether he added a west wing at the same time or not, it is difficult to say. Considerations of symmetry would seem to call for it, but the present west wing certainly differs in many respects from the east wing, and is generally considered as of later workmanship than it.

So far as we can trace it, then, the home of Sir William Godolphin appears to have consisted of the main house itself, part of the north face of which survives as the present ruined south wall; possibly of two wings running south from this, which Mr. Whitley indicates as "ruins," but which have now entirely disappeared; and the present east wing which ran forwards and contained the dining hall below and a set of apartments above. Mr. Whitley thinks that the ruined wall represents the south and not the north face of the original building; the rooms of which, in his opinion, occupied the site of the present courtyard. Careful examination of the wall in question leads me to a wholly opposite conclusion. This wall bounds the south side of the courtyard, connecting the present east and west wings. It is now but a single story in height, and is surmounted by a battlement with continuous vertical and horizontal capping. This capping, however, is finished only on the northern face of the battlement, and is not worked on the other side which was most probably invisible in its original position. In the wall is a door-way, eastwards of the true centre, and the portion between the door-way and the east wing is mere blank wall. This portion, with the exception of the lower foot or two, has been rebuilt, and may have originally contained a window similar to those on the other side of the door which are about to be mentioned. Between the door-way and the west wing the wall contains three windows, square-headed, and with stone mullions. The two lateral windows are large four-lighted openings, while the central window of two lights is of the same height as the others, but half the width. Below the windows on the southern side the

wall forms a projecting ledge, apparently the masonry of the old window seat. From this alone it seems clear that the interior of the rooms must have been on the southern side of the wall, the present buttresses having been added to support that wall after the destruction of the rest of the building; but still further evidence is afforded by the door-way. Looked at from the court-yard, *i.e.* the northern side, it consists of a pointed arch with simple mouldings, supported upon two stout jambs which are entirely covered with trefoil-headed stone panelling. The closed door stands immediately behind, *i.e.* south of, these ornamental jambs, and the short passage through the wall behind is a quite plain stone entrance. If the apartments were on the northern side of this door, the whole of the ornamentation would look into the room, and the external entrance would be perfectly plain and bare. If, on the other hand, the apartments were on the southern side, then the whole of the ornamentation would be external, facing the incoming guest, as would naturally be expected. In confirmation of my opinion, I would ask you to compare this door-way with that at the entrance of the south porch of Breage church. The resemblance between the two is carried out into minute details, even to the pattern of the stone panelling upon the jambs; and it will be seen that all the ornamentation faces the person entering. Finally I may point out that any building extending from the south wall over the court yard must inevitably block out the light from the windows of the dining-hall. For all these reasons I look upon it as practically certain that the present wall marks the northern face of the old house, which once extended back over the empty space now taken into the farm-yard. Here all traces of building have been completely removed, with the exception of one blocked-up window at the western side, in line with the west wing, and no conjecture as to the original disposition of rooms is possible. I should like, however, to call attention to a large circular slab of smooth stone (now cracked) let into the ground immediately opposite the door-way, and just at the top of the few stone steps to which the doorway leads. It was not unusual in the paving of large halls to mark the principal centre, or the spot where the hall branched into subordinate galleries, by a circular device, often a coat-of-arms, wrought on the stone flooring. There is at present in the

flooring of St. Ives Church, at the point of intersection of the nave with the transverse passages leading to the aisles, a circular design representing the Royal Arms of England during the Tudor period.

It is possible, then, that this circular cracked slab at Godolphin may be a solitary remnant of the paving of a large entrance-hall, into which the ornamental door-way opened. Any design which it may ever have borne has been long obliterated; and the stone itself may owe its origin to quite other causes. There it lies, however, and its position seems distinctly suggestive.

The east wing affords some glimpse of the old interior. The side facing the garden has been completely restored during the present century, but the rooms and wall looking on to the court-yard retain many of their original features. Looked at from the quadrangle this wing presents a perfectly plain face of wall, now covered with plaster, pierced by six windows, three above and three below. The windows of the lower tier are large squares (with the exception of the middle one, which is higher than the others) divided by three mullions into four tall lights. Each light ends above in a very obtusely arched head, with sunken spandrels between the curve of the arch and the continuation of the vertical mullion. These are the only windows with pointed lights in the whole existing building. They bear a close resemblance to the window in the South Transept of Breage Church, which window is also of four lights, and differs from these at Godolphin only in the fact that the head of the whole window is a very flattened arch instead of a horizontal lintel, and that the small spandrels between the mullions and the arches of the lights are pierced at Breage and only sunk at Godolphin. It is, however, not an uncommon form of window in Cornish architecture of the XVIth century, and several similar examples may be found in the churches of West Cornwall; *e.g.* the aisle windows of St. Buryan Church, which, with the exception of containing three lights instead of four, are counterparts of these at Godolphin house. The upper tier of windows in the east wing consists of smaller squares, each divided by mullions into three plain rectangular lights. Each of the six windows is surmounted by its own hood-moulding, which is rectangular in form with

short square returns. I call attention to this fact as the arrangement of the hood-mouldings varies in different parts of the house.

Within, the greater part of the lower story is occupied by the dining-hall, which still retains traces of its original decoration. At the northern end a modern range has been fitted into the open fireplace that stood there, but around this the whole of the north wall is covered with panelling of old oak. The pattern of this panelling is that known as the "linen-panel," from its resemblance to a folded napkin, and this pattern is mentioned by Parker in his "Domestic Architecture of the Middle Ages" as typically representative of the time of Henry VIII. The ceiling is divided into plastered squares by richly-carved oak beams, with bosses of worked foliage at their intersections, and is a very handsome piece of work. Let into the wall between the two windows is an iron plate bearing in relief the Royal Arms of England emblazoned, but not such as we know them now. The familiar Unicorn is absent as a supporter, his place being taken by a red Dragon; and the shield itself, surrounded by the garter, bears a different set of charges to those now in use. Neither the Scotch Lion nor the Irish Harp find any place there; and even the Lions of England, which are there, have changed their quarters, their present site being occupied by the Fleur-de-lys of France. Above the shield are those well-known badges of the Tudor dynasty, the Rose and the Portcullis. An achievement such as this constituted the the Royal Arms of England from the time of Henry VIII to the end of the reign of Elizabeth. Bearing in mind the historical record that a gift of the Royal Arms was sent to Sir William Godolphin by Henry VIII "for valour," there seems little reason to doubt that this coat-of-arms now in the dining-hall was the actual guerdon which that knight received for his prowess at the siege of Boulogne in 1544.

The southern end of the hall, which extends beyond the embattled south wall outside, has been partitioned off to form a scullery; but the oak timbers of the ceiling may be traced throughout the whole length. I am inclined to think that this southern portion of the hall opened originally into the main building behind the south wall of the quadrangle, and that the

wall which now forms the western face of the scullery was built when that portion of the house was taken down, and was lighted with the mullioned windows obtained from the parts destroyed. In the first place this piece of wall is unplastered, whereas the whole of the east face of the quadrangle, with which it is continuous, is coated with plaster, as if to protect an older and more decaying surface from the weather. In the second place the windows in the scullery wall, if regarded as belonging to the series within the court-yard, entirely destroy the symmetry of the latter. The upper window, it is true, might be one of the upper tier in the east wing, being simply a plain square-headed window of three lights, with nothing distinctive about it, and apparently the commonest form of window in the old house. But the inclusion of the lower window would be fatal. Not only would it thrust the taller middle window of the wing out of its commanding position in the centre; but also it would conclude a series of pointed four-light windows, distinctly ornamental in character, with a plain square-headed window of three lights similar to the window above. Finally, if the old house occupied the ground to the south of this embattled wall, as I have shown reason to believe, I cannot conceive upon what these windows can have looked out, if they were in their present position at that time.

Such, then, appears to have been the house of Sir William Godolphin; and as such, probably, it passed into the hands of his nephew Sir Francis. The existence of a west wing might be conjectured to complete the symmetry of the house: but the present west wing differs considerably from its fellow across the court-yard, and is considered by Mr. Whitley to be Jacobean. The surface of the wall facing the court-yard is here relieved by three attempts at decoration; a small moulded cornice, which sets off the top of the wall, a moulded string-course between the upper and lower stories, and another string-course running just below the lower tier of windows. The windows are all mullioned and square-headed. Those of the upper storey are of the ordinary three-light pattern, and do not call for any particular notice, except that there are four instead of three as in the east wing. Below the southernmost one is a doorway with a pointed arch, which led into the building from the court-yard.

Below the others are three small windows, which look as if they had lighted offices of some sort rather than living-rooms. The midmost of these lower windows has had the mullion removed, and has been converted into a doorway in later times. The most distinctive feature in the wall is the management of the hood-mouldings over the windows. Instead of there being an independent hood-moulding for each window, as was the case in the east wing and in the south wall, the continuous cornice and string-course are utilised as the horizontal part of the hood-moulding over the windows of the upper and lower stories respectively. A small vertical moulding with a short square return is dropped at the sides of each window from these horizontal members, and the hood-moulding is completed. At the southern end of the upper story is a large lofty room, known as the "King's Room," which is said to have once sheltered a Stuart sovereign. This room still retains some of its original features The roof slopes up on all four sides, pyramid-wise, to support a small central oblong of whitewashed ceiling, which is surrounded by a decorative border, and which sustains the weight of two plaster pendants. Around the walls may be traced the remains of an ornamental cornice. Opposite the door was an open fireplace of granite, but this has been blocked up and painted over. In the south wall is a large and elaborately carved oaken doorway, the entrance of which also has been blocked up. Above the entrance are three oaken shields, upon one of which the double-headed eagle of the Godolphins may be discerned, but the charges upon the two others have disappeared. At the north-western corner of the room is another door leading out into the "King's Garden."

About the time that this wing was completed it seems that a wall was built to connect the northern ends of the two wings, and enclose the court-yard. A quadrangular space had by this time been formed in front of the main building, by the projection forwards of the two wings. To enclose this space and maintain the privacy of the interior, a wall containing a large and handsome entrance-gate was built across the northern end. This wall became partially absorbed when the present north front was added, but the lower portion of the gateway with the original wooden door still remains within the portico. This

gateway, set in a square-headed frame with ornamental spandrels, is flanked by two pillars half engaged in the wall. Two sets of heavily-moulded rings embrace each shaft; one just below the roof of the present colonnade, which runs immediately above the square frame of the gateway, the other about two-thirds of the way up. The upper set of rings seems hardly of sufficient importance to have ever been the true capital of the shaft which probably ran up for some distance higher. But the whole of the upper portion of the gateway, together with the top of the wall, would necessarily have been removed when the colonnade and the rooms over it were added.

In our attempt to follow the growth of the house, we have now reached the stage depicted in Dr. Borlase's sketch of the picture of Pengersick Castle, a copy of which sketch is given by Mr. Whitley in his paper referred to before. A reproduction of this copy is shown in fig. 2. Mr. Whitley regards this sketch as a view of the house looking north, in accordance with his opinion that the old house faced south. With all deference to his authority, I persist in regarding that sketch as a view from the north looking south: and I maintain that it is no bad representation of the house at the stage we have reached, though in his hurry the artist has omitted all the chimneys, which gives it a curious appearance. The plain embattled wall with its large central gateway in the foreground I regard as the north wall and gateway that I have just mentioned. Within this wall is the central quadrangle flanked by the two wings, and at the back is the main body of the house, now represented by the ruined south wall. The little transept-like buildings running out from the wings have since disappeared in the general ruin of the house, with the possible exception of one of those on the right-hand side of the picture, which may represent a still-existing gable-end projecting from the King's Room, above the entrance leading from the King's Garden.

According to Mr. Whitley's view of the sketch, the building in the back-ground is represented by the southern face of the present south wall; and consequently all the rest of the sketch must represent parts of the house which have been entirely destroyed, and of which the features are now beyond conjecture. It is, of course, impossible to adduce any positive evidence as to

whether the sketch does or does not resemble that part of the house, of which no trace is left remaining, but there is one piece of negative evidence which is worth consideration. No sign whatever is shown of the wings stretching northwards, which still do exist. I have already given my reasons for thinking that the body of the house lay to the south of the present south wall: in that case the projection northwards of the present wings should make a prominent feature in the background of the picture, whereas, on the hypothesis that the sketch is looking north, they are not shown at all.

In this state the house seems to have remained until the first half of the XVIIIth century; at which time Francis, the second Earl of Goldophin, made the final addition to it in the shape of the present front and portico. This front consists of a corridor and suite of rooms running just above the old gateway in the north wall. It is supported upon a colonnade of eight pillars in front, and a similar colonnade of six pillars within the the court-yard. Part of this latter colonnade has been recently walled up. Between the two rows of columns stands the lower portion of the north wall, with its original gateway still forming the principal entrance to the house. The pillars, which are of Tregonning granite, have solid round shafts, expanding at the base, with a square plinth and abacus. Their only ornament is a plain ring near the top. The suite of rooms above is lighted by a row of square-headed windows, each divided into four by a single mullion and transom. These, with the similar windows on the other side looking over the courtyard, are the only windows possessing a transom in the whole building. Above these windows a rectangular hood-moulding runs continuously along the entire front, dipping downwards in the interspaces between the windows. The summit of the wall is crowned with a battlement with continuous capping-moulding, resembling that running along the south wall of the courtyard.

With the addition of this front the house of Godolphin was finally completed. The rest of its history is but a record of decay, demolition, and transformation. In 1785 the male line of Godolphin became extinct, and the estates passed by marriage into the hands of the Duke of Leeds. The house was abandoned as a family seat, and seems to have been allowed to fall into a

condition of general neglect. C. S. Gilbert, writing of it in 1820, quoted by Mr. Whitley, says "The eastern side of the building has been taken down, and the whole is in a very ruinous state. The interior is in a miserably decayed state, and if neglect like the past is allowed to prevail for a few years longer the whole fabric must crumble into dust." Shortly after this the renovation of the house was undertaken. The entire body of the Tudor house, or what was left of it, was taken down, leaving only the present ruined south wall to enclose the courtyard ; and a farmyard now occupies the site of the old apartments of state. The eastern side of the house, looking out over the garden, was rebuilt ; the rooms within were adapted to more modern ideas of comfort ; and the present commodious farm-house arose from the decaying ruins of the ancient palace of the Godolphins. Fig. 3 is a sketch-plan of the existing building, showing also the probable and traditional position of the parts that have disappeared.

Such, as far as I can read it, is in outline the history of the House of the Godolphins : a house which, with all its losses and all its restorations, maintains a strong claim upon the interest of resident and visitor alike ; not merely as a specimen of Tudor or Jacobean architecture, but also as the veritable home of men long dead, who through troublous times took a leading place in the conduct of affairs, and whose guidance has helped to direct the destinies of England.

Sketch Map of Godolphin House.

Godolfyn.

FIG. 1.

Dr Borlase's Sketch.

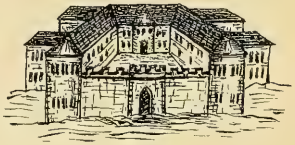


FIG 2

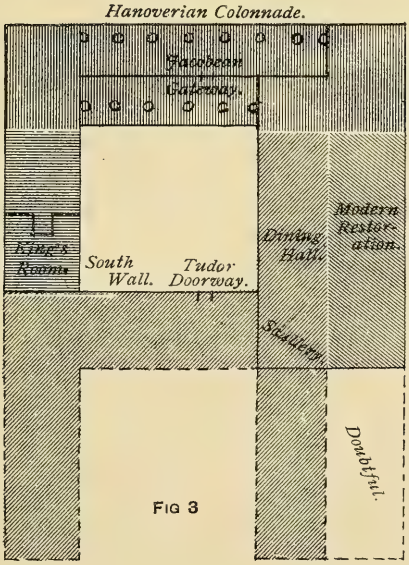


FIG 3

Tudor.

Jacobean.

Hanoverian.

Modern.

SOME NATURAL HISTORY RECORDS.

By Fred. Hamilton Davey.

1.—Notes on the Past Spring.

Seldom within recent years have we had a more capricious spring than that of 1898. The fact that the thermometer fell below freezing-point not more than half-a-dozen times during the winter, together with the almost entire absence of those long spells of blasting winds which we expect, and rarely fail to have, from Christmas to early spring, encouraged the hope that everything would be in a forward state very early in the year, but in many instances quite the reverse was the case.

On the whole, last winter will go down to history as a particularly mild one. Blackbirds, thrushes, and robins sang lustily all through those months, and wherever sub-tropical gardening is being carried on, the tenderest subjects survived the winter in splendid form without shelter of any kind. In cottage gardens also, where they were exposed to every wind that blew, geraniums and calceolarias kept their foliage almost as perfect as in summer, and the delicate blue lobelia was blooming all over the district.

With all these evidences before us, it was but natural we should expect our wayside hedges to put on their vernal glory earlier than usual, and be impatient for the return of the swallow and the cuckoo. Other premature occurrences gave additional ground for the hope. The Dog's Mercury (*Mercurialis perennis*), a plant that always pushes its way through the soil with its leaves almost fully expanded, as if it meant to take time by the forelock, was in flower quite a fortnight earlier than usual; and, more remarkable still, a gold-crest's nest was found full of young at Perranwharf as early as the second week in February. This precociousness was not generally sustained, however, for such early flowering trees as the blackthorn, hawthorn, holly, elder, and sycamore were all a week or two late in putting on leaf and flower, while most of our resident birds were unusually backward in commencing nesting operations. When the spring flowers came they were abundant and large, but in the majority of instances they were belated.

How flowers respond to climatic influences was strikingly set forth by the hazel and the common sallow. When our winters are severe, the pistiliferous and stameniferous flowers of these trees attain their functional activity almost simultaneously. On the other hand, when the winters are mild and humid, the stameniferous flowers open many days—in some cases even weeks—before the pistiliferous ones, the result being a great scarcity of fruit. It is an old observation that the development of stamens is always correlated with a relatively high temperature, and that the first few warm days which follow a severe winter bring forth the stameniferous flowers on diclinous trees before the pistiliferous ones, as well as mature the stamens on hermaphrodite flowers before the pistils.

Shortly after Christmas, by the first week in January, in fact, most of our hazel trees were bountifully arrayed in male catkins. None of the female flowers were then to be seen, and when the latter did unfold a week or two later the male flowers had shed most of their pollen. The sallow behaved in a similar manner, the golden catkins of the male flowers being ripened long before their less attractive female ones, thereby rendering fertilisation of the majority of ovules impossible. Indeed, if evidence were wanting to prove that a winter of ordinary severity secures a greater amount of fruit and seed on early flowering plants than one of a relatively high temperature, the hazel and the sallow have offered abundant proof this year. What is required is that the stamens and pistils shall mature at the same time; and as the development of the pistil coincides with a vigorous growing condition in the plant, and that of the stamens with a rise in temperature, it follows that the longer the ripening of the stamens is delayed, the more certain is the plant of fertilisation.

When we come to our migratory birds, we find that, with the exception of the swallow, they arrived on our shores earlier than usual. The dates for their arrival in the Kennall Valley are as follow:

Stone-chat (male and female)..	March 17th.
Swallow	,, 24th.
Chiff-chaff (male)	April 1st.
Do. (female)	,, 19th.

Cuckoo (Carnon Valley) ..	,,	12th.
Do. (Kennall Valley) ..	,,	21st.
White-throat	,,	21st.
House Martin	May	1st.
Black-cap	,,	4th.
Swift	,,	5th.
Night-jar	,,	6th.
Night-jar's first "song" ..	,,	15th.
Sedge Warbler..	,,	12th.

About the return of the cuckoo to these parts I have long noticed a singular feature. As the crow flies, the Carnon and Kennall Valleys are nowhere more than three miles apart. In appearance the two places are as unlike as are the tropics and the arctic circle—Kennall Valley being well wooded and delightfully sheltered, the Carnon Valley one dreary stretch of mine washings and muddy rivers, without as much as a single bit of copse to break the uniform appearance of desolation. Yet, year after year, with an unvarying regularity, the cuckoo appears in the Carnon Valley from ten days to a fortnight before it is heard at Ponsanooth, and on through the summer it is more abundant at the former place than at the latter. Assuming, as seems natural, that the birds which frequent the two valleys reach our shore near Falmouth, and that they find their way up the Fal, thence along Restronguet creek to Devoran, the mystery is why, when they arrive at the latter place, they should prefer the windings of the bleak and barren Carnon Valley to those of the sheltered and fertile Kennall Valley. Possibly enough this local behaviour of the cuckoo can be explained by the physical features of its winter quarters. If in warmer climes it frequents barren wastes, it is easy to see why it adopts the same course when it reaches our own shores. I offer this suggestion tentatively.

2.—New British Plants.

In field botany the most important discovery of the year hails from Cornwall. When working the Loe Pool on August 8th, for representatives of the order *Characeæ*, the Rev. G. R. Bullock-Webster, of the Palace, Ely, who was accompanied by Mr. C. P. Hurst, of Oxford, dredged a plant from Penrose Creek

which Mr. James Groves, F.L.S., the well-known specialist, pronounced to be *Nitella hyalina.* The discovery came as a pleasant surprise to botanists throughout the country, as, up to that time, the plant was not known to occur in the British Isles. On the continent it has a fairly wide distribution, being recorded from France, Spain, Italy, Austria, Switzerland, Germany, Holland, and Finland.

As soon as possible after the discovery, I rowed over the Loe Pool in company with Mr. Hurst for the purpose of delimiting the range of the plant. After carefully dredging a large section of the Pool, we concluded that the little rarity was restricted to an area of not more than twelve square yards. The precise spot, which we named "the Nitella bank," is located as follows: Shortly after entering Penrose lodge-gate a granite block bearing an upright iron rod will be seen in the water, adjacent to the bank. Thirty-five or forty paces up the creek from this block one of the large oak trees shelters a holly bush. Straight out in the Pool from this oak, three or four yards from the bank, and in about four feet of water, the newly-discovered plant occurs in plenty. It is, of course, quite possible that it occupies other portions of the Pool, but only in this portion of Penrose Creek were we able to gather it.

Although the discovery was left for a stranger, it is interesting to note that a Cornishman came within an ace of being associated with the find. On sending some specimens of the *Nitella* to Mr. J. D. Enys, F.G.S., I was informed that when fishing in the Loe Pool he had repeatedly dredged up the same "strong smelling weed," and had returned it to the water without dreaming of its rarity. Mr. Enys is also convinced that he has taken it in other portions of the Pool than Penrose Creek.

Apart from its interest as an addition to the British flora, the discovery of *Nitella hyalina* in the Loe Pool adds another valuable item to the fascinating subject of plant geography, as it will occupy a place among those continental plants whose range in Great Britain does not extend beyond Cornwall, and in this county are confined to the Western portion.

Through the kind interest of Mr. J. D. Enys, the editor of the *Journal of Botany* has granted permission to use the

accompanying plate, and to make the following extracts from "Notes on British Characeæ," by Messrs. H. & J. Groves, F.L.S., appearing in the November issue.

"*Nitella hyalina*, Agardh, Systema Algarum (1824), p. 126 (*ex parte*). Kuetzing, Phyc. Germ. (1845), p. 256; Sp. Alg. (1849), p. 516; Tab. Phyc. vii. (1857), p. 14, tab. 35, fig. 2. Braun, Schweiz. Char. (1847), p. 10; Monatsb. Akad. Berl. 1867 (1868), p. 817; Fragm. Monog. Char. (1882), p. 78. Rabenh. Deutsch. Krypt. Flor. (1847), p. 196. Wallm. Act. Acad. Stockh. 1852 (1854), p. 244. Nordstedt, Bot. Notiser, 1863, p. 39. Leonhardi, Oesterr. Arml. Gewächse (1864), p. 55. Wahlst. Mon. Sver. and Norg. Char. (1875), p. 20. Sydow. Europ. Char. (1882), p. 31. Migula in Rabenh. Krypt.-fl. ed. ii. vol. v. part 3 (1890), p. 190. fig. 55-57; Syn. Char. Europ. (1898), p. 49, fig. 43-45.

Chara hyalina, D.C. Flore Francaise (1815), vol. vi. p. 247 (*ex parte*). Braun, Ann. Sci. Nat. 1834, p. 351; Regensb. Bot. Zeit. 1835, 1. p. 54.

C. condensata and *C. interrupta*, Rupr. Symb. ad Hist. Pl. Ross. 1845, p. 78 (*fide* Braun.)

C. Exsiccata:—Braun, R. and S. Char. Europ. 21, 31, 107. Nordst. & Wahlst. Skand. Char. 18. Rabenh. Alg. Sachs. 419. Desmaz. Pl. Crypt. Fr. ii. 324. Lloyd, Alg. Ouest Fr. 401. Wartm. & Schenk, Schweiz. Krypt. 250. Jack, Lein. and Stizenb. Krypt. Bad. 205.

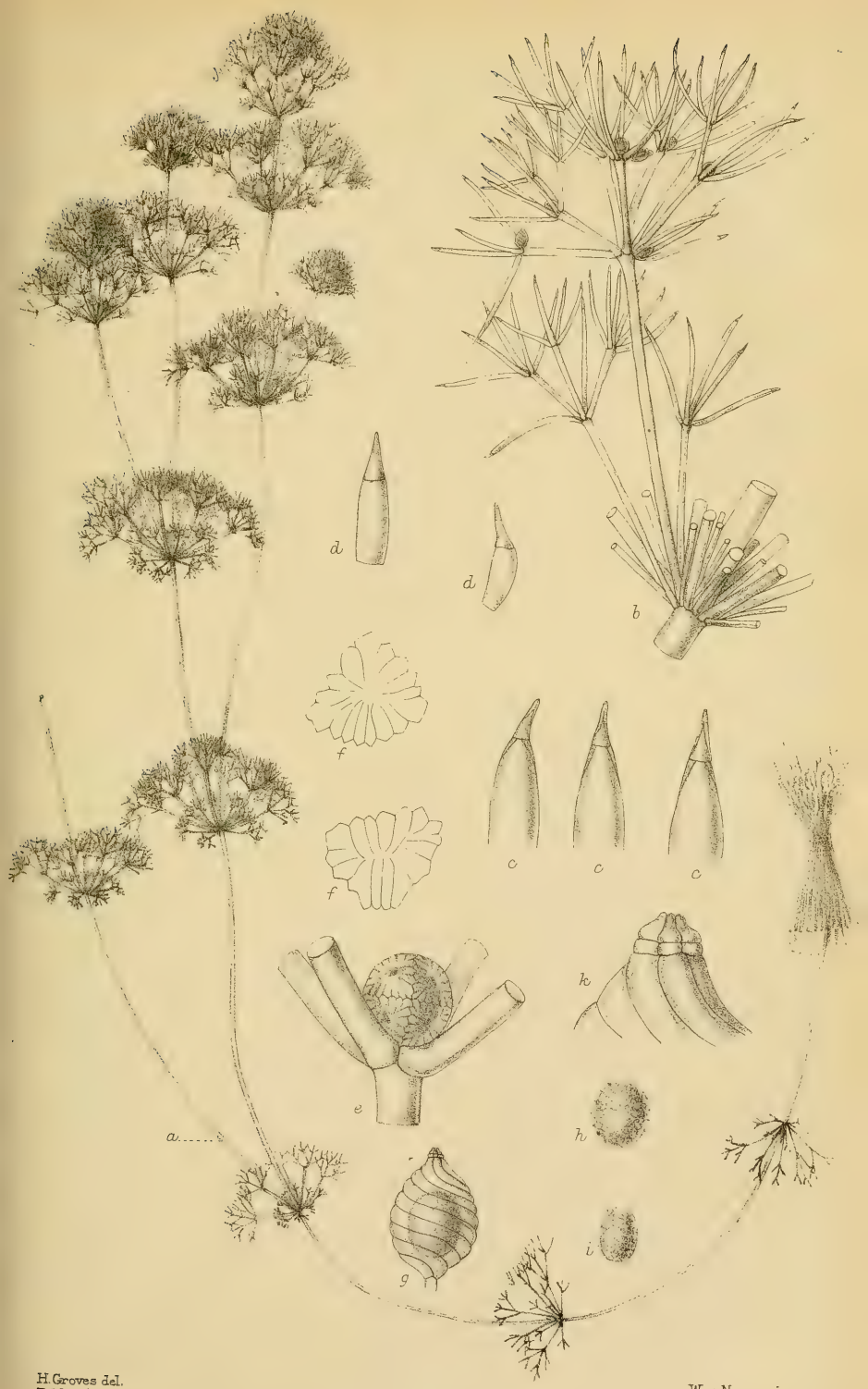
A rather small plant. Stem about ·30-·48 mm. thick. Internodes 2-4 times the length of the branchlets. Whorls of usually 8 primary branchlets with about double that number of smaller secondary branchlets in two series, the one above and the other below the primary branchlets. Primary branchlets 2-3 times divided, the primary rays $\frac{1}{2}$-$\frac{3}{5}$ the total length of the branchlets. Rays at the first forking 7-10 (of which 1-3 are usually simple); at the second forking 4-7, of which 0-2 are again divided into 4-5 quaternary rays. Ultimate rays 2-celled, apical cell ·09-·14 mm. long, ·03-·045 broad at the base. Secondary branchlets usually one above and one below each primary branchlet, those of the lower series usually once or twice divided into 4-6 rays, those of the upper usually once

divided into 5 rays, or simple. Fruits solitary, occurring on the primary branchlets at the second and third and more rarely at the first forkings, sometimes on the secondary branchlets also, ·5-·62 mm. long, ·38-·41 thick, showing 9-10 striæ; coronula ·075 mm. broad, ·045 high; oospore (unripe) brown, decidedly flattened, about ·28 mm. long, ·26 thick in the broader diameter, ·18 in the narrower. Antheridia occurring at all the forkings, though less commonly at the first, ·35-·42 in diameter. Monocious.

An extremely beautiful plant, at once distinguished from all the other British species by the presence of the secondary branchlets, being the only European representative of Braun's section *Diarthrodactylæ, heterophyllæ.* The English plant is a large lax form, which would be included in Braun's var. *maxima,* though more slender than the Bayonne plant. The species is world-wide in its distribution, occurring almost throughout Europe, in Asia, Africa (N. and S.), N. America, and Australasia. It was discovered in Britain in August of the present year by the Rev. G. R. Bullock-Webster, growing in some quantity on thick mud in 4-5 feet of water, in The Loe, a lake separated from the sea by a narrow sand-bar, near Helston, West Cornwall."

Explanation of Plate.—*a.*—*Nitella hyalina*, Agardh, from the Loe, West Cornwall; plant natural size. *b.*—Portion of whorl showing a primary and upper and lower secondary branchlets x 7½. *c.*—Apices of terminal rays x 60. *d.*—Young ditto x 60. *e.*—Node of branchlet with antheridium x 30. *f.*—Plates of Antheridium x 60. *g.*—Fruit x 30. *h.*—Unripe oospore, broadest view x 30. *i.*—Ditto, narrowest view x 30. *k.*—Apex of fruit, showing coronula x 140.

In their "Notes" Messrs. Groves record another interesting Cornish discovery by the Rev. G. R. Bullock-Webster, viz:—a sub-species of *Chara aspera*, to which the varietal name of *desmacantha* has been given. This rarity, which is recorded for a few other counties, was found growing in Hayle Kimbra, near the Lizard, last summer. Its characters are set down as—"Stem usually considerably thicker than in the type; cortex very imperfectly triplostichous, the secondary cells joining obliquely; cortical nodes more numerous, 14-18 to an internode of the stem; spine-cells usually in groups of 3-5."



H. Groves del.
R. Morgan lith.

West, Newman, imp.

Nitella hyalina, *Ag.*

3.—Phenomenal Appearance of Crossbills.

To the long list of ills with which apple-growers in the West had to cope during the summer months, a formidable one was added in the autumn. What fruit escaped the ravages of the codlin moth, the effects of the prolonged drought, and two or three storms, was rapidly destroyed in October by several large flocks of Crossbills. Interesting as these birds may be to ornithologists, and rare as are their visits west of the Tamar in flocks, they proved too destructive this season to be encouraged to make a lengthy stay. Boring their way to the core of the apple from the top, in search of the seed, they are not long in spoiling extensive crops. They were first noticed at Ponsanooth on October 3rd, and in less than a fortnight from that date records of spoliation were forthcoming from all parts of the county.

The Cornish history of the crossbill is full of interest. Carew, in his *Survey of Cornwall*, and Childrey, in his *Britannia Baconica*, speak of a bird which visited Cornwall in large numbers one year during the reign of Queen Elizabeth, and "made a foule spoyle of the Apples." Carew's description is so quaint as to be worthy of reproduction. He says: "Not long sithence, there came a flocke of birds into Cornwall about harvest season, in bignesse not much exceeding a sparrow. which made a foule spoyle of the Apples. Their bils were thwarted crosswise at the end, and with these they would cut an Apple in two at one snap, eating only the kernels." Childrey accounted for their presence in the western-most county, that year, by the failure of fruit in adjoining counties, where they were partial residents. From the date of this remarkable appearance to Borlase's time, the crossbill was a comparative stranger to Cornwall; but with the planting of ornamental conifers, on the cones of which these birds greedily feed, they have crossed the border more frequently. In July, 1868, according to Rodd and others, there was a phenomenal immigration. Large flocks were noticed in several parts of the county, and many a cabinet was that year enriched by fine specimens.

THE MEN WHO MADE THE CORNISH MINES.

By J. B. CORNISH.

A short time ago I had occasion to enquire with some care into the history of our great county industry, and in the course of that research I met, in the preface of Pryce's "Mineralogia," the statement that "the idioms and terms of the Cornish miners are mostly derived from the Ancient Cornish-British dialect." This statement naturally leads one to an examination of the words in question, and that examination in turn leads to a conclusion "So much the worse for Pryce." As a matter of fact, very few of the idioms and terms of the Cornish miners are derived from the ancient Cornish-British dialect. In fact, we may say that none of the terms which apply exclusively to mining are Cornish; the few old Cornish words and idioms which the miners used being names of things which exist quite apart from mining, but coming more generally in the miner's way, are classed as mining expressions. The strictly mining terms are mostly English and some German in origin, while "adit" and "Stannary" are Latin, and "coinage" is Norman-French.

Of the English words we have :

Attle or *addle*, same as *addled* egg.

Buddle, also used in Northumberland, Westmorland, Yorks., Derby, Cardigan, and Somerset.

Gad, which occurs in Shakespeare, and for which Skeat suggests a Scandinavian origin.

Wheal according to the same authority is the English "wheel."

Stope connected with English "step."

Lode is from English verb "lead."

Even *Stean*, the Cornish word for tin itself, is derived from Latin "Stannum" (Skeat), the word tin being of Saxon parentage.

Still or *Stull* is German "Stulle," a pillar; *shaft* and *sump* (which Pryce spells "sumph") are German, and *pump* and *stamps* also are probably from the fatherland.

If you just think over the names of the other parts of a mine, such words as level, floor, tram, count-house, adventurers, dry, sett, bounds, and a score more, betray their English origin, while you will search for the Cornish words in vain.

Now the fact that the name of any object is derived from a particular language is a proof that that object was first invented or discovered, and christened by people who spoke that language. If the ancient Cornish-speaking people had discovered and worked the tin mines themselves, they would have given names to the objects with which they were dealing in the Ancient Cornish language: they would not have known any others. The fact that all such names, and even those of the earliest kind of workings—'streamworks,' 'coffins,' 'shambles,' are English, shows more clearly than any legends that the tin mines were not worked* until the Anglo-Saxon had come into Cornwall; and it is to them that Cornwall owes her knowledge of her underground wealth. Now, may I endeavour to show that this conclusion agrees with the recorded history which we have.

According to my view, the Romans never worked the Cornish mines. In other parts of England, in Shropshire, Derby, Montgomery, and the Mendips, pigs of lead have been found with Roman inscriptions. Levels driven into the hills as much as 100 fathoms, and Roman roads, all show that these lead mines were extensively worked during the Roman occupation of England, and it is very hard to believe that people who knew enough to do these things in one part of England could have lived 500 years in the country, and not have developed the mineral wealth of Cornwall if they had known of its existence. But we find nothing of the sort† in Cornwall, no roads, no towns, and only two rough camps, which show undoubtedly the temporary character of the occupation which led to their existence.

Again, there is no mention of the mines in Domesday, and here again it is very hard to suppose that the commissioners of the Conqueror, whose chief business was to see after the royal

*† If the stamped block of tin found at Carnanton dates from the Roman period, it would seem that at one time some of that race did find tin in Cornwall, but there is no sign that the discovery was ever followed up.

revenue could have entirely overlooked such a profitable source of income as the mines would have been if they had existed.

Our first unquestionable record is the visit of William of Wrotham in 1197. He was sent by the chancellor to enquire into the weights in use in the Stannaries, and the duties paid to the king. William held two enquiries, one at Exeter and one at Launceston. In Devon he had 26 witnesses, and in Cornwall 18; and according to his report Devon at that time produced three times as much tin as Cornwall. The first stannary charter, that of King John in 1201, combined the tinners of Devon and Cornwall as one body.

The second charter, that of Edward I in 1305, recognises the tinners of Cornwall as a separate body from those of Devon. This charter appointed Lostwithiel, Bodmin, Liskeard, Truro, and Helston, as the coinage towns. More than 350 years passed before the mining in West Penwith was of sufficient importance to enable Penzance to obtain a coinage charter.

In 1197, Cornish mining was less important than that of Devon, and Launceston was the centre. In 1305, Lostwithiel returned twice as much tin as the whole western half of the county. In 1663, Penzance was first made a coinage town, and in 1778, Pryce says "at Penzance there is, every quarter, abundantly more tin coined than in all the towns of Liskeard, Lostwithiel, and Helston put together for a whole year." This, like Pryce's other statement, must be taken *cum grano.*

In 1870, the number of mines in East and West Penwith was 160, employing 22,000 people.

In the East of the county there were 84 mines, employing 6,000 people.

In Devon 39 mines, and 2,600 people.

In 1892, the output of tin was:

W. Cornwall.	E. Cornwall.	Devon.
7,751 tons.	628 tons.	96 tons.

A very different state of things from the days when the Stannary of Blackmoor produced more than half the total, or when Cornish mining was not of sufficient importance to be recognised as distinct from Devon.

These facts, and the figures published by Sir J. Maclean, in the Journal R.I.C., Vol. IV, p. 189, show that the development of the tin mining from the commencement of the historical period, has steadily proceeded from the east towards the west, and it seems to me clear that the mineral wealth of Cornwall was discovered and worked by pioneers coming from the east, who brought with them the English words for the methods in which they sought their fortunes in the Klondyke of the middle ages.

The legend of Jack the Tinkard, for what it is worth, leads to the same conclusion. Jack, who came to Towednack and showed the natives the stores of tin which the giants had left, "was bred in a county more than a month's journey to the East, and having heard that there were rich tin lands in the West, travelled down to try his luck;" and a confirming sidelight is thrown on the matter by a petition from the Stannators to the Lord Warden in 1620, in which they state that "the working tinners are in numbers and degree the least and meanest part of us and for the most part foreigners, and hired to work in our tinworks for day wages."

We still have to consider the problem of the German words which I mentioned, and I think that history here too gives us a clear explanation.

"Between 1580 and 1603, Queen Elizabeth paid much attention to the mines, and sent to Germany and obtained the services of a large body of practical men, who were dispersed over the kingdom and introduced a better system of mining."

We know from two sources that some of these Germans came into Cornwall.

Carew, writing in 1602, tells us that Sir Fras. Godolphin entertained a "Dutch mineral man," and "taking light from his experience, but building thereon far more profitable conclusions of his own invention, hath practised a more saving way in these matters, and besides made tin with good profit of that refuse which the tinners rejected as nothing worth,"—and we learn from Col. Francis's History of Swansea that Ulrick Frosse, whose name would be sufficient evidence of his nationality, even if we were not told that he was "one of Mr. Weston's

Germans," was manager of a copper mine at Perransands in 1584.

We have no record of the improvements which these Germans introduced, but it is noteworthy that all the German words relate to under-ground working, shaft, stull, etc. Now when we add to this the fact that in a work on mines published in Germany by Agricola in 1546, plates are given showing shafts, levels, pumps, and windlasses, as in use in that country at that time, it seems to be a fair inference that these Germans introduced deep under-ground mining into Cornwall. And the shambles, coffins, and other old men's workings represent the methods which were in use before the spacious times of Great Elizabeth.

DESCRIPTION OF THE CARLAND BARROWS.

By the Rev. R. PRIOR, M.A.

At the S.E. corner of the Parish of Newlyn-East, where the adjoining parishes of Ladock and St. Erme meet it, is a plateau called Carland, which is marked by numerous barrows. Some have already disappeared and others are disappearing with scarce a note being made of them, save their position being marked upon the ordnance map. From these barrows, upon the low eminence of Carland, a vast extent of country is visible. With distinctness Carnmarth, Carmenellis, Four-Barrows, Brown-Willy, Rowtor, Roche Rocks, and Denzell Downs can be seen. Sixteen Churches may be counted from these heights. The barrows on Carland are interesting not only on account of their number and variety but also for their peculiarities. The number existing is twenty, and they are arranged in two groups, which, in describing them, we may call Eastern and Western. The whole of the barrows form an arc of a circle, of which the eastern side is regular in formation, though there is a hiatus between the large group here. Only five of the western barrows follow the line of the arc; the rest are irregularly scattered about its western corner. The chord running from east to west is about a mile across. Almost at the extreme curvature of the arc stood a barrow, of which only the smallest vestiges remain, as the rest of it has been scattered over the fields to enrich the soil. Of these barrows three deserve attention: viz. the highest, Warren's Barrow, which is locally so called from a belief that a certain General Warren is buried there, of whom nothing whatever can be ascertained; Jenkyn's or Hendra Barrow, why Jenkyn's is not known, Hendra because it is situated on the land of the adjoining farm of the same name; and the demolished barrow, which stood at the arc's extreme curvature.

The barrows on the eastern side of the arc, twelve in number and more uniform in shape than the western group, are distributed in the following situations. From the demolished barrow

mentioned above, there are three small barrows to the eastern side of it running due east and west. From the barrow that stands close by the road from Carland to Landrine, and situated south east from the demolished barrow, is a series of barrows, eight in number, of bowl formation, six of which run in line nearly north and south with the seventh standing to the east and the eighth to the west of the course. The second of this series is Hendra barrow, which differs slightly from the others, in being much larger, (in fact, the largest of the Carland barrows), and elongated from north to south. From this there is a clear view south-west towards Carnmenellis and Carnmarth. The other barrows, in a line with this, are in Hendra Plantation and, without a close search, are difficult to find. The western group have not the uniform lines (or courses) of the eastern, and differ also in their size and shape, as Bowl, Bell and Broad barrows are here represented. The most important of all the Carland barrows, is Warren's, which towers above and dwarfs the rest, with the exception of Hendra. It looks as if it were a barrow upon a barrow, and shows a distinct step or flat ring around the centre. Almost due south from this point is a fine bell barrow, which has lost (as all on Carland have) its outer ring of stones. These stones have probably been used for building purposes. To the south again are two more barrows in a direct line at right angles to the last mentioned. These were once very large, but have been greatly ploughed down, so that in a few years they may be altogether lost. In all probability these were broad barrows. Only about half of one side of the easterly one now remains, and it seems to have been originally surrounded by a fosse. To the west of the Bell Barrow is another much ploughed down bowl barrow; while still further to the west, in the adjoining croft, are two small bowl barrows which run due N. and S., between which is a hut circle not marked on the Ordnance-Survey Map. It is very singular that this should be the only hut circle to be found on Carland amidst such a large number of barrows. It is 33 feet in diameter on the outside and 27 inside. The entrance has been destroyed and only two-thirds of its walls are now remaining. Of Warren's Barrow the interest centres in its dissimilarity to the rest of the tumuli on Carland. Its step formation raises the

question as to what it was made for. Was it raised to be used as a burial mound i.e. A *carneddan* of the Welsh, or a *crug y gorsedd?* Was it a place where religion was taught, or where the laws were made and read as instanced by the Tynwald Mound in the Isle of Man, and the Logberg at Thingvellir in Iceland? Is it a burial mound or a council mound? It is not unlikely that this barrow was used for the latter purpose, considering the central position Carland has in relation to the other barrows upon the surrounding hills and the whole lay of the land.

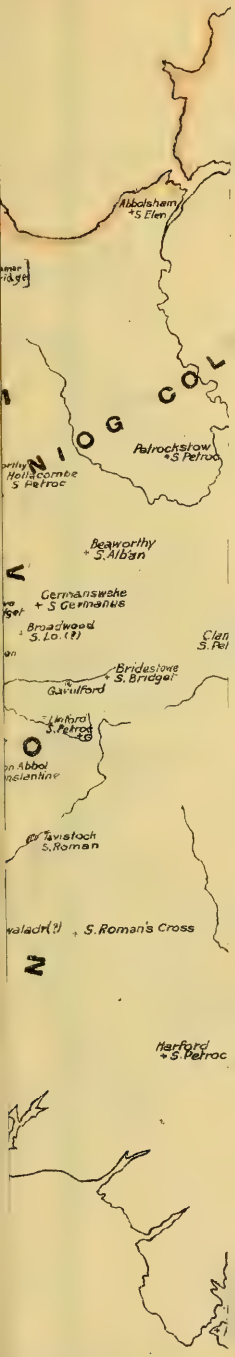
There is a local tradition, and there is no reason against its general acceptance, that Warren's Barrow was used for signaling by means either of fire or smoke, between the Four-Barrows, Carnmenellis, and the other surrounding heights. From its summit there is a clear view W. and S., as from the summit of the now demolished barrow there was a clear view N. and E.

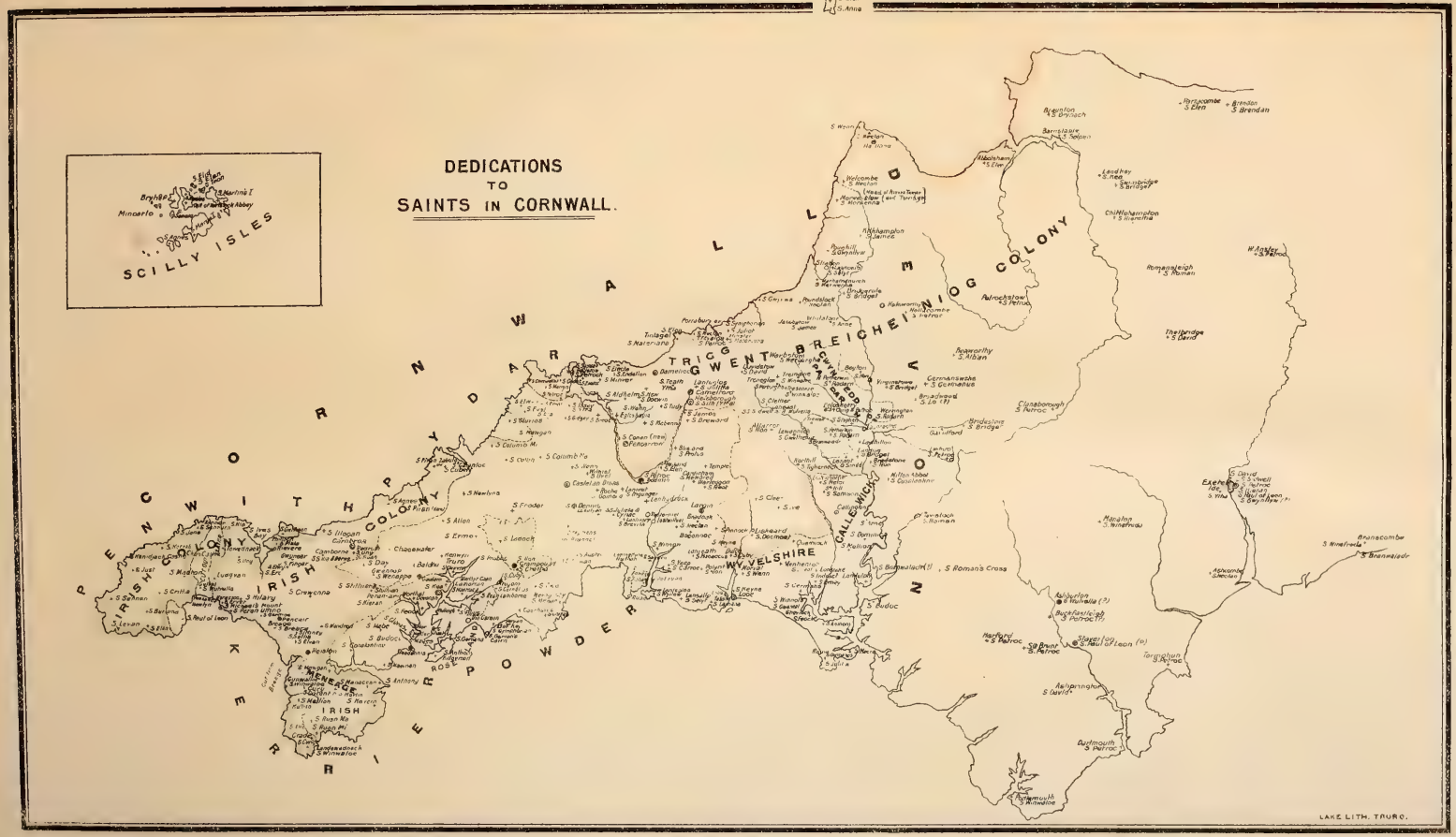
Of these barrows, six have been opened; one, the site of which is still clearly marked, has been demolished recently, four have been more than half ploughed over, and the rest remain intact.

CINERARY URNS FROM GUNWALLOE.

These urns, which have been presented to the Royal Institution of Cornwall by Capt. J. P. Rogers, R.A., of Penrose, were discovered by Mr. John Freeman, of Gunwalloe, on Saturday, July 16th, 1898. On that day Mr. Freeman noticed a hole in the ground on the edge of the cliff, at Pedngwinion Point, in the Parish of Gunwalloe, and at the end of the hole something round. He carefully cleared away the earth and found the three urns, one perfect and two in pieces. He took them to Penrose Estate Office on August 6th. On the following Monday, August 8th, Mr. H. D. Acland and Mr. Lionel Rogers went to investigate the place. They found what were evidently the remains of a tumulus which had been denuded almost level with the surrounding country, and the urns were found on its S.W. edge. With the assistance of Mr. Freeman they re-opened the *kist-vaen* and found a flat stone 26 ins. long, by 25 ins. wide, lying on the top of a number of flat fragments, all being of local origin. Mr. Freeman explained that the fragments were originally placed vertically as a lining to the pit, which, without the lining, measured 33-ins. by 27-ins. and was 24-ins. deep. The *country*, which was clay, they cleared out. The urns had each occupied one of three corners of a rectangle, and there were no traces of a fourth, though a lump of earth and a number of bones were lying where one might have been. Mr. Freeman told them there was a flat stone on each urn, one of which was brought back. Having completed their examination the hole was refilled and the covering stone replaced. The urns are made of well baked pottery, and, as may be seen from the illustration, are of fine workmanship. The contained bones were calcined, but with them were no traces of charcoal, flints, or, with one possible exception, metal. The two imperfect urns were sent by Mr. J. D. Enys to be restored by Mr. A. P. Ready who does similar work for the British Museum, and the three, now complete, are arranged in a case in the museum of the Institution. On going very carefully through the contents of the urns Mr. J. D. Enys found a number of bones which evidently were not human, and these on being submitted to Mr. E. T. Newton were determined by him to be bones of a very young rabbit, bones of 3 birds agreeing most nearly with the wheatear, and the humerus and tibia of a toad.


3 CINERARY URNS
WITH BONES & CLAY.
Found in a Tumulus at
Frenguimen Point Gunnellee,
August 8th 1908
Capt Jacobsen R.
CINERARY URN, No 1
from Gunnellee
Cape Hagen NA


Abbotsham
+S. Elen
NIOG COL
Petrockstow
+S. Petroc
Hollacombe
S. Petroc
Beaworthy
+S. Alban
Germanswake
+S. Germanus
Broadwood
S. Lo. (?)
Clen
S. Pel
Bridestowe
S. Bridget
Gawlford
Lifford
S. Petroc
Tavistock
S. Roman
S. Roman's Cross
Harford
+S. Petroc



DEDICATIONS TO SAINTS IN CORNWALL.

LAKE LITH. TRURO.

A CATALOGUE OF SAINTS CONNECTED WITH CORNWALL, WITH AN EPITOME OF THEIR LIVES, AND LIST OF CHURCHES AND CHAPELS DEDICATED TO THEM.

By The Rev. S. BARING-GOULD, M.A.
President, R.I.C.

Part I. *A—C.*

Prefatory Note.

With the exception of the Rev. John Adams's attempt to elucidate the histories of the Cornish Saints, unhappily brought to an abrupt termination by his tragic death,* and that of the late Mr. W. Copeland Borlase,† and the brief sketch by the Rev. W. S. Lach-Szyrma,‡ no attempt has been made to solve the mystery that envelops the early ecclesiastical history of Cornwall. If these earlier students were not as successful as might have been desired, the reason was that much of the necessary material was not then accessible.

In the attempt now made, I have no hope of giving absolutely certain results. Cornwall is barren in ancient literary remains of an historical description, and we are obliged to look for help to Ireland, Brittany, and Wales for our material on which to reconstruct the history of the peninsula.

In many cases, all I can hope to do is to establish probabilities for the identifications that I propose. Material is not forthcoming to enable me to do more. One great point on which I rely for these identifications is the grouping of dedications.

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* Journals of Royal Institution of Cornwall.

S. Cuby,	Vol. II. p. 314.	S. David,	Vol. III. p. 155.
S. Petroc,	,, III. ,, 1.	S. Burian	,, IV. ,, 140.
S. Constantine,	,, ,, ,, 82.	S. Crantock,	,, ,, ,, 272.
S. Samson,	,, ,, ,, 89.	S. Gunwallo,	,, V. ,, 145.

† "The Age of the Saints," in R.I.C. Journal, Vol. 6, p. 9; and afterwards, published separately, with addenda; by Pollard, Truro, 1893.

‡ "Church History of Cornwall," Truro, Plymouth, and London, (1887,)&c

S. Adwen, Virgin.

In the "Inquisitio Nonarum," she is entered as S. Athewenna. The parish of Advent is locally called S. Anne or S. Tane. Leland (Col. IV, 153) gives Adwen as one of King Brychan's children who settled in N. Cornwall. He derived this from a legend of S. Nectan preserved at Hartland. So does William of Worcester from a notice of Brychan he found at S. Michael's Mount. Among the daughters of Brychan known by the Welsh there is but one who can by any possibility be identified with her, and that is Dwynwen, and Mr. W. Copeland Borlase conjectured that the chapel of Advent was originally Llandwynwen.

S. Dwynwen was invoked by disconsolate lovers. She and Maelor Dafodril fell desperately in love with each other, but when he paid his addresses to her, in a spirit of levity or perverseness she flouted him, and he retired deeply offended. She constantly hoped that he would return, but he did not. Instead, he published slanders about her. She was miserable, partly because of these idle tales, partly because she loved him still. Then, in her distress, she prayed to be relieved of her passion, and an angel appeared and administered to her some drops of a heavenly elixir, and at once her heart was cured of love sickness. Next the angel administered the same medicine to Maelor, and he was frozen up into a lump of ice. God now gave to Dwynwen three requests which he undertook to fulfil. So she asked to have Maelor melted, and it was so. Then she asked that all true-hearted lovers who invoked her aid might either obtain their desire, or become indifferent. This was granted. Lastly she asked that she might never again hanker after marriage.

Then she became a religious woman and ascetic. There was a gilded image of her at Llandwynwen in Anglesey, to which many lovers in old times resorted.

In the Iolo MSS. a poem to her by David ap Gwilym is given, which may be thus rendered:—

Tear-bedewed Dwynwen, essence of beauty,
Truly resplendent, golden thine image,
Daughter of Flamgwyr's sacred enclosure!
He who by tongues of malicious ones wounded
He that keeps wake, all guileless of purpose,
O thou refulgent one, here at thine altar
May he depart hence, healed of his heartache!

A maxim attributed to her is: "There is no amiability like cheerfulness," *i.e.* nothing is so loveable as a sunny spirit.

Whether Advent was a shrine greatly resorted to by amorous Camelfordians cannot now be said. The church is annexed to Lanteglos, and owing to this circumstance meets with no notice in the Episcopal Registers.

Dr. Borlase states that Advent parish church was originally dedicated to S. Tathan, as the name occurs, says he, in old deeds. Sir John Maclean quotes deeds in which the name is spelled S. Tawthan (1559), S. Adwen (1572), Tathene *alias* Adventte (1601), &c. But the "Inquisitio Nonarum" is the true authority for a dedication. We do not know that S. Tathan, the brother of S. Samson, ever left Gwent.

Mr. E. J. Hurdon of Camelford tells me that he has made diligent enquiries among the oldest people of Advent but cannot learn of any feast or revel-day there. He says "Advent in my young days was almost unknown by that name, and was called by the inhabitants, S. Tain or S. Tane."

The day of S. Dwynwen is January 25.

S. Agnes, Virgin Martyr.

The church and parish that bear this title were subject to Perranzabuloe. Hals says that the church was built in 1484, and consecrated by Archbishop Courtenay, but Tonkin's notes show that a chapel had been there in 1396. The title does not occur in any of the earlier episcopal registers.

That there may have been a chapel here from Celtic times is more than probable. There is a holy well in a glen leading to the sea, and the chapel attached to it was pulled down in 1780. The well was at one time much resorted to. This speaks of an earlier dedication than to S. Agnes, as the holy wells specially belonged to Celtic saints. The Cornish call the parish S. Anne's. Agnes, Annis, and Anne, are forms of the same name. Nevertheless, it is conceivable that this may have been the earlier dedication. S. Agnes in the Scilly Isles is also certainly a late alteration of another Celtic name. At any rate the Anne commemorated would not be the mother of the B.V.M. (*see under* S. Anne).

Of the old chapel of S. Agnes on the Headland there are now no remains; "the Holy Well, as a well, was destroyed by miners some years ago. The spring still flows in a depression on the top of the cliffs and below a pile of rock, in which it is supposed the chapel stood, but where are no indications of levelling of the surface. The spring does not now rise to the surface, but streams over the walls of a cavern which is accessible at half tide. The water is beautifully cool and sweet, and is a great convenience and refreshment to visitors to the porth. They either put their lips to the little projections of the rocks and drink, or make little spouts of paper, and fill glasses or bottles." (Communication from Rev. A. Rudall, Vicar of S. Agnes).

The day of S. Agnes, V.M., is January 21.

The S. Agnes Feast is the nearest Sunday to January 21; "Feasten Monday" is the day following.

It is worthy of note that according to one account the name of the mother of S. Carantog was Anne. It is possible that Carantog may have placed his mother as head of a religious house at S. Agnes,

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S. Akebron, *or* Achebran, Confessor.

In S. Keverne in Domesday, Lannachebran is the name of the manor subject to the Canons of S. Keverne. This indicates that there was an ecclesiastical foundation in the present parish founded by S. Achebran, the chapel of which has disappeared.

Achebran was one of the sons of Bochra, his name is contracted from Aed Cobrhan, and his brothers were Laidhgen and Cainnech; Bochra was the name of the mother. Their father's name is unknown. The three brothers were commemorated as saints of Achadh Raithin in Hy Mac-Caille in Waterford. But Achebran had a special commemoration on January 28, as having a cell under Inis Cathy. He was therefore associated with S. Senan, if he belonged to the same period. His cell was not in the island of Inis Cathy, but at Kilrush on the mainland in Clare. He is there forgotten; there are two old churches in the place, but both are now regarded as dedicated to S. Senan.

It is probable that Achebran came to Cornwall with S. Senan and made a settlement in the Lizard district, but its fame and that of its founder were eclipsed later by that of S. Kieran; or he may have been a disciple of the latter saint, as he came from the South of Ireland, like S. Kieran, and later in life he may have united himself to the community of S. Senan.

Day of S. Achebran, Cebrhan, or Kevern, January 28.

S. Aldhelm, Bishop, Confessor.

There is a chapel in S. Kew, licensed 24th May, 1405, dedicated to this saint, at Chapel Amble. It may have been a private chapel belonging to a manorial lord of English extraction. It is in the district saturated with Gwentian-Brecknocian influence. Aldhelm, B. of Sherborne, wrote a remonstrance to Geraint, King of Damnonia in 705, on the peculiarities of the ecclesiastical observances of the Celtic Church in the West, which he emphatically condemned. A dedication to him in N. Cornwall is anomalous and not easily explicable.

He died 709, and his day is May 25.

For his life see Bönhoff (L.), Aldhelm von Malmesbury, Dresden, 1894.

S. Allen, Confessor.

There are saints of a somewhat similar name who must be distinguished.

1. Elwyn, an Irishman, one of the companions of Ia, Breaca, and Euny, who settled in West Cornwall, (about whom later);
2. Elian Geimiad, or the Pilgrim, a friend of S. Cuby.

The saint who has given his name to the church of S. Allen I take to be this latter. His father was Galgu-Reiddog, and his mother, S. Canna, daughter of Tewdrig, son of Emyr Llydau, and consequently, cousin to S. Samson and S. Padarn.

Elian and Cuby were together at Holyhead, in Anglesey, and were wont to meet daily to converse on matters of religion. (*See under* S. Cuby).

Elian would be quite among kinsfolk in Cornwall, for his father was descended from Cadrod the Whitewasher, who married Gwrgon, daughter of King Brychan, and, as already intimated, he was akin to S. Samson. His attachment for S. Cuby would make him acceptable to the Princes of Damnonia, to whom Cuby was related. He must have been likewise in Brittany, for the cathedral church of Quimper professed to possess his relics, under the name of Alain, but under the name of Elouan he is venerated in the parish of S. Gwen in Côtes du Nord, where a fine tomb, of the end of the 18th century, is erected over his supposed remains.

The church of Quimper, dissatisfied with its ignorance as to the history of S. Alain, boldly appropriated the Legend of S. Elan de Lavaur, near Toulouse, but in so doing, was unaware that this also was a fraudulent composition. The church of Lavaur possessed the relics of a petty local saint, named Elan, of whom no record remained, and someone connected with the church deliberately adapted and altered the genuine Life of S. Amandus of Maestricht to suit the Gascon saint; he did more, he manipulated, as well, certain records of donations to the church of Maestricht, to serve the purpose of the clergy of Lavaur to lay claim to some estates in their own neighbourhood, coveted by them.

In Bonedd y Saint, reference is made to the History of S. Elian, but the life is no longer in existence. It will be noticed that the foundation of S. Allen is between two of S. Cuby, that at Tregony and that at Cubert.

If Talland were a corruption of Llan Allen, we should have him again near his friend, at Duloe. The date of his death was about 560. The feast at S. Allen is on February 22; and also on the fifth Sunday after Easter.

In Wales, on January 13, in consequence of a stupid blunder, he is identified with S. Hilary; which came about thus: Geimiad, *Pilgrim*, was misread as Cannaid, *bright*; and Elian was confounded with Hilary, as Hilarius signifies "cheerful, bright;" the identification was easy, and in Wales, Hilary is called Elian Esgob (Elian the Bishop).*

* *See* Rees. Essay on the Welsh Saints, 1836, p. 267.

At Quimper the feast is on November 27.

In Art, S. Allen should be represented as a hermit with a pilgrim's staff.

S. Ambrusca, Virgin.

In Crantock village, according to Dr. Oliver's Monasticon (p. 438), a chapel dedicated to S. Ambrusca formerly stood in the churchyard, and an ancient covered well, dedicated to the same saint, existed in the centre of the church village, according to Polsue.

The well has been destroyed, and a villa, called "S. Ambrose," has been erected on the spot; the stream, however, still flows.

Who was S. Ambrusca? There can be little doubt that she must have formed one of the company of S. Carantoc, and was possibly a sister.

The Welsh form of Ambrose is Emrys.

S. Anne, Matron Abbess.

The name of Anne is in great repute in Brittany, where the cult of the mother of the B. Virgin rose to immense popularity after 1625. But devotion to S. Anne, mother of the Virgin, was comparatively unknown, till, in the 15th century, the doctrine of the Immaculate Conception was brought into prominence.

The earliest known representation of S. Anne is on a seal of 1351 belonging to a convent in Westphalia.*

It is almost certain, therefore, that dedications to S. Anne in Cornwall previous to the 15th century are to quite another person than the Anne of the Apocryphal Gospels. [Compare also S. Agnes].

There are three Annes mentioned in the Welsh pedigrees:—

1. Anne, daughter of Uthyr Pendragon.
2. ,, ,, Mewrig ap Tewdrig.
3. ,, ,, Vortimer, the Blessed.

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* Vincens (Ch.) De l'iconographie de S. Anne, Paris, Chaix, 1892. Schmitz: Die Anna-Bilder, *in* der Katholik, VII (1893). Schaumkell (E-) Der Cult der H. Anna, Freiburg i.B. Mohr, 1893. Acta SS. Jul. T. VII, p. 233-239.

To these may be added, 4, Anne, servant and companion of Madrun or S. Materiana, also reputed a saint.

Some authorities make Anne, daughter of Uthyr Pendragon, to have been the mother of Gynyr of Caer Gawch, consequently the wife of Cedig, son of Ceredig of Cardigan,† and afterwards wife of Amwn Dhu, and mother of S. Samson. Another makes her wife first to Amwn, and then the mother of Gynyr.‡

Another authority§ makes Anne, daughter of Mewrig ap Tewdrig, the wife of Amwn; and the same says that the wife of Gynyr was Anne, daughter of Vortimer.||

It is clear that there has been confusion between three Annes, and that Cedig married Anne, daughter of Uthyr Pendragon, and had a son Gynyr, who married another Anne, daughter of Vortimer, and that she was entirely distinct from the Anne who was the wife of Amwn Dhu, who certainly was the daughter of Mewrig. Indeed Amwn's brothers married sisters of this Anne, daughters of the same Glamorgan prince.

With regard to the fourth Anne, she was warmly attached to Madrun, the wife of Ynyr Gwent, and she was servant to her. After the death of Ynyr when Madrun retired from the world, Anne did the same.

The only Annes likely to have a cult in Cornwall would be this latter(4), the wife of Gynyr(3), and(2) the mother of S. Samson. Madrun is the Materiana of Minster and Tintagel, and doubtless her faithful maid Anne came with her to Cornwall. Whether the Holy Well at Whitstone be hers cannot be decided, the distance from Minster is about eleven miles. A far more important Anne was the mother of S. Samson, but she never was in Cornwall, though it is possible that religious establishments, there, may have been affiliated to her monastery in South Wales.

What we know of S. Anne(2) is derived from the lives of S. Samson, and our best authority is the First Life, written in the 7th century, published by Mabillon in the Acta SS. Ord. S. Benedicti, Saec. I. p. 165; and by the Bollandists (July 6). In

† Myvrian Arch., p. 433; Iolo MSS, p. 505.
‡ Iolo MSS, p. 545.
§ Iolo, p. 534.
|| Ibid, p. 530.

the Lives of S. Samson it is distinctly stated that Anne came from Gwent, "de Venætiâ provinciâ, quæ proxima est eidem Demetiæ, exorta est;" and Gwent at that time included Morganwg or Glamorganshire. Afrella was a younger sister, and was married to Umbrafel, brother of Amwn the black. She was mother of three sons, born before Anne had any child.

Amwn and his wife were in sore trouble at being without offspring. But one day being together in church, they heard a discourse upon the merits and powers of a certain scholar (Librarius) in the north, to whom great numbers resorted. So Amwn and his wife started to consult him, with presents in their hands, just as now Hindoos might journey to some famous fakir. After a toilsome bit of travel they reached the place where this renowned man was, and found him in the midst of a throng of suppliants, some deriving healing, some requiring discovery of objects that had been lost, some benediction on a new undertaking, some a good curse pronounced against an enemy.

They told the great man that they desired to have a son, whereupon the "Librarius" advised Amwn to make a rod of silver as tall as his wife, and to give it as an alms for his soul and that of Anna. Amwn promptly declared that he would give three such rods. The medicine-man then bade them retire into his "hospitium." These rods of metal of a man's height meet us in another legend, and apparently should be brought into connexion with such stones as were set up "pro animâ suâ," which are found in Celtic countries.

In process of time Anna bore a son, and he was named Samson.

From his birth, Anna urged her husband to dedicate him to the Lord—at least so says the Life,—but this seems to be an adaptation of the story of Hannah and the child Samuel. However, Amwn was unwilling to consent. Having got a son he resolved on keeping him, but his reluctance was overcome when Samson proved to be but the first of a string of children.

For his education, Samson was entrusted to S. Illtyd. Samson remained at college till old Amwn was very ill, and sent for his son. Samson was at first reluctant to go to his father, but went finally, when his master insisted on it.

Amwn recovered, and at the instigation of Samson, both Amwn and his brother, Umbrafel, were tonsured, and their respective wives, Anna and Afrella, received consecration as widows. Samson then dismissed the two latter into different parts to found monasteries and to build churches.

His mother was especially fervent in accepting his commission. She is reported to have answered: "Not only do I desire, and lovingly embrace the charge laid on me, but I require of Almighty God, to whom you have dedicated me, that you shall consecrate the monasteries and churches you bid me construct."

To this Samson cheerfully consented. As to his father and uncle, they were a little rough and undisciplined, therefore he took them along with him, so as to superintend their training.

After some years, when he considered that they were getting forward in the way of perfection, he sent them to Ireland. He had found his uncle the more pliable of the two.

Having got rid of these incumbrances, Samson determined on seeking "a vast desert" near the Severn. There he remained awhile, till he was consecrated Bishop, when he resolved on leaving Wales. He took his course round the Bristol Channel "iter suum circa Habrinum mare, invitis omnibus ibi habitantibus direxit," and visited his mother and aunt, and dedicated their churches. He does not seem to have seen Anna again. The opposition he encountered was not due to hostile feeling, but to reluctance felt by the people of Morganwg to lose him. He crossed the Bristol Channel to a place called Dochor. We may accordingly suppose that his mother and aunt had their churches in Glamorganshire; but no dedications to S. Anne and to S. Afrella can be found there now.

We know nothing further about her, and she probably ended her days as superior of the religious establishments she had founded. We have no means of ascertaining whether she ever crossed into Cornwall.

Anna, according to the Glossary of Cormac, King bishop of Cashel (b. 831, d. 903), was, among the Pagan Gadhaels, *mater deorum hibernensium*, and is described as one who "well nourished the gods: from whose name is said to be derived *anae*,

i.e. abundance, and after whom are called the Two Paps of Ana, West of Luachair" (in the County of Kerry). He also refers to her under the name Bu-anann, the Nurse of Heroes, "a good mother in teaching heroism to the heroes.... as Ane was mother of the Gods, so Bu-anann was mother of the Fiann."* It is probably from this Pagan Goddess that S. Anne's Head (S. Agnes) in Cornwall takes its name. The cult of the goddess has passed on to S. Anne, the mother of the B.V. Mary.

At Tregony is a chapel dedicated to S. Anne, but this is probably to Anne, mother of S. Non, to whom the chapel at Grampound is dedicated.

Dedications to S. Anne are:

The Church and Holy Well at Whitstone.
The Chapel at East Looe, on the Bridge.
A Chapel at Tregony.
,, Calstock.
,, Anthony in Roseland.
,, Camborne.
,, Bodmin.
,, Bratton Clovelly (Devon).
,, on Lundy Island.
A Holy Well and Chapel at Bigbury (Devon).

If we could be sure that any of these were earlier than the 15th century, we might conclude that they were dedicated to one or other of the Celtic Annes.

The Festival at East Looe is on February 13.

Whitstone Revel is on Easter Day.

The day of S. Anne, mother of the B.V.M. is July 26. I have said that Anne, daughter of Meurig and wife of Gynyr may have received a cult in Cornwall. She was the mother of S. Non and grandmother of S. David, and mother also of S. Wenn, the wife of Selyf, King or Duke of Cornwall, and grandmother of S. Cuby. As Tregony was a foundation of S. Cuby, it is not surprising to find there a chapel of his grandmother and hard by one of his aunt's. At East Looe, also, Anne would be near her daughter's foundation at Morval, and that of

* Stokes (W.) "Three Irish Glossaries," Lond., 1862, p. xxxiii.

her other daughter, Non, at Pelynt. For the determination of the saints we can have no better guide than the dedications of surrounding churches and chapels.

I suspect accordingly that we have in Cornwall chapels to

Anne, the wife of Gynyr,
Anne, the wife of Amwn Dhu.
Anne, the handmaid of Madrun.

In conclusion, a word on the cult of S. Anne in Brittany.

The celebrated pilgrimage-chapel of S. Anne d' Aurai, in the parish of Pluneret in Morbihan, was certainly not originally dedicated to the mother of the B. Virgin, whose name is only known through an apocryphal gospel. There was a village about a camp called Caer-Anna or Keranna, named after the Mother of the Gods of the Pagan population, that was destroyed in the year 700. On the 7th of March, 1625, a peasant named Yves Nicolazic, whilst working in his field, dug up a statue which he at once concluded was the Anna after whom the hamlet was named, and as he knew of no other Anne than the mother of the Virgin, rushed to the conclusion that it represented her. His imagination next induced him to think he had dreamed of her. This was the origin of the celebrated pilgrimage, which was organised by the Carmelites in 1627. A new church has been built on the spot which was consecrated in 1877. It is a pretentious structure. Here there is a fountain of S. Anne with statue and three basins.

S. Anthony, Martyr.

It does not much concern us who was the Antonius or Antoninus, Martyr, to whom both the churches of S. Anthony in Meneage and S. Anthony in Roseland, and probably also Anthony by Saltash are dedicated; for the title given to these churches arises entirely out of a misconception. In both the former cases the church occupies a tongue of land between the sea and a creek, and at Anthony it is on a neck of land leading to a promontory. In both the former cases these small peninsulas had been fortified, and there can exist no manner of doubt that the same was the case formerly with regard to the Mount Edgcumbe tongue of land, though the earthworks have disappeared under cultivation.

The banks of fortification at S. Anthony in Meneage (or Kerrier) are so considerable that they were occupied by Sir Thomas Fairfax in 1646, who added to them. The farm bears still the original name of Lantinney, or Llan-Dinas. In Bishop Grandisson's Register, the parish is thrice mentioned as that of "Sancti Antonii de Lanyntenyn," or "Ecclesia de Lannyntenyn," or simply as "Ecclesia S. Antonii in Cornubia."

As we have twice Castel-an-Dinas, so we have twice a Lan-an-Dinas. *An* is "on the," or "out of the," and we see at once how Lan-Andinas became Lan-Anthony.

As at Launceston (S. Mary Magdalen), at Warbstow (S. Milburga), at Wemborough, at Helsbury, and S. Dennis, there were chapels connected with the *caer* or *dinas*. In the case of S. Denis, the church occupies the centre of the *dinas*, the mounds of which remain around it. In this case Dinas became Denys, whereas in the three other cases, an-dinas became Antonius.

The church at S. Anthony-in-Roseland was dedicated on October 3, 1259. The old fortified *caer* may still be traced. According to popular tradition, S. Anthony-in-Kerrier is attributed to Normans, who in danger of shipwreck, vowed to build a church on the first land they reached, when overtaken by storm, and nearly wrecked. Menhenniot was, as the name implies, originally dedicated to S. Neot, but it was re-dedicated to S. Anthony. It is difficult to say to what Anthony or Antoninus these churches are dedicated.

Antonius was martyr at Rome under Valerian, 15 December.
,, ,, ,, Alexandria, 14 February.
Another Antonius, M. at Alexandria, 9 August.
Antonius, M. in Africa, 23 September.
Antonius, P.M. at Antioch, with Julian the Hospitalier, is commemorated on 9 January.
Antonius, M. at Nicopolis under Licinius, 10 July.
,, Patriarch of Solitaries, 17 January.
,, M. at Myra under Julian the Apostate, 7 Nov.
Antoninus, M. at Rome, 22 August.
,, M. at Rome with S. Lucilla, 29 July.

Antoninus, M. one of the Theban Legion, 30 September and 4 July.
,, M. at Pamiers, 2 Sept.
,, Child M. at Capua, 3 September.
,, P.M. at Nicomedia, 27 April.
,, M. at Rome under Maximian, 26 April.
,, P.M. at Caesarea, 13 November.
,, B. Marseilles, d. 580, 31 October.

The feast of S. Anthony-in-Meneage is on December 26. If we deduct eleven days we get December 15, which is the Feast of S. Antonius, Martyr at Rome, under Valentinian. But in the Felire of Oengus his day is August 9. The feast of S. Anthony-in-Roseland is October 3. Eleven days off gives Sept. 22, which is the eve of Antonius M. in Africa.

There was anciently a chapel of S. Anthony at Penzance.

S. Austell, Monk, Confessor.

Austell was a disciple of S. Mevan or Mewan, and accompanied him and S. Samson from South Wales. When S. Samson made a foundation at Golant, previous to crossing into Armorica, Austell must have planted his *lann* where now stands the beautiful church that bears his name.

On the tower he is represented as a hermit or pilgrim with staff and beads, on the right hand of the Saviour, and on the left is S. Samson habited as Archbishop of Dol, in pall with archiepiscopal crozier.

Austell followed Mewan and Samson to Brittany. Mewan was sent by Samson with a message across the Forest of Bracilian to Vannes, and on the way Mewan made friends with a settler from Britain, who persuaded him to found a *lan* near his *plou*, and promised him all his territory.

When Mewan was dying, Austell stood by with streaming eyes; the aged Abbot wiped away the tears and bade his disciple not be discouraged, as he should follow him in seven days. Accordingly seven days after, Austell was found dead in his bed.

The brethren, knowing the friendship of long standing that existed between the two, resolved to lay Austell by his Abbot.

On opening the stone coffin, they found that the dead man, whom they had laid on his back with folded hands over his breast, had moved on one side so as to allow space for his faithful companion.

S. Austell's day is June 28. He was commemorated at the Abbey of S. Meen, but he does not seem to have founded any churches in Brittany; he was content to be eclipsed by the greater luminary, S. Mevan.

His date is about 627.

S. Austin, Confessor.

In the parish of Lesnewth, near the site of an ancient chapel called Hendra, *i.e.* The Old House, is a holy well, which is said to have borne the name of S. Austin. Thence water for baptisms was till recently invariably fetched.

That the chapel and well were dedicated to either the saint of Hippo or to the Apostle of Kent is more than improbable. A holy well was regarded as sacred before the Celts became Christian, and so soon as they were converted, it became a baptistery to the saint who founded a church near it, and it thenceforth bore his name. Lesnewth was a very ancient cruciform church of singular interest. It was destroyed by a late Cornish wrecker of churches, who built a tasteless fabric on its site. The church is regarded as dedicated to S. Michael. This is a late dedication supplanting one that was earlier. It is possible that in the name Austin we have a trace of the original founder, Aust or Ust, who accompanied S. Cadfan to Britain from Armorica, about 510. The half-brothers of S. Ust were Gunwaloe, Winnoc, and James, whose foundations we have at no great distance, at Jacobstow, Tresmere, and Lewanick.

S. Belarmine, Confessor.

A ruined chapel with this title, according to the Ordnance Survey, is in the parish of Cardinham, but the name is pronounced there Barleman, and not Belarmine; it is probably a corruption of Bartholomew, which became Bartlemy or Barlman.

S. Bessog, Virgin.

In the parish of S. Clement is a Lambessow or Lanbessog. It is just possible that there may have been there a church of S. Bigsech, a virgin who is noted in the Martyrology of Tallagh on June 28. She was a daughter of Bressal of the Hy-Fiachra family. Her church in West Meath is now called Kilbixy. Her holy well is there.

We do not know what was the dedication of the parish church before it was re-dedicated to S. Clement. The suggestion must be taken as such and nothing more.

S. Blaunder, Confessor.

A chapel and well in ruins bear this name at Penventon farm in Lewannick. Blaunder is the modern corruption, I believe, of the name Brangualadre, Branwalatre, Branwalader, changed in Brittany to Brevalaire and in Jersey to Brelade. He is invoked in the 10th century Exeter Litany, from the Salisbury library, published by Warren, in that of the same date published by Mabillon, and in that of the abbey of S. Meen. It is assumed that he is identical with S. Brendan of Clonfert.

Loth, in an article on the ancient Celtic Litanies says:* "*Brangualatre, Branwalatre.* This saint seems to me to be the same as S. Brelade in Jersey and S. Broladre of the ancient diocese of Dol. He has given his name to Loc-Brévalaire in Léon; in the 16th century Loc-Brevalayz, which leads to an early Breton form *Brewalatr* and probably *Brenwalatr* or *Branwalatr.* This saint has been identified with S. Brendan, and actually Loc-Brevalayz is translated in Latin as *Monasterium Sancti Brendani* (De Courson, Pouillé de Leon. Cart. de Redon, p. 579). Dom Lobineau whilst stating that a parish in the diocese of S. Brieuc bears the name of S. Brandan, remarks that this saint is simply entered as *Bran* in the registers of the reformation of the nobility of S. Brieuc. We have Brioc for Briomaglus; *Broladre* for *Brelade,* and better still *Breladre*; the *tr, dr,* has suffered no change, as the Breton language disappeared early out of the diocese of Dol."

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* Révue Celtique, Vol. XI, 1890, p. 139.

But against this identification we must place the fact that in the Litany quoted by Mabillon, from Rheims, the two saints are invoked separately. The order runs, S. Samsone, S. Brioce, S. Melore, *S. Branwalatre*, S. Patrice, *S. Brendane.*

If we regard Brandan and Branwalader as the same, then the composition is Bran-gwaladr, the king or ruler. It must be remembered that he actually was at Aleth (S. Malo) and founded a monastery there, where he trained many distinguished disciples.

In 935, Athelstan translated his body, together with the arm and pastoral staff of S. Samson, to Milton in Dorsetshire. The day of translation is January 19.

Branwalader is mentioned by William of Worcester under the name of Branwallan. He says that the body reposed "at Branston, eight miles from Axminster, and four miles from the the South Sea."* Branscombe, which I presume, he means, is dedicated to S. Winifred, and lies on the sea and not four miles from it. This points to an earlier dedication which gave its name to the parish.

On the whole we may conclude that Brendan, the Irish Saint, and Branwalader are the same, and that among the Cornish and Armoricans he was called Bran-gwaladr, whereas among the Irish he was Brennan or Brendan.

At Bere Ferris is a farm called Braunder, a corruption perhaps of Branwalader; but, so far, we have no evidence of there having been a chapel there.

S. Blaunder's well in Lewanick has been already noticed.

S. Blaze, Bishop, Martyr.

S. Blazey was a chapelry belonging to Tywardreath priory. No mention of it is found in the early registers of the Bishops of Exeter, or in the Taxation of Pope Nicholas IV.

It is accordingly a late dedication to the Bishop of Sebaste, who suffered in the persecutions of Diocletian, or under Licinius, 316. A taper was wont to be offered at high mass on his day,

*This may be a misprint of Nasmyth. There is not much reliance to be placed on his printed edition. Possibly the entry may be, a quarter mile.

and bonfires were lighted on hills on S. Blaise's night. He is believed to have had his flesh torn with wool-combs, wherefore such a comb is his symbol, or else a taper. His feast is February 3.

S. Breaca, Virgin Abbess.

Leland (Itin. iii, p. 15) quoting from a life of this saint, in use in Breage church, says that she was one of the company of Irish Saints that arrived under the conduct of S. Sennen. She was born in "the parts of Leinster and Ulster," and was associated with S. Bridget in the foundation of a community in these parts.

As Leland's Itinerary is not very accessible, I extract the whole of the passage in which he sums up the record he found in the "Vita Sanctæ Breacæ."

"Barricius socius Patritii, ut legitur in vita S. Wymeri.

Sta Breaca nata in partibus Lagoniæ et Ultoniæ. Campus Breacæ in Hibernia in quo Brigida oratorium construxit, et postea Monasterium, in quo fuit et Sta Breaca.†

Breaca venit in Cornubiam comitata multis Sanctis, inter quos fuerunt Sinninus Abbas, qui Romæ cum Patritio fuit, Maruanus monachus, Germochus rex, Elwen, Crewenna, Helena.

Breaca appulit sub Rivyer cum suis, quorum partem occidit Tewder.

Breaca venit ad Pencair

Breaca venit ad Trenewth,

Breaca ædificavit eccl. in Trenewith et Talmeneth, ut legitur in vita S^ti^ Elwini."

Now who was this Breaca? Breaca is but a latin form of Bríg or Breeg, as the name is pronounced alike in Cornwall and in Ireland.

There were several female saints of this name.

Bríg was virgin abbess of Killbrig, and was a pupil of S. Bridget. There is a little doubt as to her father's name, whether Cairpre or Finlog. The glossator to the martyrology of Oengus

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† Campus Breacæ is the plain between Dublin and Drogheda, otherwise Magh Breagh.

says the former. In the Book of Leinster, she is said to have been the daughter of Fergus. But Brig, daughter of Fergus, was sister of Brennan, father of S. Boethin. Another brother was S. Brendan of Clonfert, but his real name was Mobi. Although called his sister, she may have been a half-sister, and this would account for her being called daughter of Fergus, and his being called son of Finlog.

S. Bridget founded Kildare in 480, and died in 519. S. Brendan was ninety-six when he died in 577, consequently he was born in 481.

If Brig was a half-sister, by a second marriage, she may have been younger by some years. Brendan founded a house for her at Enach duim (Annadown).

According to the life of S. Bridget, she sent one of her most trusty disciples, Brig or Bridget, across to Wales to Ty Gwyn to bring thence a rule for the conduct of her house.

We cannot be sure that the Brig of Killbrig and Brig of Annadown are the same, but they probably were. S. Brendan was certainly acquainted with S. Bridget, and the life of Breaca, quoted by Leland, says that Bríg of Cornwall was a disciple of S. Bridget. That she was Brendan's sister or half-sister is very probable, because she formed one of the party of S. Erc, who was her and Brendan's fosterfather. Annadown is near Lough Carrib in Galway. Killbrig is either Killbride, in the county of Waterford, or Bridechurch near Kildare.

S. Brendan was deeply attached to his sister, they entertained the same passionate love of God, delight in Holy Scripture, and zeal for souls. It is said that when she was quite a young girl, S. Erc, who was her fosterfather as well as of S. Brendan, saw her face shine like the light of the summer sun. Probably this means that he called her "Little Sunbeam." She and Brendan were both educated by S. Erc. According to Leland, Brig left her monastery in Ireland along with S. Senan. Erc was his disciple, so they no doubt all travelled together.

When they came over, the ship arrived in Hayle Bay. Tewdrig resisted their landing. They, however, made their way to Reyvier, where he had a castle, to ask permission to settle. Reyvier is on the creek just west of Phillack church,

"now as some think drownded with sand" says Leland (Itin. iii, p. 18). Tewdrig killed some of the party, and Breaca fled to Pencaer, a fortification on Tregonning Hill, that may still be seen, looking much like an Irish hill castle. Thence she went to Trenowth, now Chenoweth, in the same parish, and thence to Talmeneth (the mountain end) where the site of her chapel is still shown. She founded oratories in all these places.

I think we must identify Bríg with the friend of S. Bridget, and also with the sister of S. Brendan. The quotation from Leland justifies the former, the association with Erc and Senan gives reason for the latter.

The church of Breage is the only one in Cornwall that is dedicated to this saintly virgin. Her chapels at Trenowth and Pencaer have disappeared.

Irish nuns wore white woollen mantles and white veils, and in this habit S. Breaca arrived in Cornwall.

She did not, however, remain in Cornwall, although the tradition was that she was buried there. If she returned with S. Senan, this must have been before 534, when he founded Iniscathy. Her brother died in her monastery, but not till he had prophesied that the "place of her resurrection" should not be at Annadown, but among her own people in "Trageoruon."

Brig is a feminine noun substantive, and signifies in Gadhelic *valour* or *might*. In Welsh *Bri*, honour or rank, comes from the same. Brigit has the same signification. Briget or Brigit was, as Cormac tells us in his Glossary of Irish words, becoming antiquated in the 9th century, "a goddess whom the poets worshipped, for very great and noble was her protection. Whose sisters were Brigit, woman of Healing, and Brigit, woman of Smith's work (*i.e.* patroness of the forge), goddesses."

Brigit's name occurs on the altar found at Middleby, "Brigantiæ S(acrum) Amandus Architectus ex imperio imp. I.," also on one at Greta Bridge in Yorkshire, "Deæ numeriæ numini Brig et Ian." She was a nature goddess, in later times divided into three, the Brig of Fire, of Life, and of Valour. The historical Bridget stepped into the affections of the Irish and occupied the place formerly given to the mythical Brigit or Brigech. From the Liber Hymnarum, we see that the old Irish

even identified her with the Virgin Mary. However, both Brig and Bridget in the Irish Christian Church are historical characters, though early myths may have gathered about their names.

Breage is the mother church of Cury, Germoe, and Gunwalloe. The ancient name of the place was Pembro, which has the same signification as Talmeneth. The castle occupied by her in Pencaer, according to Leland, was called Caer Conan.

William of Worcester says "Sancta Briaca (Nasmyth prints incorrectly Branca) Virgo, dies ejus agitur die primo....jacet in ecclesia predictæ sanctæ, per IIII miliaria Montis Michaelis." He probably confounded her with S. Bridget, February 1. The old feast of S. Breaca is June 4, but the revel is now held on the third Monday in June, *i.e.* the nearest to old revel day, eleven days later. There is also a festival on Dec. 26.

In the Irish Calendars, Brig of Kilbride is commemorated on January 21, Brig of Annadown on January 7.

The date of the death of S. Breaca would be after that of her brother Brendan in 577. We may conjecture about 588; but she must have been young when she came over with Erc, and Senan and S. Ia.

S. Brendan, Abbot, Confessor.

S. Brendan, of Clonfert, is not commemorated in Cornwall, unless he be the same as Branwalader, and thus be S. Blaunder of Lewanick. I give him here because he was much associated with Cornwall through his sister Breaca, and his foster-parents S. Erc and S. Itha, and through his acquaintance with S. Senan. There is a church dedicated to him under Exmoor, and he had a chapel on what is now called Brendon Hill, above Bristol.

Brendan was the son of Finlog, and his baptismal name was Mobi, but owing to a silvery light—the aurora that was seen when he was born,—he was commonly called Broen-finn, the White Mist, at least so says the Book of Lismore. He was born in the Fenet, a townland in Kerry, and was intrusted by his father to S. Erc, who at the time was living near.

When a year old, Erc handed him over to S. Itha, and he remained a few years with her. Throughout all her life he continued devoted to her, and consulted her in his difficulties.

> "Angels in the shape of white virgins
> Were fostering Brênain,
> From one hand to another (he was passed)
> Without disgrace to the babe."

His sister was Brig or Breaca, to whom also he was fondly attached.

When five years old, he was returned to Erc to be educated, and the Bishop took the boy about with him in his cart, on his preaching tours. A story connected with one of these shall be told under the head of Erc.

Brendan was born in 483, so that he went to Erc in 488.

After some time he left Erc to place himself under S. Jarlath of Tuam, but returned to Erc in Slane, to be ordained priest by him. He immediately went to S. Itha for counsel what to do. He is said to have drawn up a Rule which he received from angels, by which no more is meant than that he derived it from the ancient religious men who led the angelic life.

Then, by the advice of his foster-mother, he started on a voyage in the Western Sea. This was rendered advisable because through carelessness Brendan had caused the death of a young man.

Brendan had gone to an island in a boat, and on landing left a boy in charge of it. Presently when the tide turned and the wind blew strong, the lad's brother, who was with Brendan, told his master that he was sure the little fellow was not man enough to hold the boat. Brendan angrily rebuked him, and when the disciple persisted, he cursed him and sent him back to the coracle, The young man did find his brother vainly struggling with the boat, and, in his efforts to save the boy and secure the vessel, was himself carried away by a wave and drowned. Brendan's conscience reproached him, and he took counsel of his spiritual mother. Itha bade Brendan, as an expiation, sail in the Atlantic and explore the seas for islands, and required him to abstain from blood. Probably also she feared that the relatives of the lad would pursue Brendan. Brendan filled three large coracles covered with hides, and sailed in company with a number of monks. They were absent for five years, and on their return told marvellous tales of what they had seen.

When Brendan was back, he at once reported himself to S. Itha and S. Erc. His foster-mother did not approve wholly of what he had done, as his coracles had been covered with hide, the skins of slain beasts, and she recommended him, if he set out again on an exploring expedition, to construct boats of wood, it is distinctly stated "of planks."

Accordingly, together with sixty disciples, he set to work in Connaught and constructed such a vessel, and in it resumed his voyages which lasted two more years. On his return he founded a good many monasteries in Ireland and then started to pay a visit to Gildas at Rhuys in Brittany. He and his party arrived outside the abbey after sunset, and Gildas, a hard man, refused to open the gates to them although it was mid-winter and snowing. But Brendan bade his disciple Talmagh force them, which he did. Next day, when he desired to celebrate the Eucharist, Gildas gave him a Greek liturgy. But Brendan, who had learned Greek as well as Latin in the Irish schools, said his mass using only the Greek volume.

Leaving Gildas, Brendan went north, and founded a monastery at Aleth, afterwards S. Malo, and another at "Bledna in the country of Ethica." After that he returned to Ireland, between 540 and 550, and established a monastery in Clonfert, which was governed by the rule that, it was said, an angel had dictated to him.

He established a nunnery at Enach-duim, over which he placed his sister Briga, and I strongly suspect that the Cornish Breaca is this very sister. At a late period of his life, he paid a visit to S. Columba at Iona.

Seven years before his death Brendan was in his monastery at Clonfert on Easter Day.

A clerical student bearing a harp entered the refectory and played to the monks, then asked where the old Abbot was, as he desired to harp to him. They told him that Brendan was in his cell, and would listen to no music, he put wax into his ears whenever he heard music. The student, however, persisted, and was introduced into the old man's cell. He found him there reading. Brendan was with difficulty persuaded to listen to his harping, but yielded at last. He listened to the sweet music for

some time, and then said, "A blessing light on thee for thy melody, and may Heaven be thy due." Then he refilled his ears with wax. The harper urged that he might continue to play. "No," said Brendan, "Seven years ago I was in a church after preaching, and after mass, and I was alone, and having gone to Christ's Body, there came on me an ineffable longing to be with my Lord. And as I was in this ecstasy, trembling and afraid, I saw a pretty bird on the window sill, and it flew in and lighted on the altar—and there sang, and his song was as the music of heaven, and after that I have cared no more to hear the strains of earth."

Feeling his end approach, he visited his sister and told her that he was about to die. She was full of grief, but he was now very old, in his ninety-sixth year. On the following Sunday he stood at the altar, and turning said to all present: "I commend my death to your prayers." "But," said his sister, "What do you fear?" "I fear," he replied, "dying alone, I fear the dreadful way of darkness, I fear the unwonted land, the face of the King, and the sentence of the Judge." Then he bade the brothers take his body to Clonfert, and after he had kissed his sister and the rest, he said, "Salute all my kinsfolk for me, and tell them to keep their tongues from blasphemous talk. For evil talkers are sons of perdition."

That same day he died, May 16, 577.

A curious entry in Leland's Collectanea is that in 1199, at Ludlow, in Shropshire, whilst enlarging the parish church, a tumulus was opened that contained three cists, in which bodies were found, and with them an inscription to the effect that they were the bodies of S. Ferco (Finloga), the father of S. Brendan, of S. Aurona his mother, the aunt of S. Columba, and of S. Cochel his cousin. That the cists and skeletons were found is likely enough, the inscriptions were interested forgeries, a thing not unknown at a period when there was an appetite for relics. The bodies were taken up and enshrined in the church (Collect. iii. 407).

Dedication to S. Brendan—the church of Brendon (Devon). At Langonnet in Morbihan is a chapel dedicated to him, and he is patron of a parish in S. Brieuc.

There is a life of S. Brendan, singularly sober and free from marvels in the Codex Salmanticensis, but there is also a long story of his voyage quite independent and by an entirely different writer. The former passes over all the wonders of the voyage with very scant notice, the latter hardly touches on the facts of his life, to dwell on his Sindbad-like adventures. See O'Donoghue (D) Brendaniana, Dublin, 1893; Moran (P.F.) Acta Sancti Brendani, Dublin, 1872.

The Life of S. Brendan is also in the Book of Lismore, published in the Anecdota Oxoniensia, 1890, and in the Salamanca Codex of the Lives of the Irish Saints, Edinb., 1888.

His day in the Felire of Oengus and other Irish Martyrologies is May 16.

In art he should be represented in monastic habit holding a boat.

S. Brevita, Virgin.

Lanlivery church is supposed to have had this dedication. (*see* S. Vorch).

S. Brioc, Bishop, Confessor.

The Life of S. Brioc or Breoc, written by an anonymous biographer, certainly not "shortly after his death" as Dom Plaine supposes, and hardly before the 9th century, has been printed by him from a 10th or 11th century MS. in the Analecta Bollandiana for 1883.

Brioc was originally called Briomagl and was the son of one Cuerp, a princeling of Corotica, and a doubt has been expressed whether Cardigan (Ceredigion) or Kerry be meant. M. de la Borderie suggests Coria Otadenorum, Tedburg in Teviotdale, but this is one of his random identifications not to be seriously entertained. M. de la Borderie is admirable when on his own Breton ground, but is untrustworthy when he deals with Britain.

The name Brioc is akin to Brychan.

That Brioc was a native of Cardigan hardly admits of question.

Ceredigion had been overrun and occupied by Irish Picts before the 4th century. Indeed Wales was tributary to the Irish Crown, which extended its sway over Somersetshire and Devon

and Cornwall. The expulsion of the Irish was not effected all at once. Cuerp, the name of Brioc's father is unquestionably Irish, it is the same as Cairbre. The name of Brioc's mother is given as Eldruda, which is Saxon. This is by no means unlikely, for the Irish and Saxon piratical hordes that invaded Britain were in alliance. During the reign of Constantius Chlorus, Irish, Picts and Saxons appear on the scene as aggressors, and Theodosius, in 368, is said to have defeated them when allied. Irish, Picts and Saxons were again acting in concert in 396-397. An alliance with a Saxon is by no means improbable. "The common object of attack, Roman Britain, brought the Irish and Saxons in touch at an early period. And that this intercourse was on the whole of a most friendly character, is shewn by the frequent inter-marriages which took place between them." *

The expulsion of the Irish from Corotica is set down by Rees as effected by Ceredig, son of the Strath-Clyde chief Cunedda, as taking place between 380 and 430, but it is most probable that this did not take place during the reign of Niall of the Nine Hostages, who made Wales his base of operations, but after the death of Dathi his successor (428). If that be so, then the Coroticus, to whom S. Patrick wrote, would be the Ceredig who expelled the Irish and gave his name to Ceredigion or Cardigan.

The "Life" of S. Brioc contains anachronisms which shew it to be a late production.

Brioc is made a pupil of S. Germanus of Paris, who died in 576, and a fellow pupil with S. Patrick, who died 465, and with S. Illtyd, who was appointed by S. Germanus of Auxerre to Llantwit about 440. The S. Germanus meant, is certainly the Bishop of Auxerre who visited Britain in 429 and 447.

In his old age, when Brioc came to Brittany he was recognised as a kinsman by Rhiwal the prince, and he had as his disciple a nephew, Tugdual. The mother of Tugdual was Alma Pompæa, daughter of Deroch and wife of Eloc. She was sister of Rhiwal. Deroch is said to have settled in Armorica and to have come from Britain. Whether he were akin to Brioc's mother, or to his father, Cuerp, we do not know.

* Sullivan, Introduction to O'Curry's Manners and Customs of the Ancient Irish, 1873, Vol. I. p. xxxv.

The legend is so untrustworthy that we cannot rely on the statement,—that the parents of Brioc were pagans and nevertheless sent him to be educated by S. Germanus.

According to it, Eldruda was warned in a dream to make three staves,—one of gold for her son Brioc, one of silver for herself, and another of silver for Cuerp,—and to lay these aside till Brioc was old enough to be sent to S. Germanus. Notwithstanding that they were pagans, they resolved on doing this. But the paganism of these Irish Picts was mixed with a certain infusion of Christianity, otherwise they would not have thought of sending their boy to S. Germanus. And when, later, we are informed that Brioc converted them, we may suppose that he brought them to a clearer knowledge of the truth, and got rid of some of their heathen superstitions.

Brioc was born in or about 425, and he and S. Illtyd were together with S. Germanus "in Paris"; and then it was, according to this unreliable Life, that Brioc was ordained.

Two candidates for the priesthood came to Germanus for ordination, but just as in the Celtic church three bishops were consecrated simultaneously, and necessarily three, so it would seem to have been customary in the Gallic church, (or the Celtic author of the Life thought it was so), that for an ordination there must be three submitted at once to the imposition of hands. To make up the requisite number S. Germanus chose Brioc.

He now felt restless to return home. If this took place in 448 it may have been due to the death of S. Germanus. He travelled to the coast and found a vessel bound for the river Scene; he went on board, and sailed for his native home.

On his arrival at his father's residence, it was Samhain, (the pagan New Year's Day), and the family were keeping high revelry, with feasting, toasting, sports and ballad-singing. No sooner did his mother see her son than she rushed to him and overwhelmed him with kisses* and led him to his father, who was almost 'off his head' with delight, and what with the liquor he had imbibed and with pleasure at recovering his son, he wept "and could hardly keep his feet."† "Come,

* Ruit in oscula.

†Videns filium præ gaudio flere cœpit, complectensque et osculans vix sese in pedibus præ immensa lætitia poterat continere.

sit down and be merry with us," said the happy father; but the pious youth declined firmly to do so, and began to read the worthy couple a lecture on excess at table and in worldly joy. He further assured them that he could not think of sitting down to table with those who were unbaptized. One of those present made an insulting remark, and was miraculously chastised. Brioc succeeded effectually in damping the happiness of the convivial party and of his kindly old parents. But he provided them with some amusement, by curing a lad who had been bitten by a mad dog and who could hardly be restrained in his convulsions, and had made his teeth meet through his own tongue.

Brioc set to work to convert his parents and the clansmen, and met with such success that he was able to erect for them a church called Llanmawr (*Landa Magna*).* Here, pupils flocked to him and he became a great abbot. His mother, filled with enthusiasm, desired to leave her husband and attach herself to her son, and, by him be admitted to the religious life; but this produced such opposition from the family, that she was forced to desist.

Before proceeding, it will be advisable here to state the reasons for identifying the home of Brioc with Cardiganshire, or, to be more exact, with ancient Ceredigion which at one time embraced a part of Pembrokeshire. We know that all this portion of Wales was occcupied by the Irish Goidels. They were driven out, about the middle of the 5th century; and the letter of S. Patrick to Coroticus or Ceredig was written about 450.

The river Scene, in which Brioc arrived, is apparently Milford Haven, Scene means a knife, and this harbour and estuary is formed by the confluence of the two Cleddau (Swords), and Aber Cyllell, the stream by Haverford West, would be the Irish river Scene, both meaning the estuary of "the Knife."

Moreover, in Cardigan, there is not only a Llanfriog dedicated to S. Brioc, but also a Llanfawr which is the name of the

* Llan is Welsh and not Irish. Lord Dunraven says, "Wherever Llan occurs in composition in Ireland, it indicates some Welsh connection." Notes on Irish Architecture, 1875, I. p. 64. One of the few exceptions I know is Lanelo, founded by S. Colman Elo.

monastery he founded there. Brioc is also a name that has been found there; there remain two inscribed stones that bear it, though one is to the memory of Brioc son of Banhadlen, and the other to that of Nethasagr son of Muco-Brioc.

It is uncertain whether the Brioc who was venerated in the Isle of Bute, and who founded a church in Rothsay, and where his festival was observed on the first Wednesday in May, be the same. Celtic saints wandered far; and we are told that Brioc spent forty years in his native land before he resolved on quitting it. That this cannot have been Ireland is clear, as he is not remembered there at all. His resolve to depart was probably due to the invasion of Ceredig and the expulsion of the Irish from Cardigan and Pembroke (430-50).

Unable to remain in Wales, Brioc resolved on returning to Gaul. He had collected a large body of followers, to the number of a hundred and sixty-eight, and with them he embarked in one vessel, which was nearly wrecked by fouling a whale. Brioc put into a harbour, for repairs.

He was now an old man, and unable to walk far, so was conveyed in a cart, and, as he sat, he sang the psalms. One evening, as he was chanting vespers in the cart, a pack of wolves appeared, whereupon the brethren fled, and left the old abbot in the vehicle, which was at once surrounded by the pack. He shouted at the top of his voice, and presently some of the brethren ventured near, to see the wolves still around the cart, yet none of them as yet had fallen on the old man. Happily, at the moment, up came the chief of the neighbourhood, Conan by name, who soon drove the wolves away and received S. Brioc with much kindness. Brioc baptized Conan, after having subjected him to a fast of seven days.

The site of this adventure was, probably, the head of the estuary of the Camalan, near Egloshayle. Padstow Bay was about the only harbour into which he could have put on his way to Brittany.

That Conan gave him large lands in the neighbourhood is probable, as here is situated the important parish of S. Breock, one of the richest in North Cornwall. The caer of the chief must have been at Pencarrow where are extensive remains of

fortifications. Near this is the recently erected chapel of S. Conan.

Conan himself was son of Tudwal Befr and Neffyd daughter of Brychan, and formed one of the colony which settled in North Cornwall, having been driven from Wales by the Strath-Clyde invasion.

From S. Breock above Wadebridge, the saint must have crossed the backbone of Cornwall in his cart, perhaps no longer drawn by monks but their places supplied by oxen, and have taken ship again, in the Fowey estuary. He landed, about 490, at the mouth of the Gouet, and made his camp by the side of a spring of the purest water. Shortly after, a horseman came up, and seeing a colony of men encamped, asked who they were, and what right they had to settle there. Having learned the name of their leader, he galloped off to Rhiwal (Hoel the chief) who was prince of the British settlers there, and informed him. Rhiwal at first was not over-pleased, but, as he was seized with cramp of the bowels, he deemed it advisable to swallow his vexation and come to terms with the newly-arrived saint, and when he met Brioc he recognised him as a kinsman.

Rhiwal gave him land in the Champ de Rouvre, and all the *plou* thereon, up to the river Urne. He himself retired between the Urne and Gouessan, to the *plou* of Helion, which thenceforth, as the seat of his court, was called Lishelion.

Brioc then set to work to clear the ground and settle his monks and followers. A little way up the valley he established his oratory near another fountain, where is a chapel that has recently been restored; and he planted his *lann* where is now the cathedral church that bears his name.

He had not been long in Brittany before he heard that the Yellow Plague had invaded his native "Coriticiana regio," (this was in 500), and he returned that he might be of use in consoling the dying, and ministering to his panic-stricken countrymen.

He left his congregation under the charge of his nephew Tugdual. He did not, however, remain absent for long, but came back to be present at the death of his kinsman Hoel or Rhiwal, who, being childless, constituted Brioc his heir, committing to him the entire secular tribe to be amalgamated with the sacred tribe.

The words as given in the Life are: "Ipse vero Rigalis, domum propriam cum totâ coloniâ et plebe universâ, ad eam pertinente, sancto viro et ejus monachis perpetualiter habendam contradens, seque eorum humiliter commendans orationibus, in pace quievit."

Thenceforth, the Bishop of S. Brieuc became a sovereign prince.

The death of S. Brioc took place, at a very advanced age, in 515; it is said he was above ninety. At the time of his death a monk, in his native land, saw him ascending a ladder to heaven. He at once took boat, and arrived at the Breton monastery in time to take part in his obsequies. He was at sea seven days. The monk's name was Simanus.

But, in conclusion, to return to his foundation in Cornwall.

It is noticeable in the site of the church of S. Breock near Wadebridge, that the river divides the ecclesiastical settlement, —the land granted by Conan,—from the secular tribal land, of which Pencarrow was the head.

The site of the Llan is very lovely. A steep ascent from the town of Wadebridge over a bleak and wind-swept height leads to a sudden dip, and to a glen where are beautiful trees and a large and interesting church planted close to a dancing rill that flows under the church wall, so that the porch can be reached only by crossing a bridge. The church itself has a peculiarity that is instructive; the tower stands at a distance from the perpendicular body of the church with its nave, aisle and transepts, like S. Wollas in Monmouthshire, but the intervening portion which is earlier is not separated from the body of the church by a wall as at S. Wollas. The church has, however, gone through one of those disastrous "restorations" which have devasted Cornwall, and there is no saying what was the original condition. At S. Wollas, as at Glastonbury, such a piece of earlier church, intervening between tower and nave, marks the site of the original oratory of the saint, spared so long as it lasted, and only rebuilt as a distinct member, when re-building was absolutely necessary. It is perhaps possible that the ante-nave at S. Breock may be thus explained.

The Parish Feast at S. Breock is on the Sunday nearest to October 10.

The festivals of S. Breoc are on May 1 and August 8. In Brittany May 1 is observed especially in his honour. He is the patron of S. Brieuc diocese. At Plobannalec in Finisterre is the chapel of Plonivel dedicated to him. He is regarded as the patron of purse makers, and his symbol is a purse, for what reason does not appear from his legend. Whilst he was being ordained, a ray of sunlight fell on his head. This simple incident has been magnifed into a marvel by the biographer, who makes out that a ray of light arose from his head, and he is sometimes so represented.

S. Breward, Bishop, Confessor.

The parish of S. Breward was constituted and the church dedicated by Bishop Briwere or Bruere of Exeter, 1223—1224 who died on Nov. 24 in the latter year. Probably the church bears the name of its founder and consecrator, but there was certainly an earlier dedication, as there is a holy well in the place, dedicated to S. James. Perhaps the native Cornish called the new church Lanbrewer after the founder, and forgot the earlier saint, who may have been S. Brevelaire or Branwalader, and although Bishop Bruere never was canonised, yet the name remained and was accepted as that of some local saint. It seems to be an instance of a founder acquiring popular canonisation because of his having founded a church.

Oliver (Monasticon, p. 42, No. xviii) states that the church "Ecclesia Sancti Breweredi de Hamathethi" was granted to Tywardreath Priory, in the time of Andrew the Prior. If this were before Bishop Brewer's time, it would indicate that there was a saint of the name. None can be identified, unless it is Brevelaire, who was Branwalader or S. Brendan.

The feast is on Feb. 2.

S. Bridget, Virgin Abbess.

The cult of S. Bridget, in Cornwall and Devon, belongs to that portion which was overrun and settled by a great migration from Brecknock at the end of the 5th or beginning of the 6th century.

The dedications are :—

The parish church of Virginstow (Devon)
,, ,, Bridestowe ,,
,, ,, Bridgerule ,,
A chapel at Wendron, licensed 1437 (Cornwall)
A chapel and holy well at Lezant. ,,

She had also dedications to her in S. W. Wales where there was a lengthy settlement of Irish Gaels. S. Bride's Bay takes its name from her.

Feast at Virginstowe, Feb. 20.

Day in Roman Calendar, Feb. 1.

The rule of S. Bridget was that in highest regard in Ireland, and probably in Wales, Cornwall and Brittany, as well,—till the Latin Church came in like a flood, and obliterated all Celtic peculiarities.

S. Bridget never was out of Ireland, although Glastonbury claimed that she had been there. Glastonbury had been largely occupied by Irish monks. It is called in Cormac's Glossary in the 9th century "Glasimpere of the Gadhaels" as also by a writer of a note in the Lebar Brecc,* and there was doubtless a religious community there for women, affiliated to Kildare, and living under S. Bridget's rule. For the same reason her cult extended through South Wales, largely occupied by Irish, as also through a portion of North Devon similarly colonised, and it likewise spread into Brittany for the same reason. In Finisterre she has many churches and chapels, at Esquilien, Quengat, Irvillac, Motreff, Loperhet, Perquet, Ploudalmezan, Lampaul, Ploudaniel, S. Thegonnec, Spezet, and is represented in the chapel of the Seven Saints.

In the Morbihan she has churches and chapels at Guénin, Locoal Naizan, Noyala, Poemeur, Plumergat, Pluvigner, S. Brieuc de Mauron, and Sainte Brigitte.

One reason for the extraordinary popularity which S. Bridget enjoyed was the fact that she replaced a Goidelic female deity, an earth-mother, and goddess of fecundity. She is therefore

* "Three Old Irish Glossaries," Lond. 1862, p. xlviii. "Bipartite Life of S. Patrick," Rolls ed. 1887, p. 505.

invoked by women in labour.* In her church at Kildare a perpetual fire was kept burning by the maidens of her choir, much in the same way as by the vestal virgins in Rome. Her symbols are a flame, a goose and a cow.

There is a very peculiar ballad known throughout Brittany, and popular even so far south as Querci, relative to S. Bridget; according to which when Joseph and Mary came to Bethlehem, the Virgin Mother needed the assistance of some woman. None offered save Bridget who was the inn-keeper's daughter, and she was a cripple without either legs or arms. But because she was willing to assist, the Virgin prayed, and her legs and arms sprouted out, and the Virgin prophesied that the feast of Bridget should thenceforth precede her own, *i.e.*, that of Candlemas, and that Bridget should become the patron saint to be invoked by women in labour. We have obviously here an altered pagan myth. Luzel: Soniou Breiz-izel, Paris, 1890, I. p. 309. In this it is given as of Bertha, instead of Berhed, which is the Breton for Bridget. See also Le Braz, Annales de Bretagne, 1893, IX. p. 45. Also Daymard, Chants populaires de Quercy, Cahors, 1889.

I do not give the life of S. Bridget, as it does not belong to Cornwall, though foundations under her rule were there. For her life in full, see O'Hanlon, Lives of the Irish Saints, vol. III; but the original material is to be found in Colgan Trias Thaumaturga, Louvain, 1647, in the Book of Lismore, in the Gloss on the Calendar of Oengus, and in the Salamanca Codex.

I am giving the life,—if not as fully yet a little more critically than some others have been given,—in my "Lives of the Virgins, Saints and Martyrs," shortly to be published.

Brychan, King, Confessor.

This great father of a saintly family deserves to be here considered, not that any church is dedicated to him, but because we happily possess a fragment of his legend, preserved by William of Worcester, in 1478, when he visited Cornwall. He then extracted it from a manuscript at S. Michael's Mount.

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* *See under* Breaca.

"Brokanus in partibus Walliarum regulus, fide et morum &c., per Gladewysam uxorem ejus genuit 24 filios et filias, et his nominibus vocabantur:—(1) Nectanus, (2) Johannes, (3) Endelient, (4) Menefrede, (5) Delyan, (6) Tetha, (7) Maben, (8) Wentu, (9) Wensent, (10) Marwenna, (11) Wenna, (12) Juliana, (13) Yse, (14) Morwenna, (15) Wymip, (16) Wenheder, (17) Cleder, (18) Kery, (19) Jona, (20) Helye, (21) Canaut, (22) Kenheuder, (23) Adwen Helye, (24) Tantalanc.*

Omnes isti filii et filiæ postea fuerunt sancti et martires vel confessores, et in Devonia, vel Cornubia, heremeticam vitam ducentes; sicut enim inter omnes quorum vitæ meritis et virtutum miraculis Cornubiensis vel Devoniensis irradiatur ecclesia, beatus Nectanus primo genitus fuit, ita cæteris omnibus honestate vitæ major fuit, et prodigiorum choruscitate excellentior extitit.

Fuit in ultimis Walliarum partibus vir dignitate regulus, fide et morum honestate præclarus, nomine Brokannus, a quo provincia ipsa nomen sortita nuncupatur Brokannok usque in præsentem diem; hic itaque Brokannus, antequam ex uxore suâ Gladewysâ filium vel filiam genuisset, in Hiberniam profectus est, uxorem suam et omnia sua relinquens; timuerat enim ne si cum uxore suâ remaneret, generacionem ex eâ procrearet, quâ impediretur ne libere Domino servire potuisset. Mansit igitur in Hibernîâ 24 annis, bonis operibus intendens; postea autem visitare patriam suam volens, rediit in Walliam, ubi uxorem suam adhuc viventem invenit. Post aliquantulum autem temporis sicut Deus preordinaverat, licet ipse homo non proposuisset, uxorem suam cognovit, ex quâ postea 24 filios et filias genuit. Videns Dei virtutem cui nemo resistere potest, ait, 'Jam Deus in me vindicavit quod contra disposicionem voluntatis ejus venire frustra disposui; quia enim 24 annis ab uxore meâ ne sobolem procrearem illicite effugi, dedit mihi pro quolibet anno illicitæ continentiæ sobolem unam quia jam 24 filios and filias post 24 annos ab eâdem uxore suscepi.' Praedicti autem 24 filii et filiæ,

* Through the kindness of Mr. C. W. Moule, Fellow and Librarian of Corpus Christi Coll., Cambridge, I have been able to correct some of Nasmyth's mistakes in these names in his printed edition of William of Worcester's manuscript. I am, not, however, yet sure that we have them quite correctly.

quos prædictus Brokannus ex uxore suâ Gladewysâ genuit his nominibus vocabantur, Nectanus et cætera.

Et venerandus vir Nectanus per quæque nemorosa dispendia investigando querere ab hiis repertus latronibus in loco, qui adhuc hodie dicitur Nova Villa; ibi jam ecclesia in ejus honore construitur, 15 kal. Julii capite truncatus est, et caput suum propriis accipiens manibus per medium ferme spacii stadium usque ad fontem quo morabatur detulerit, ibique sanguine circumlinitum sudori cuidam lapidi imposuit, cujus adhuc cædis et miraculi sanguinolenta in eodem lapide remanent vestigia."

This account leaves out a great deal that does not comport either with monastic ideas or with first principles of common morality. So far from Brychan being a model of continence, he was a "loose fish," he had three wives and concubines as well. His wives, according to the Welsh genealogies were Brawst, Rhybrawst, and Eurbrawst; he seduced Banhadlwedd, daughter of the Prince of Powys with whom he lived as foster son, and by her had an illegitimate son, he had also sons by "a Spanish Woman," probably a Silurian native;—these dusky Ivernians were fondly supposed to be immigrants from Spain, because their tongue was the same as that spoken by the Basques.

Gwladys, moreover, was not the name of any wife ascribed to him in the Welsh account, but she was his daughter, and the most eminent of all. She was the wife of Gwynllyw Filwr and mother of S. Cadoc. Brychan reigned from about 500 to 550.

We cannot, however, by any means be sure that in the Welsh Genealogies two Brychans have not been confounded together. This has been pointed out by Rhys in his "Lives of the Cambro-British Saints." In addition to Brychan of Brecknock, there was a name-sake in Higher Gwent, who was the son of Gwyngon, and grandson of Llywarch ap Tydwr. He was the brother of S. Cynwyl and father of S. Dunawd and S. Dubricius.

There was a third Brychan, called by the Bretons, Fragan, who migrated from Devon, or Cornwall, with his wife Gwen of the Three Breasts, and they became the parents of S. Winwaloe, S. Wethenoc, and S. James.

This Brychan was a cousin or close kinsman of Cado, Duke of Cornwall.

It is quite possible to distinguish one Brychan from another. Their stories do not actually cross or overlap.

In addition to the fragment preserved by William of Worcester, we have the Cognacio Brychani printed in the "Lives of the Cambro-British Saints," from a MS of about 900. The story in that is different.

Tewdrig, Prince of Garth Madrin, established himself at Bryn Gwyn, near Brecknock. As his daughter Marchell felt the cold, he thought of providing her with a fur coat, but being of a frugal mind, he considered that by marrying her to an Irish Prince she could have the peltry at no cost to himself, accordingly he sent her with three hundred men to Aulac Goronog, King in that Country, "who" he said "will marry thee."

On the way she lost two hundred of her escort, but arrived safely at the court of Aulac, who received her "with much dancing and joy."

We hear no more of the fur coat, but Aulac proceeded to make Marchell his wife, and then to descend upon and appropriate that portion of Cambria, of which she was heiress. From them issued Brychan.

Brychan he gave, when four years old, to be educated by Drichan. When the tutor was old, and Brychan was aged seven, Drichan said to the boy "bring my lance to me:" which I suppose means that he then invested him with weapons of war. Drichan became blind, nevertheless he could see into futurity, and he blessed his pupil, and gave him a beech tree growing by a river side, in which bees made honey, and he said:—"Go, I give thee this tree full of bees and honey, and also of gold and silver, and may the grace of God, and his love remain with thee, here and hereafter."

Then Aulach sent Brychan to the King of Powys where, by his daughter, he became father of Cynog. Then ensue the names of the sons and daughters of Brychan, about whom more presently.

Brychan, we are told, was buried in an island that bears his name, near Man (juxta manniam).

There are numerous lists extant of the children of Brychan, and some of these reveal to us the fact that his grandchildren are reckoned as though his own children. This is quite in keeping with the Celtic principle that all who had family claims to authority and land should be accounted *Huy* or Sons.

The account given by William of Worcester supplies an omission in the Welsh narrative. It shows us that Brychan did go back to Ireland, though probably for a very different reason from that assigned by the monastic writer. He went either to assert his right, in Ireland, or to collect more Irishmen to surround him and extend his kingdom in Wales.

Leland, in his Collectanea (iv. 153), gives a list of the children of Brychan from a legend of S. Nectan which he found at Hartland.

His list is this:—(1) Nectan, (2) Joannes, (3) Endelient, (4) Menfre, (5) Dilic, (6) Tedda, (7) Maben, (8) Weneu, (9) Wensent, (10) Merewenna, (11) Wenna, (12) Juliana, (13) Yse, (14) Morwenna, (15) Wymp, (16) Wenheder, (17) Cleder, (18) Keri, (19) Jona, (20) Kananc, (21) Kenhender, (22) Adwen, (23) Helie, (24) Tamlanc.

We will concern ourselves only with those children or grandchildren of Brychan who are named in the lists of William of Worcester and Leland; both of which we have now quoted. We will take the latter list as our basis:—

1. *Nectan* is the Saint of Hartland. He is not included in the Welsh lists.
2. *Joannes* and (19) *Jona* are clearly the same. This is the Ive of S. Ive: his settlement there is in connexion with those of his cousins, S. Cleer (Clether) and S. Keyne. He is perhaps the Welsh S. Doefan, becoming Saint Ifan, Ewan or John.
3. *Endelient*, this is misprinted or miswritten by Nasmyth in his William of Worcester list as Sudbrent. She is Cenedlon in the Welsh lists. Her foundation is S. Endelion.

4. *Menfre* or Menefrida, the foundress of S. Minver is probably Mwynfriw, and may be Mwynen the daughter of Brynach the Irishman, and of Corth, the daughter of Brychan.
5. *Dilic* is given by William of Worcester as Delyan, and is clearly the same as (3), Endelion.
6. *Tedda* in William of Worcester. Tetha is S. Teath, pronounced Teth. Unknown to the Welsh, she is actually S. Itha.
7. *Maben* is S. Mabenna, of S. Mabyn, also unknown to the Welsh.
8. *Weneu* or Wentu is the same as (11), *Wenna*, this is Gwen. Gwen of Talgarth, a Virgin martyr, was a daughter of Brychan. But he had also a Gwen who married Llyr Merini, and was the mother of Caradog Freichfras, who certainly was in Cornwall, in the Callington district.
9. *Wensent* cannot now be traced, probably same as (8 and 11) Wenn, Wen-sant, or S. Wenn.
10. *Merewenna* and (14) *Morwenna* are doubtless the same, patroness of Marhamchurch and of Morwenstow, not known to the Welsh.
11. (*See* 8, 9).
12. *Juliana* is the Juliot of North Cornwall; her name occurs as Ilud in the Cognacio.
13. *Yse*, clearly the patron of S. Issey. I think this is a mistake of the legend writer. The Episcopal Registers gave S. Itha as patron of S. Issey, and she was an Irish Saint. Her cult may have been introduced by the Brychan family.
14. (*See* 10).
15. *Wymp* is S. Wenappa, the Gwenfwy of the Welsh lists, a daughter of Caw. Patroness of S. Veep and Gwennap. (*see* 16).
16. *Wenheder* is the same as Wenappa (see 15).
17. *Cleder* is Clechr or Clydog, he was grandson of Brychan and son of Clydwyn. He is S. Clether in Cornwall, probably also S. Cleer.

18. *Kery* is clearly intended for Curig, patron of Egloskerry. His ancestry is unknown, but as he came over with the Breckon Colony he was reckoned as a son of Brychan.

19 (*See* 2).

20. *Kananc*,* by this Leland means Cynog, the C in Welsh is always pronounced hard. He was Brychan's illegitimate son, by the daughter of the Prince of Powys. He was killed at Merthyr Cynog, in Brecknockshire. Probably patron of S. Pinnock.

21. *Kerhender* in William of Worcester, is Nasmyth's misreading for *Kenheuder*, *i.e.* Cynydr, S. Enoder, and S. Enodock, who was son of one of Brychan's daughters.

22. *Adwen* or S. Athewenna is probably Dwynwen, a virgin, daughter of Brychan (now perhaps Advent).

23 *Helie* or Helye. The patron of Egloshayle is probably intended. This may be Llechu of the Welsh lists, but of him the Welsh knew very little.

24. *Tamlanc* is given, by William of Worcester, as Tamalant. The patroness of Talland is S. Elen. This may be the Elened or Almeyda of the Welsh lists, and the MSS. may have had "Elena cujus ecclesia in Tamlant," and both transcribers may have committed the same careless blunder of taking the name of the place for that of the patron.

We have accordingly been able to account for about eighteen persons, out of the twenty-four names.

Let us now consider whether there ever was a Brychan, and if so, who he was.

We might expect to find among the Irish historians some account of his father Aulac. In the Tract *De Brachan Brecheiniauc*, or *De Situ Brecheniauc* (Cott. MSS. Vesp. A. xiv), said to date from 900, we have him given as "Aulac(h) filius Coronac." In the Pedigrees of the Saints printed from the Harleian MS. 4181 (Cambro British Saints, p. 270), he is given as "Ap Corinawg, King of Ireland."

* Kananc may have been written Kanauc, it is difficult to distinguish in a MS. between *n* and *u*.

In the Alphabetical Bonedd, in the Myvrian Archæologia, p. 418, and in the Iolo MSS. pp. 111, 118, 140, Brychan is "Son of Aullech (or Eullech) Goronawc." In Iolo MSS. p. 109, as "Son of Eullech ab Hydwn."

Williams, without stating his authority, in his "Eminent Welshmen," p. 49, gives the name of the father of Brychan as "Aulach Mac Gormuc, otherwise called Aullech Goronawg, son of Cormac Mac Carbery." We must put aside this last statement as unsubstantiated. Some mistake has grown out of the Coronauc, which means "Crowned" or "Tonsured," and Aulac has been accordingly made into a son of Cormac.

There are several theories that have been proposed:—

1. That Aulac stands for Hua Lagh sons of Lugh, a Leinster family.

2. That Aulac is Cailbadh, who had a son Braccan, and was a king of Ulster for one year and was slain in 358. This is the pedigree given by Shearman, in his "Loca Patriciana."

Cailbadh had a son Braccan, who was the father of Braccanoc, father of Brychan. But this is mere guess work, and there is no collateral evidence to substantiate it. Braccan was an Irish name not uncommon. Dalaraidia was most unlikely to furnish colonists for South Wales.

3. There is another possibility, that Aulac stands for Amalgaidh, (pronounced Awley); Amalgaidh was son of Fiachra of the Flowing Locks, younger brother of Dathi who succeeded Niall of the Nine Hostages, as King of Ireland, in 405; whereupon Dathi surrendered to Amalgaidh the crown of Connaught. He reigned till 449, and had at the least three wives, and twenty-one sons are attributed to him besides daughters. He had a son Cormac by his wife Tresi, daughter of Nadfraich, another of the same name by his wife Erca, daughter of Eochaid. Of neither of these Cormacs do the Irish Historians know anything, nor do they give their descents.

4. There is yet a fourth suggestion. In the curious story of S. Cairnech we learn that his brother was Brecan or Becan, and that his half-brother Muirtach crossed into Britain where he had his arms blessed by Cairnech, and in Britain he became the father, by a foreign princess, of Constantine and

Goidel Ficht who founded the reigning house in Cornwall. In this story we have Cairnech = Coronog, both names have the same signification; we have also the name Breccan, and we have their half-brother represented as the father of the Gwyddel ffichti or Goidel Picts who did seize on Wales and the north east of Cornwall and north Devon. The story is manifestly a myth, but, for all that, it seems to be an Irish reminiscence of this invasion, and it is possible,—I do not say more than possible,—that it may relate to the great Brychan conquest.

The whole story may be found in the appendix to Todd and Herbert's "Irish Nennius," 1848.

Several reputed sons of Brychan are represented as Saints in Ireland, and this seems to imply that not only was there such a person, but that he was of Irish extraction.

Elloc, son of Braccan, son of Cailbadh, also called Moelloc is one that is named, and his church was in Wexford, not in Ulster. Fian or Fioc was his brother, at Kilfane in Ossory; Mochonoc, or Conoc, is another in Ossory; Cairpre is yet another, a missionary under S. Patrick, in Connaught and Donegal. Dwibhan, perhaps the Welsh Dyfnan, was also in Wexford. Again, another son of Brychan was Coeman the Pilgrim, of Darinis in Wexford harbour. It will be seen that most of the reputed sons of Braccan or Brychan are found in the South East of Ireland.

But the name of Brychan or Braccan is somewhat suspicious, it signifies the speckled or "tartan-dressed," and looks much as though he, to whom it was applied, was an eponom for the Irish Picts, who certainly did invade and occupy Carmarthen, Pembroke, and Brecknock. We know that these invasions and colonisations were frequent, and that for a time Britain was subject to the Ffichti, *i.e.* Irish Gaels, and obliged to pay tax to them. It was just after the reign of Dathi, who died 428, that the Irish hold upon Britain came to an end, or was gradually relaxed.

Amalgaidh most nearly corresponds to the period at which Aulach is supposed to have lived, but one would rather expect an occupation of South Wales from Leinster than from Connaught.

Brychan himself is a shadowy figure; and when we read of his sons and daughters being numerous, no more is implied than that these persons were the Hy-Brychan, *i.e.* the Tribe of Brychan, of his kin, and claiming tribal rights in his inheritance.

S. Brynach, Abbot, Confessor.

Brynach was an Irishman, "soul-friend" (i.e. confessor and spiritual director) of Brychan, son of the Irish Conqueror and King of Brecknock. He married one of his daughters, Corth; and by her had a son, Berwyn or Gerwyn, and three daughters, Mwynen, Gwenan, and Gwenfiw.

The Legend of S. Brynach is preserved and published by Rhys in his "Lives of the Cambro-British Saints."

He travelled much, even, it is said to Rome, and tarried some while in Armorica. But being desirous of returning to his wife and bairns, he got a sod, no ship being available, and was wafted over to Milford Haven. Here he got into difficulties. A handsome girl, daughter of a Prince, became enamoured of him, but he resisted all her allurements, so that her love turned into hatred, and she had him attacked and half-killed. Thence he went to the neighbourhood of Fishguard, but again was in trouble. Accordingly, at the head of all his followers, he migrated to Cornwall where he died; but not before he had performed some notable miracles:—One day the King, Maelgwn, perishing with hunger, arrived where S. Brynach was. The Saint went to an oak, and plucked off acorns that were at once converted into bread. Thenceforth the tree was called the Bread-Oak. The river near was the Cam or crooked. The important foundation of his is Braunton, where he is called S. Branock, and his legend is represented on some of the bosses of the roof. In welsh he is now called Byrnach, and his principal foundation, Llanfyrnach, adjoins that of his brother-in-law, Clydwyn, king of Carmarthen, at Llanglydwen.

The author of the life of S. Brynach has apparently altered the facts of his life in one particular. Brynach, as already said, was married to Corth or Comorth, daughter of King Brychan to whom he was confessor and chaplain. By her he was father of three daughters and a son. This was not relished by the

Latin Hagiographer, so he converted the poor wife into an impudent woman pursuing an unwilling man who abhorred matrimony. The place where the woman of the legend lived was Emlyn in a part of the Brychan country.

According to William of Worcester, the body of S. Brynach or Branock rested at Braunton. Whyteford in his Martyrology calls him Bernake, and says this, concerning him:—"In Englonde ye feest of Saynt Bernake a gentylman of grete possessyons, which all he solde and went on pylgrymage to Rome, where by the waye he dyd many myracles. And when he came to England agayne he was of grete fame and moche magnifyed, whiche to declyne and avayde he fledde pryvely into South Wales, where he was assayled with the tentacyon and persecution of a lady in lyke maner as Joseph in Egypt, but with grace he vaynquyshed and was of hygh perfecyon, many myracles, and had revelacyons and also vysyons of aungels."

According to Bishop Grandisson's Legendarium, his day is January 7; this is also the day given by William of Worcester.

Whyteford, however, gives April 7, as also the Welsh Calendar (Iolo MSS.). The date of S. Branock's death would be about 560. He founded many churches about Emlyn, his wife's inheritance, which were later ascribed to S. Bernard.

At Trelyfan in Pembrokeshire is S. Brynach's Chapel, and stone. The latter stands upwards of 10 feet high, a cross with interlaced ornament, is boldly cut upon it.

Anent this stone, there is a tradition that the cuckoo was wont to first sound his note in this locality on the day of the Patron Saint, April 7.

"I might well have omit," says George Owen in his History of Pembrokeshire, "an old report as yet fresh of this odious bird, that, in the old world, the Parish Priest of this church would not begin mass till the bird—called the Citizen's Ambassador—had just appeared and begun his note on a stone, called S. Brynach's stone, standing upright in the churchyard of this parish; and one year, staying very long, and the priest and the people expecting his accustomed coming, ... came at last, lighting on the said stone, his accustomed preaching place, and being scarce able once to sound the note, presently fell dead."

The churches dedicated to the saint in Wales, are fifty-five in number, of which twenty-two are in Brecknockshire.

At S. Stephen's in Brannel, Cornwall, is a holy Well, or ancient Baptistery, called S. Bernard's well. That it was dedicated to S. Bernard of Clairvaux is improbable, as Well-worship was peculiarly Celtic. In Ireland, names of local saints of similar sound have been changed to Bernard; and it is probable that this well is of S. Bernac or Brynach; and possibly this may have been the original dedication of the Church, afterwards dedicated to S. Stephen. Indeed S. Brynach has suffered such treatment in Wales.

His symbol is a wild white sow with young pigs, as he is said to have founded a church where he discovered a litter on the banks of the Caman. Another symbol would be an oak tree bearing loaves.

S. Budoc, Abbot, Confessor.

There were three of this name.

1. An abbot in the Isle of Bréhat, about 470. Ard-Budoc or "Budoc the exalted one," was his title.

2. A Bishop of Dol, who succeeded S. Samson, 585.

3. A Bishop of Vannes, about 600.

In the life of S. Winwaloe we learn that his father, Fragan, i.e. Brychan, committed him to the Abbot Budoc who lived in the Island of Laurea, one of the Bréhat Archiepelago, off the North coast of Brittany. The remains of Budoc's settlement, a small rectangular church and a row of bee-hive huts, are extant; and one of these huts is still fairly intact. The pattern is precisely that of the Irish ecclesiastical settlements.

There is a wonderful legend of S. Budoc, but it is based on Breton ballads, and it is quite impossible to say to what Budoc it refers. It relates how his mother Azenor was put in a cask, and committed to the water; how Budoc was born in the barrel, and how the cask was washed ashore in Ireland.

Of the Budoc of Cornwall and Devon we may be fairly certain that he is to be identified with the tutor of S. Winwaloe.

Leland, probably quoting from a Legend of S. Budock, says "this Budocus was an Irishman, that came into Cornewalle and ther dwellid."

Dedications to S. Budoc are :—

The Parish Church of S. Budock by Falmouth.

A ruined Chapel, Budock Vean, or little S. Budoc, in the Parish of S. Constantine, near Falmouth.

The Parish Church of S. Budeaux, near Plymouth.

Mr. Karslake has suggested that Bude derives its name from a former dedication to this Saint, but there is no corroboration of the guess. He also says that the ancient name of Bideford was "Budeford." It is so written by Leland, but it is mere speculation when he connects this with S. Budoc.

According to the Exeter Martyrology, his festival is on December 8.

At S. Budock, it is kept on the Sunday before Advent, so as not to fall in that penitential season.

At Dol the feast is transferred to Dec. 9, because Dec. 8 is the feast of the Immaculate Conception of the B.V.M.

It is difficult to say to which of the Saints of the same name the many churches of S. Budoc in Brittany are dedicated.

In the face of what Leland says, of S. Budoc in Cornwall and Devon, it is not possible to suppose him to be the Bishop of Dol. That bishop was son of Judual, prince of Brittany, whom S. Samson reinstated on his throne according to Lobineau in 560, but this relationship is unsubstantiated. In fact, scarcely anything is known of S. Budoc of Dol, except that he was a disciple of S. Samson. S. Maglorius succeeded S. Samson immediately, but resigned the burden of the abbacy and bishopric in favour of Budoc. It is very likely that this abdication was compulsory, and that Budoc actually was akin to Judual, who desired to have a relative at the head of a large ecclesiastical *plou*.

S. Budoc of Bréhat probably died somewhere about 486, and S. Budoc of Dol, a century later, in or about 590.

S. Buriena, Virgin Abbess.

S. Buriena was one of the Irish Colony that came over about 520. Leland in his Itinerary (iii, 18,) says, "S. Buriana, an Holy Woman of Ireland, sumtyme dwellid in this place and there made an oratory. King Ethelstane going hence, as it is said, unto Sylley and returning, made *ex voto* a College where the oratorie was." She has been identified by Mr. Adams with 'Bruinech the Slender' of the Martyrology of Donegal, "who" says the scholiast on the martyrology, "is venerated in a town bearing her name, in England, on the 29th May." But this is inaccurate, the feast of S. Buryan being the nearest Sunday to May 12.

Leland calls her Bruinet, and says she was a king's daughter, who came into Cornwall with S. Piran. The forms Bruinet and Bruinech are mere variations in spelling, that occur repeatedly as Gobnat and Gobnach, Rignat and Rignach, Dervet and Dervech. The *ech*, or *at*, or *et*, is a diminutive for female names, like the *oc* for male names. So Brig becomes Bridget.

Bruinech was of illustrious birth. She was the daughter of Crimthan a chieftain in Munster, grandson of that Oengus MacNadfraich who had been baptized by S. Patrick. She was a kinswoman of S. Kieran.

The story of Buriena is found in the life of S. Kieran (Piran), of Saighir. It has been paraphrased by Mr. Adams, from Colgan (Journal R. Inst. of Cornwall, vol. iv, p. 141). But it will be preferable to give it from the original text in the Salamanca Codex:—She was, as already stated, daughter of a chieftain in Munster, and she embraced the religious life under Liadhain the mother of S. Kieran, one of the first abbesses in Ireland. Liadhain had a religious house at Killyon in King's County. The damsel was slim in form, and so went by the name of Bruinech or Brunsech Caol, the "Slender;" she was also very beautiful.

Dimma, of the Hy Fiachai District in West Meath, fell in love with her and carried her off against her will, with the assistance of his clansmen.

The wrath of S. Kieran was kindled, and he sped after the ravisher, to demand her back again. Dimma refused to

restore her to liberty, "Never!"—said he—"till I hear the cuckoo call at day-dawn and arouse me from sleep."

It was winter time, and a deep snow lay on the ground and crested the castle walls. As the gates were shut, Kieran and his companions had to spend the night in the snow outside. They passed it in prayer. Lo! next morning a cuckoo was perched on every turret of the chieftain's castle, uttering its plaintive call.* Surprised and alarmed at this marvel, Dimma released the maiden.

Putting aside what is fabulous in this story, we see the venerable saint's enthusiasm for the protection of innocence, and there is something very pathetic in the thought of his spending the winter night in the snow, outside the gate, rather than abandon his efforts to save the poor girl.

What actually took place was that Piran or Kieran "fasted against" Dimma. This was a practice among the Irish. If a man wanted something very particular, and was refused it, he went to the door of the man of whom he made petition and remained there exposed to the inclemency of the weather, and refused all food, till he died. This was literally laying his death at the door of the other, and it entailed on the man who let him die all the consequences of a blood-feud. The practice is not unknown now in India.

When, in the 12th century, the life of S. Kieran was re-written, the editor could not understand the practice, which had long ago been abandoned, so he invented the story of the cuckoo to give point to the incident, and account for the surrender of Dimma.

As soon as Bruinech had been released, Kieran took her back to his mother at Killyon.

After a few days the chieftain repented of having released her, his passion for the girl was not overcome. and he returned to the convent to again carry her off. In her fright, Bruinech fainted away, and Dimma was shewn her, lying unconscious. He stormed at Kieran, who he thought had killed her rather than give her back to him, and he threatened to drive him out of the country.

* Mr. Adams says "a Swan," the word is "Cuculus," but according to another version the bird was a heron.

Kieran replied, "Thou hast no power over me. Thy strength is but a vain shadow."

According to the legend, at this juncture news arrived that Dimma's *dun* was on fire; that is to say, the wooden and wicker-work structures within the fort were blazing. At the tidings, the chief hastily left the convent, in hopes of rescuing some of his valuables from the flames.

Dimma is by no means a fabulous personage, he was chief of the Cinel Fiachai; he was fourth or fifth in descent from Niall of the Nine Hostages, King of Ireland, who died 405, and was even uncle of a Saint, Aid Mac Bric, who died in 588.

It was clearly undesirable for Kieran to remain in the place, and it is possible that it was at this time he removed to Cornwall, taking the damsel Bruinech with him. She is said to have lived many years afterwards.

Kieran or Piran became Bishop about 538, and he is thought to have died about 550, but this is mere conjecture, as the Irish Annals do not give the date of his decease, and as this occurred out of Ireland we may put his migration to Cornwall at about 520. Buriena is identified with Bruinech by several martyrologists.

Nothing is recorded of the acts of S. Buriena in Cornwall, but the general tradition is that she spent the rest of her days in good works. It is rather remarkable that her settlement should have been near the foundation of S. Senan, rather than near any of those of S. Kieran. Her settlement must have been of considerable importance, for it had a Sanctuary, which implies this. The Sanctuary, with its oratory, remains about a mile south-east of the parish church that bears her name, beside a rivulet, on the farm of Bosliven. There are traces of extensive foundations near the oratory. Probably popular veneration attached to this place, long after the transfer of the church, for it excited the rage of Shrubsall, one of Cromwell's Officers, and he almost totally destroyed it.

The day of S. Bruinech, in the Irish Calendars is on May 29, and this indeed is the day marked as that of S. Buriena in some English Calendars. But at Burian the feast is now held on

the Sunday nearest to May 12, and in the Exeter Calendar her day is given as May 1. The Feast at Burian is on Old-Style May-Day, *i.e.* eleven days after May 1.

In the second edition of the "Martyrologium Anglicanum" of Wilson, 1640, she is inserted on June 19, but in his first edition, on May 29.

Her death probably occurred about 550.

In art she would be represented as an Irish Nun, in white, with a cuckoo.

S. Cado, Duke, Confessor.

Cado or Cadwr, Duke of Cornwall, brother of Selyf or Solomon, was son of Geraint, the brave Domnonian King who fell fighting against the Saxons at Llongborth (Langport), in 522. By the Welsh he is accounted a Saint. He figures somewhat prominently in Geoffrey of Monmouth's romance; and he was the father of S. Constantine, to whom Gildas wrote in savage abuse, but who was converted in 589.

I am not aware of any foundations of his in Cornwall. In Brittany dedications to him are indistinguishable from those to S. Cadoc, who is there called Saint Cadou.

He was closely akin to Fragan or Brychan, who married Gwen of the Three Breasts, father by her of S. Winwaloe, Gwethenoc (Winnow) and Jacobus; (Vita S. Winwaloei, in Analecta Bol. VII, p. 176).

It is possible that Portscatho, in Gerrans, may actually be Porth-Catho, and take its name from him.

S. Cadoc, Abbot, Confessor.

This illustrious Saint, originally named Cathmael, was son of Gwynllyw, King of Gwentlwg and of Gwladys, daughter of Brychan. His great foundation in Wales was Llancarvan. He was a disciple of S. Tathan an Irish abbot. His was a most restless spirit. He could not remain long on one spot. After having spent his boyhood with S. Tathan, he went to Ireland, for three years, to carry on his education at Lismore; after which, he returned to Wales and continued his

studies under a famous Roman rhetorician, newly arrived in Wales. The doctor had more pupils than money; and famine reigned in the school. One day poor Cadoc, who fasted continually, was studying in his cell, when suddenly a white mouse, coming out of a hole in the wall, jumped on the table and dropped a grain of corn. Cadoc presently discovered that there was a sort of store-house underground, in which much wheat had been deposited, closed up and forgotten. It was in fact one of those subterranean *fogous*, found in Cornwall and in Ireland. This was a great discovery, and it served Master and Scholars for many days.

From the life of S. Finian of Clonard, we learn that Cadoc was for a while with S. David and Gildas, at Killmun, which is the Irish rendering of Menevia, the Welsh Mymyw. Finian arrived at the monastic settlement on the Alun, Cadoc looked hard at him:—"Why," asked David, "do you study this strange lad with such intentness?" "I perceive," answered Cadoc, "that the Grace of God is with him." Then said S. David, "He talks our language like a native;" and he accepted Finian as a disciple, but told him to look out for a habitation for himself, and placed him under the conduct of S. Cadoc. Cadoc went with him to a chieftain who resided near a great lake, who agreed to let them have as much land as they could reclaim. According to the legend, Finian lighted a torch and went to the lake which, frightened at the fire, retreated into the sea; and Cadoc and Finian established their settlement where had been this lake or bog. This is a figurative way of saying they made their settlement on a *cranog*.

Perhaps the pond on Dowrog common, near S. David's, is meant. Cadoc and Finian set to work hewing timber wherewith to erect their monastery,—whether on piles, or on firm land, is doubtful. The story goes that Cadoc heard angels helping Finian to cut down the timber.

Whilst Cadoc and Finian were together, the Saxons made an eruption into the country, and encamped in a valley surrounded by rocky heights. We need not here understand Saxons—the assailants were probably Irish Picts, for no Saxons could well have got so far at this period, but the Scots (Irish),

the Saxons, and the Picts were for some time in alliance. The saints organised a combined attack. They conducted the Britons and surrounded the camp, occupying the heights, and they rolled down stones on the enemy or pelted them, so that they succeeded in completely exterminating them. After this exploit, Cadoc, Finian, and a comrade, Bitheus, proposed to make a pilgrimage to Rome, but were prevented by an angel. Finian then left Cadoc, taking with him Bitheus and Winnoc, and returned to Ireland.

The legend of S. Finian, of Clonard, in the Salamanca Codex, speaks of Cadoc by his early name Cathmael, and is very indefinite as to the situation of the monastery founded by him and Finian together. It is possible that it may not have been near S. David's, as implied.

S. Cadoc having resolved on establishing a monastery in his native territories, went in quest of a site, and found a pool on which a white swan floated; and, near it, an enormous old boar coming out of his den, made three bounds, one after another, and stopped each time to turn and stare at the stranger who had disturbed him in his resting place. Cadoc marked, with three branches, the three bounds of the wild boar, which afterwards became the site of church, dormitories and refectory of his Abbey of Llancarvan. The Abbey took its name, "The Church of the Stags," from the legend that two deer from the neighbouring forest came one day to replace two idle and disobedient monks, who had refused to perform the necessary labour for the construction of the monastery, saying:—"are we oxen, that we should be yoked to carts, and compelled to draw timber?"

Llancarvan became a great workshop. Cadoc, as the eldest son of his father, though he refused the Secular-Headship, claimed and obtained as his right an enormous domain, over which he ruled as a prince, feeding daily "a hundred clergy, a hundred soldiers, a hundred workmen, a hundred poor men, and a hundred widows. This was the number of his household, besides servants in attendance, and esquires, and guests, whose number was uncertain. Nor is it strange that he was a rich man and supported many, for he was abbot and prince (*abbas enim erat et princeps*)." So says the author of his life.

But even so he could not find rest, and he left Llancarvan and visited Brittany where he established himself in an island in the lagoon of Etel, in Morbihan. However, just as his monks began to settle themselves there and think it would be their rest for ever, his impatience made him start off again and return to Britain. A considerable amount of doubt exists as to his end. Some think he went to Weedon in the county of Northampton and was there put to death by the Saxons. But whether the martyr was the same man, is doubtful. He is said to have had a well in Cornwall into which he poured water, brought by him from the Jordan.

The only trace of his presence in Cornwall is a Chapel that bears his name at Padstow. In S. Veep there was a small priory, the remains of which are at the present day erroneously called S. Cadoc, the true dedication was to S. Caradoc. S. Cadoc was reputed the author of a great many sayings and of some good fables (Iolo MSS. 560—573). Dr. Cuno Meyer, however, has shown that these are none other than a Welsh version of the pupular Mediæval *Disticha Catonis.*

His feast is on Jan. 24; on that day he was commemorated with S. Cynog, at Padstow. At Bodmin, on the same day, according to William of Worcester. His Life states that he died on Jan. 23. So say a Worcester Calendar of the 15th century and a Welsh Calendar of the 12th. At Vannes, he is commemorated on September 21. There his popular name is Cazou. He died about 520.

The name Cathmael signifies Man of War, but as, when he became an abbot, "the weapons of his warfare were not carnal," his name was changed to Cad, *noble, excellent,* with the suffix *oc.*

S. Callawy, Confessor.

In one of the mediæval windows of S. Neot's church, this saint is represented with a book in his right hand and a cross in his left, habited, apparently, as a hermit. Beneath are the arms of the Callawy or Calleway family, Sable a fess between three daggers or.

Who S. Callawy was, can be a matter of pure conjecture only. No such name occurs in the Welsh or Breton Calendars. There was indeed a Callwen one of the descendants of Brychan, who was commemorated on Nov. 1, but the saint in the window at S. Neot, is a male. In the Irish Calendars there are several Cellachs or Ceallachs, a name found now in Cornwall as a surname, softened into Kellow.

Cellach, Archbishop of Armagh was commemorated on August 1. Cellach, son of Dunchadh, on July 18. Cellach, deacon of Glendalough, on October 7.

Cellach is the Irish form of Celsus, the name of one who was of the company of St. Patrick.

Ceallach of Armagh is styled an anchorite, and in the Martyrology of Donegal he is said to have obtained of God to become deaf and lame. Whether he ever really did become Archbishop of Armagh, or whether the hermit be not a distinct person, is uncertain. The greatest uncertainty exists relative to the period when he lived. There is an Irish life of S. Ceallach in the Burgundian Library, at Brussels,—but, without evidence to connect Callawy with Ceallach, it is unnecessary to go further into his history. The heiress of Callawy married into the family of Tubbe, of Trengoff, in Warleggan. The Tubbe family owned a good deal of land in S. Neot which came to them through the Callaways; perhaps there was a chapel to S. Callawy in the Parish. A place called Calloways is in Warleggan.

S. Caradoc, Confessor.

He is also called Cradock. He was the patron of a small religious community in the Parish of S. Veep. William of Worcester calls him S. Syrus the Priest, and says that he was buried there. But in Bishop Grandisson's Register, we learn from the Procurations of the Cardinals in 1337, 1339, and 1340, that the Saint was S. Carrocus, that is Caradoc.*

* But in Bronescombe's Register is an early document of 1237, in which the tendency to transfer from an unknown Celtic Saint to one of the Roman Martyrology is manifest. There we read Cella St. Cyriaci (ed. H.R., p. 245).

He was a Prince of Gwent, and was married to Dervel sister of Arnwn Dhu, and was father of S. Malo and of a S. Tathan, but not the Tathan who was brother of S. Samson. Caradoc's mother was Matheriana or Madrun, venerated at Minster and Tintagel. He was the uncle of S. Samson. He receives more veneration in Brittanny, where there are dedications to him at Mellac, Pont Aven, Quimperlé, and Rioc in Finisterre.

There is, in Brittany, a S. Egarec, who is further corrupted into Evarzec and who is probably the same, and was invoked against toothache. He has two "pardons" at Briec, one on Ascension Day, the other on the 2nd of October. Briec is near Quimper. Other dedications are at Kerlevan, Lanpant, Plouarzel, and S. Evarzec in the diocese of Quimper.

In the diocese of S. Brieuc he is called S. Carreuc or Carroc.

A saying of Caradoc has been preserved;—when he had lost a halfpenny, and some laughed at the triviality of the loss and his concern over it:—"The full man knows not the cares of the needy." In Brittany he is represented as a monk with a child at his side. This child is S. Malo. This Caradoc is not to be mistaken for his namesake (canonised at the instigation of Giraldus Cambrensis,) who was a hermit, in Pembrokeshire, and died in 1124.

Caradoc the Prince of Gwent must have died about 570. Caradoc is commemorated in the Leon Breviary, on May 16, this indicates that he is supposed to be the same as S. Carantoc, which is an error into which Lobineau fell.

S. Carantoc, Bishop, Confessor.

The history of S. Carantoc is much involved, and difficult to elucidate, because, whilst he was in Ireland he was known as Cairnech, the Cornishman, and a century later there was another Saint of the same name. Their stories have been fused together, and it has not been recognised that the two were absolutely distinct personages. Carantoc was the son of Ceredig, of Ceredigion, son of Cunedda. But according to other Welsh authorities he was not son but grandson of Ceredig. Ceredig was married to Mellari daughter of Brychan, and was father

moreover of Sandde who was the parent of S. David. Ceredig is thought to have been the Coroticus against whom S. Patrick wrote his denunciatory epistle. It is remarkable to find a son of this tyrant aiding in the mission field with the apostle of the Irish. Ceredig, it must be remembered, was engaged in expelling the Irish colonists from the west coast of Wales, and it was because Coroticus had taken captive and sold into slavery a number of Irish neophytes that Patrick reproached him.

In the life of S. Carantoc we are informed that at the time when he appeared, "the Scots (Irish) overcame Britain for thirty years, the names of whose generals were Briseus, Thuthaius, Machleius, and Anpachus." And again, "Ceredig held Ceredigion, and from him it received its name. And after he held it, the Scots (Irish) came and fought with them and seized all the country." Here we have an intimation of two invasions, one before Ceredig arrived and expelled them, another, later, when he was "an old man."

The names of Irish Chiefs of the first invasion are not easy to identify in their latin form, Tuathius may be Dathi, King of Ireland, 405-408, and Anpachus may be Amalghaid, King of Connaught, 438-449, and the name of a Mac Lear (Laodegaire) may be disguised under Machleius.

Carantoc, according to the Latin Life, went to Ireland, "in the year of the birth of Saint David, son of Sandde." Unfortunately it is exceedingly doubtful what year that was.

"He went to Ireland, Patrick having preceded him; and they met each other and resided together. And they consulted together what they should do, and they agreed that they should separate, one go to the left, and the other to the right, because many clerics walked with them, and others because they wanted health (*ullus unusquisque pariter pretium quod requireret sanitatem*). And Carantoc went to the right part, and Patrick to the left, and they agreed that they should meet once a year." In Ireland, Carantoc founded a church at Dulane, in Meath.

In the histories of S. Patrick, which we have, Carantoc does not appear to have been intimately associated with him, except on one notable occasion; and there can be little doubt, from this reticence, that he acted with considerable independence,

It is certain that at one time S. Patrick did meet with some opposition to his claims, on the part of a certain number of the missioners in Ireland, and his notable Confession—one of the most touching and beautiful memoirs ever penned—was written as his defence against those who carped at his authority.

Possibly Carantoc may have been at the head of this dissident faction.

That Patrick took a very high hand, and sometimes acted with unwarrantable violence, cannot be questioned,—if the stories in the Tripartite Life are to be believed; and this roused opposition even among the missioners.

The 'Confession' is a very interesting document. It did not occur for a moment to S. Patrick to crush opposition by saying, "I was commissioned from Rome by Pope Celestine," for one of two reasons, either because he never had been so commissioned, or because he did not think that such a commission would carry any weight.

The notable exception, referred to, is the case of the drawing up of the Seanchus Mor. When the bulk of the population of Ireland had accepted Christianity, it became advisable that the laws should be readjusted to meet the new condition of affairs. King Laoghaire saw this, and although not himself a Christian, he appointed a joint commission for the revision and codification of the laws. The commission consisted of three Kings, three Brehons or Druids, and three Christian Bishops. Patrick, Benignus, and Carantoc sat as representatives of the Church. This code remained in force among the Irish throughout the Middle Ages, and in Clare even down to 1600.

The Latin Life says not a word about this, which occupied Carantoc and the other Commissioners three years, and was completed in 438, and which was the most important and far-reaching act of his life.

Carantoc retired from the mission in Ireland, whether because he could not work with Patrick, or for some other reason, we do not know. He retired into a cave in Cardigan, and founded the church of Llangranog. The Welsh call him Carannog.

After a while, taking his portable altar with him, he went to the Severn, and threw his altar in, resolving to settle wherever it was washed up.

Here is interpolated a passage that cannot possibly belong to the life of S. Carantoc. We are told that in those days Cado and Arthur ruled the land, and the latter had his dwelling at Dindrarthou. In the adjoining district of Carron was a dragon, which Arthur summoned Carantoc to overcome.

Arthur meanwhile had got hold of Carantoc's altar table, and designed appropriating it to his own use. However, when Carantoc had tamed the dragon, he reluctantly surrendered the altar, which Carantoc again threw into the sea.

Dindrarthou is Dinedor, in Herefordshire, a dinas or fortress commanding the Wye valley, and Carron is the marshy region of the Garran. Here there is a church called Llangarran.

Possibly under this fable we may detect a substratum of history, that Carantoc did visit the Garran basin, and there tried to overcome the paganism that still lingered there. But all that portion of the legend which concerns Cado and Arthur must be dismissed, as they flourished about 530; the death of the latter is given in the Cambrian Annals as taking place in 537. It is therefore impossible to make Carantoc, who assisted in the compilation of the Seanchus Mor, in 430, a contemporary of Arthur.

Carantoc crossed to Cornwall. There, we are led to suppose, his altar was washed up, for he had again thrown it into the sea after its surrender. The place is called, in the Life, Gwellit (the Grassy). It was probably the long curious creek called the Gannel. There he resolved to settle, and he borrowed a spade from a poor man, wherewith to dig the ground. He also cut for himself a staff, and at intervals, when tired of digging, he took to whittling the handle of the staff.

Presently he observed a wood-pigeon fly out of the adjoining grove and carry off in its beak some of the shavings from his staff. He resolved to follow the bird, and he found that she had dropped the chips in one particular spot. He determined to build a church there. This is quite in accordance with Celtic custom of looking out for an omen, from bird or beast, before founding a church, or naming a child.

In the Latin Life we are informed that, "a voice came to him from heaven and said that he should go into exile, and leave his family (*i.e.* monastic family). Innumerable persons were buried in that city, but he alone went to Ireland," where, it is to be presumed, he died.

We must put his death as having occurred somewhat later than that of Patrick, but scarcely later than 470, for he can hardly have been a young man when engaged on the revision of the laws of Ireland, in 438. We may probably put his birth as having occurred in 400. The Irish Calendars give his commemoration on May 16.

Dudley MacFirbis says of him (Irish Academy, MS.) "Cairnech :—he was of the Britons of Corn, and hence he is called Cairnech (Cornish): viz. Cairnech son of Luighidh, son of Talum, son of Iothacar, son of Alt. This is what Giolla Caomhain relates in the Histories of the Britons." This pedigree is very strange and wholly unsubstantiated. The "Histories of the Britons," referred to, is the Irish Nennius, which contains no history of Carantoc, but one of Cairnech who lived a century later. The genealogy given by MacFirbis does not occur in any of the copies known; and that of Cairnech the second, is quite different.

The Felire of Aengus, on May 16, has this entry :—"The illustrious death of Cairnech the powerful," and the gloss adds, "*i.e.* Carnech of Tuilen, in the neighbourhood of Cenannas (Kells), and he is of the Britons of Corn (Cornwall)."

In the Celtic Litany published by Mabillon, from a Rheims MS., he is invoked between S. Brendan and S. Gildas.

In Brittany is a church dedicated to him, under the name of S. Carné, south-west of Dol.

In the Redon Cartulary this is given as Carnetus, just as in the "Relations of the Irish Saints," in the book of Leinster, Carantoc is rendered Carantot.

Carhampton in Somersetshire, a mile and a half from Dunster, was one of the foundations of S. Carantoc; though the dedication of the church has been altered to S. John the Baptist. The ancient chapel and its cemetery have been traced in the Vicarage grounds. The church passed into the possession

of Bath Abbey, where the festival of the Saint was observed on May 16. (Bath Calendar, circ. 1383, in Brit. Mus., add: MSS. 10, 628.)

In the Welsh Calendars and Exeter Calendars it is also on May 16.

At Crantock, in Cornwall, the Feast is on the Sunday nearest to May 16.

A brother of S. Carantoc was S. Pedr, according to the Welsh genealogists, and it is rather remarkable that a holy Well bearing the title of S. Pedyr should be found in the adjoining Parish of S. Columb Minor.

In art, S. Carantoc should be represented as a Bishop holding a scroll, Seanchus Mor inscribed on it, and with a spade, also a dove should be figured, bearing a chip or shaving of wood.

John of Teignmouth indeed says that, "whithersoever this holy man went, an angel of our Lord, in the likeness of a dove, accompanied him." The name Carantoc or Carannog, signifies the crowned or tonsured.

Owing to the tangle that has been made of the biographies of the two Saints bearing the same or similar names, I think it advisable here to subjoin that of the second Cairnech.

This Saint was the son of Saran said in the legend to have been one of the Irish who obtained sovereignty in Britain, "and he established his power over the Saxons and Picts."

Colgan gives the genealogy of Saran as follows. He was son of Colchu, son of Tuathal, son of Fedhlim, son of Fiachra Cassan, son of Colla da Crioch. Fiachra Araidh, or Cass, was King of Ulster in 236.

Saran was an obstinate pagan and was King in Dal Araidh, and opposed S. Patrick when he visited Ulster. However the apostle proceeded to found a church at Glenavy near Lough Neagh. Whilst he was thus engaged, Saran came up, caught him by the hand and roughly endeavoured to thrust him away. Patrick thereupon cursed him that he should inherit neither heaven nor earth. However Conla the brother of Saran gave him lands, and received in return the benediction of the Apostle.

Somewhat later S. Ultan met Saran driving a number of unhappy hostages before him, and he entreated the Prince to treat them with humanity. Saran refused to do this unless Ultan would promise him that heavenly place of which Patrick had deprived him. To this Bishop Ultan agreed; but when Patrick found this out, he was furious, and meeting Ultan at Clonfiech, ordered his chariot driver to impel the horses to drive over Ultan. The charioteer shrank from doing this because the transgressor was a bishop. Thereat S. Patrick cursed him.*

Saran was married to Earca daughter of Loarn, who along with his brothers Fergus and Aengus were blessed by Patrick. They invaded Alba, and conquered Argylle; Loarn gave his name to Lorne. The latter became King there somewhat later, and reigned from 503 to 513. Earca was however an unfaithful wife and eloped with Muirdach or Murtogh, son of Eoghain (d. 464) and grandson of Niall of the Nine Hostages (378-405). By Murtogh she became the mother of four sons, the most noted of whom was Murtogh Mac Earca, who was one of the most turbulent men of whom we read in Irish history. After the death of Murtogh, Earca was married to Fergus son of Connall Gulban (d. 464), another son of Niall, and by him also had four sons.

Saran, as Earca had left him, married her sister Babona or Pompona, and became the father of Luirig, Bracan and S. Cairnech. According to the legend, Saran had extended his conquests into Britain, probably in alliance with his wife's uncles, Fergus and Aengus, and he was succeeded by his son Luirig. S. Cairnech also had come into Britain and established a monastery. It is rather remarkable that he should have had a brother called Bracan which is the same name as the Brychan of Welsh tradition. But the legend is very obscure relative to what lands had been subdued by Saran, and over which Luirig held rule.

Murtogh Mac Earca had committed a murder in Ireland. He had put to death some cross-bearers, probably because they had composed lampoons upon him. This had been a legal privilege of the bards, and the right seems to have been

* Tripartite Life, pp. 165-6.

assumed and exercised by the *crossans* or cross-bearers in religious ceremonies of the Church. For this murder, Murtogh fled to Alba, where soon after, 513, he murdered his grandfather, Loarn. Fergus at once succeeded his brother (513-540) and drove Murtogh Mac Earca out of Alba. He now went into Britain, intending to do all the mischief he could there, and he asked his cousin S. Cairnech to bless his arms. Cairnech consented on one condition. Luirig, his brother, had erected a fortress on the lands that Cairnech claimed as belonging to himself, and this the Saint resented with an implacable spirit. He would bless Murtogh's arms if he would remonstrate with his brother. To this Murtogh cheerily consented, and went to Luirig, who when he heard the message and Cairnech's threats, replied with a scoff, "I value his remonstrances no more than the bleating of his pet fawn." Murtogh, who was double-dealing as well as a ruffian, at once returned to the Saint and repeated these words. Cairnech flew into a fury, and promised heaven to Murtogh, if he would kill his brother, and he prayed God that a fawn might be the means to this end.

Cairnech then commanded Mac Earca to go and destroy his brother, and he (Murtogh) immediately took upon himself to fight him. And God worked a great miracle there for Cairnech, viz. he sent a wild fawn out of the mountain into the King's assembly, and the host all went in pursuit of it except the King himself and his women. Then said Mac Earca, "If you had been just, my Lord, towards your cleric, it is certain that it would have given increase of happiness to wear the royal robe of Luirig." Then Mac Earca ran his spear into the king's side, and he returned to the cleric, and the head of the king with him, as a token; and he said, "Here is your brother's head for you, O Cairnech!" Then said Cairnech, "Leave me the bone, and eat thou the marrow, and every third coarb shall be thine for ever, here and in Ireland."

Then Murtogh Mac Earca took hostages and the (royal) power of the district into his own hands, conjointly with Cairnech, for seven years, as also the supreme sovereignty of Britain, and Caithness, the Orkneys and the Saxonland.

But it was not likely that a partnership cemented by such a monstrous crime should last. Murtogh took the widow of

Luirig (whom he had murdered), as his wife, and this seems to have given great offence to Cairnech.

By her Murtogh is said to have had, as sons, Constantine and Gaedhil Ficht, who remained to reign in Britain, and especially over the Cornish Britons after Murtogh returned to Ireland.

The Irish Annals give us these dates:—

Murtogh Mac Earca was fighting along with Illand and Ailil, sons of Dunlaing, against Aengus Mac Nadfreich, King of Leinster, and slew him and his wife in 489.

Then we hear no more of him till 497 (498), when he was fighting his former confederate Illand.

In 508 or 509, he was engaged in war with Duach, King of Connaught, and defeated and killed him.

From 508 to 513 were years of anarchy in Ireland, but in the latter year Murtogh Mac Earca was chosen king, and he reigned till 533. In the meantime Cairnech had returned to Ireland, whether on account of quarrels with King Arthur and Cado, Duke of Cornwall, we cannot tell.

If there is any reliance to be placed on this part of the story in the Latin Life,—it perhaps was so. But the principal reason for the return of Cairnech was that Earca, the mother of Murtogh, in her old age had felt qualms of conscience at her past conduct, and she came to S. Cairnech, her nephew, in penitence, kneeling at every second ridge, on her way, so it is said, till the blood oozed from her finger ends. Cairnech received her with these words: "I hail thee, O Earca, and thou shalt go to heaven; and one of every two worthy kings who shall reign over Ireland shall be of thy seed; the best women and the best clerks shall be theirs; success in battle shall be theirs also."

From her eight sons she had received an extensive tract of land in fee-simple, in Tri-Connell. She had also possession of Drumleene, in Raphoe. All this fine territory she gave to her nephew. Soon after, she died, and S. Cairnech blessed the spot and called it Kill-Earca, and placed S. Croidan, a bishop, in charge there.

Murtogh Mac Earca had fallen under the fascinations of a beautiful woman called Sheena, daughter of Sigh. He was

however married to Duiseach, daughter of the King of Connaught.

In 524, Murtogh fought the men of Leinster, and in the battle killed Sigh, son of Dian, and his sons. He took the daughter, Sheena, and she employed all her blandishments to gain his love. She was successful, and he banished his wife, who took refuge with S. Cairnech, and was joined by the Hy Conaill and the Hy Eoghair. Cairnech, who now hated Murtogh with all his heart, espoused the cause of the queen, cursed Murtogh, his palace, and all that belonged to him, and promised his aid against the King. But Sheena had all the while nursed her hatred of the man into whose arms she had cast herself, and had quietly awaited her opportunity, which occurred on Samhain, All Hallowe'en, a time of great revelry. The king was at Cletty on the Boyne. When all were drunk, Sheena had the hall surrounded and ignited. Murtogh was roused when the fire had caught his garments, and in an agony of pain, he plunged into a vat of wine to extinguish the flames, and so perished. Some verses on the occasion were composed by S. Cairnech.

All the remainder of the legend is a farrago of impossibilities, piled up by the composer so as to attribute to his hero every dignity, and give to him every honour, even that of martyrdom. But this portion does not deprive the legend of its value as a picture of the half-savage condition of the people, the vindictive character of some of the Celtic Saints, and as affording also some light on the invasions of Britain by the Irish.

It is not easy to reconcile dates,—but then we cannot implicitly rely on those given in the Irish Annals. It is not possible to reconcile 513, the date of the murder of Loarn by Murtogh, with the rest of the story, and it is much more likely that 503 is the correct date.

We know that, about the time represented in this legend, the Welsh records state that great trouble was caused by Irish invasions. The Scots (Irish Gaels) occupied Anglesey and the Western Coast of Wales. Caswallon Llawhir, father of Maelgwn Gwynedd defeated them under their leader Serigi who may be the Luirig of the legend. According to Triad 8, series 3,

the Irish had been in possession during twenty-nine years till expelled.

The date of the death of S. Cairnech can be fixed with nicety, through circumstances with which I need not trouble the reader.* It took place in 545.

His day is March 28.

It now only remains to indicate the sources from which both Lives may be derived.

1. S. Carantoc (Cairnech of Duleen, May 16). A Latin Life in the Lives of the Cambro-British Saints, Ed. Rees, 1853.

   Mention also, in connexion with the Senchus Mor. See Rolls Ed. of the Ancient Laws of Ireland, 1869-79.

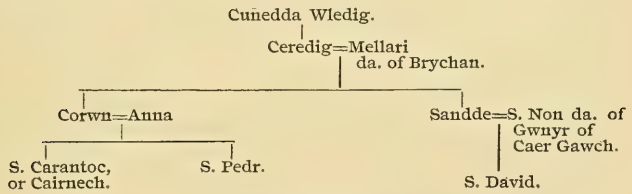
   Also the Life of John of Tynemouth, in the Bollandists, May 14.

2. S. Cairnech, son of Saran (March 28).

   An Irish Life in the Irish Nennius, Ed. Todd & Herbert, Dublin, 1848; also the appendix to the same.

To make their separate existence clear, I subjoin the pedigree of each:—

PEDIGREE No. 1.



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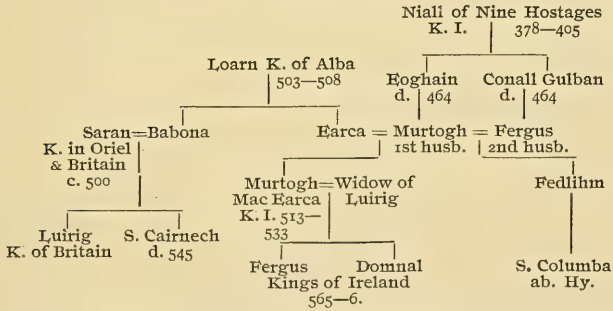

* Irish Nennius, ed. Todd and Herbert, p. cx.

S. Cleer, Bishop, Confessor.

It is very uncertain who is the patron of the church bearing this title near Liskeard. That he was esteemed to have been a bishop appears from his being so represented in one of the S. Neot windows. A Clarus is held to have been the first bishop of Nantes, in the 3rd century, but of him absolutely nothing was known; in fact, at Nantes, the Common of Bishops Confessors was employed for his commemoration. At the revision of the Nantes Breviary he was converted into a disciple of S. Peter. M. de la Borderie has completely demolished his claims to be earlier than the 3rd century, and to having had more than a name in the lists of the prelates of Nantes.*

He is out of the question as to being regarded as the original founder of S. Cleer's church, and as to having the Holy Well there attributed to him.

Nor,—in the face of the representation of him in Episcopal robes at S. Neot,—can we hold him to be S. Clarus, Priest and Martyr.

It is more probable that the church at S. Cleer was a second and later settlement of S. Clether or Cledog. He may have migrated there from his cell under Laneast Down, to a more populous neighbourhood, and one in which his labours might prove more fruitful.

It is by no means unlikely that S. Cledog was transformed at a later period to S. Clarus of Nantes, just as S. Fili has been converted into S. Felix, another Nantes bishop, and S. Ervan and S. Erme into S. Hermes; Curig into Cyriacus, and S. Piala into Felicitas.

S. Clarus of Nantes is commemorated on October 10, which is also the day marked in the Breviary of S. Brieuc.

S. Clement, Prince, Confessor.

All the Welsh pedigrees of the Saints that mention S. Petrock, state that he was the son of Clement, a chieftain in Cornwall; but the Life of S. Cadoc says that he was son of

* Études Historiques Bretonnes, 2nd Ser., Paris, 1888.

Glwys, King of Gwent, consequently brother of Gwynllwy of Newport. By son is probably meant grandson, and we may conjecture that this Clement was the leader of the Gwentian party united with the horde of Irish and Brecknockians who burst upon North Cornwall, and took possession of it, about 520. In the deanery of Powder is the church and parish of S. Clement, near Truro; the ancient manor of Moresc is comprised in it, and it contains a site of a church of uncertain dedication, Lanbessow. S. Clement's is, however, quite out of the district occupied by the colony from Gwent, and it is more probable that it received its dedication to the Pope and Martyr. Of the founder we know nothing.

S. Clement's day is November 23.

The church of Powderham, in Devon, is also dedicated to S. Clement.

The chapel of Porth-Enys or Mousehole, in S. Paul's parish, was dedicated to S. Clement; it was situate on a little island.

S. Clether, Bishop, Confessor.

Clether is the same as Cledog, son of Clydwyn, and a grandson of Brychan. Clydwyn fought the Irish Picts, who occupied Pembrokeshire and Carmarthen, though himself partly Irish by descent. Still that was never of much consideration among Celts when it came to be a question of self aggrandisement.

In the Life of S. Brynach is mentioned a certain Lord of a district in Pembrokeshire or Carmarthen named Clechre, surnamed the aged, who feared God. This was precisely the district seized on by Clydwyn, when he drove out the Picts, and he may have given it to his son, who would be this very Clechre, but who at the time when Brynach had anything to do with him was certainly not aged, as he was nephew of Brynach, who had married Cledog's father's sister. But Clechre may have acquired the title later.

Brynach had come into the country, and squatted in a valley and lighted a fire. In the morning Clechre saw the rising column of smoke, and he summoned his twenty sons, and they

went to see who had intruded on their land, for to kindle a fire was an assertion of possession. They came to Brynach and discovered that they were relatives, and Clechre at once placed his sons under the tuition of Brynach, his uncle. He, himself, inspired by the desire of leading an eremitical life, departed to Cornwall, "where, serving God, he gave up his happy soul to the Lord."

I think it hardly possible not to identify Clechre with Cledog. The latter name is Cled or Clyd, with the diminutive *oc*, added to it, which in the other is changed to *er*, which is a variation, as we have Enodoc and Enoder.

This Cledog must be entirely distinguished from another of the same name, who, as we learn from the pedigree of Taliesin, was the son of Gwynnar, son of Caid, and who was father of Cynnarch, from whom Taliesin was descended. This Cledog is distinctly asserted to have been of Ewyas, and it is there, in Herefordshire, that we find Clodock, where he was killed by the Saxons.

Cledog, the son of Clydwyn, if he be the same as Clechre, died in Cornwall.

On reaching Cornwall, Clether found himself among his kinsfolk. Morwenna was his aunt, Nectan his uncle. In a day he could visit several close relations. He chose for his abode a warm and pleasant nook facing the sun, in the Inney valley, with the great hog's-back of Laneast behind him. He chose a slope of heather between great horns of rock overgrown with ivy, and over-hung with scarlet-berried rowan, where was an unfailing spring; and here he not only set up his oratory, but established a *Minihi* or Sanctuary, by planting crosses at intervals about a piece of land, within which was safety from pursuit.

The parish church stands half-a-mile further down the valley, in a bold and picturesque situation.

S. Cledog's day is November 3 (Kalendar Iolo MSS., p. 558).

The oratory or chapel of S. Clether, is a building running E. and W. and measures internally 19^{ft} 1^{in} by 11^{ft} 4^{in}. It possesses a door to the west, and another to the north. The Holy Well is situated 7 feet from the N.E. angle of the chapel,

and the water from it was conducted by a channel under the floor to the altar, beneath which it bubbled up, and then ran away and fell over a sill at the S.E. end into a small (second) Holy Well, to which access was obtained from without.

The idea was certainly taken from the description of the Living Waters in Ezekiel XLVII, 1, 2. "He brought me again unto the door of the house; and behold waters issued out from under the threshold of the house eastward. . .and the waters came down from under the right side of the house, at the south side of the altar. . . .and behold there ran out waters on the right side."

The existing building is of the 15th century, but it is probably a reconstruction out of the material of the original chapel. No mortar seems to have been employed in the masonry.

It may be supposed that the saint, when settling there, lived under a rock-shelter hard by, where the freestone beds lean forward and are convenient as supplying a roof, and requiring only to have the face built up to the projecting rock.

The feast at S. Clether is on October 23, the day of the re-consecration of the church by Bishop Bronescombe in 1259; but according to Chaloner's Supplement to his Martyrology, November 3; which is also the day in the Calendar of the Iolo MSS., and also in the Welsh Calendar of the 12th century, in the British Museum.

Another day given to him is August 19 (Cressy), but this may be the commemoration of the Saint of Clodock.

S. Coan, Martyr.

Of this saint nothing is known, except that he was martyred or murdered where is now his *Martyrium*, Merthyr Coan in Powder. A holy well and a chapel are dedicated to him.

S. Colan, Confessor.

There were two saints known as Collen in the Welsh lists. One was the son of Gwynog of the family of Caradoc Freichfras; the other was son of Petrwn, grandson of Rhydderch (Roderick)

Hael. The former is esteemed to have founded Llangollen in Denbighshire (Iolo MSS., p. 506; Bonedd y Sant, Myvr. Arch. p. 420). But what one of this family should have to do with Denbighshire is not clear. Caradog's rule was over Galewig, and later Brecknockshire, and Collen we know settled, for a while at all events, at Glastonbury, where he had a hermitage under the Tor. His father Gwynog is hardly the S. Winnow known in Cornwall. We may suspect that the Denbighshire Saint is actually the grandson of Rhydderch, who has been eclipsed by the better known son of Gwynog. His mother was an Irish woman.

The romantic legend of S. Collen in Y Greal (Lon., 1807), pp. 337-341, is from a 16th century MS. Life at Shirburn Castle. Of this I am able to give a summary through the kindness of the Rev. J. Fisher, B.D., who has translated it for me.

Collen, son of Pedrwn, is mentioned in the Triads as one of the "Three Ineloquent men of the Court of Arthur." But the Collen with whom we have to do is certainly the other, the son of Gwynog. His mother was Ethne Wyddeles (the Irish woman), daughter of Matholwch an Irish princeling. An Ethne is named, in the Irish Martyrologies, on February 26, another on March 29. The mother of S. Columba was also Ethne. Matholwch is, in Irish, Mac Olchu. Olchu was the father of Finnlug, and grandfather of S. Brendan of Clonfert. If this be the same Olchu, S. Colan and this illustrious saint were first cousins.

The Welsh Life relates that S. Collen left Wales and went to be educated at Orleans, where he remained for eight years and a half, during the wars of Julian the Apostate, which is an absurdity. Just at that time, in order to bring to a speedy termination the incessant wars between the Pagans and the Christians, a Pagan of the name of Bras challenged, as the champion of Paganism, to fight any Christian that might be pitted against him, laying down that the losing side should thenceforth adopt the religion of the conqueror. To this the Pope consented, but when he came to look for his man he could find no one that would consent to enter the combat. However, he was directed at last by a voice from heaven to S. Collen, who was at that time at Porth Hamwnt. The challenge was accepted

without the slightest hesitation, and both met, armed for the conflict. Collen, in the first encounter, had the misfortune to have his hand somewhat bruised, but Bras very kindly gave him a little ointment to put upon it, at the same time endeavouring to persuade him to give in, and believe in his Pagan god. The hand was forthwith healed, but instead of returning the ointment box, Collen threw it into the river, lest either should get further benefit from it. This time Collen felled his antagonist, who implored him not to kill him, and promised to embrace the Christian religion. He was in due time baptized by the Pope, and thereupon "the whole Greek nation believed and was baptized." As a souvenir of this signal victory, the Pope gave Collen a wonderful lily, which he afterwards brought to this country, "and it is said that that lily is still at Worcester."

Collen afterwards went to Glastonbury, where, in three months' time, he was elected abbot. This post he soon resigned for a mode of life that was "heavier and harder," which consisted principally in preaching here and there. He again got tired of this, and returned to Glastonbury, where everything went on quite smoothly for five years, when he happened to quarrel with some of the people, and, cursing them, left for "the mountain of Glastonbury" (probably Glastonbury Tor), and made his cell in a quiet spot beneath a rock. As he was in his cell, one day, he heard two men talking about Gwyn ab Nudd, and saying that he was the King of Annwn (the Under-World) and of the Fairies. Collen put his head out, and told them to hold their peace, as those were merely demons. They told him to be silent, and, besides, he would have to meet Gwyn face to face. By-and-by Collen heard a knocking at his door, and in answer to his call got the reply, "It is I, the messenger of Gwyn ab Nudd, King of Annwn, bidding you to come to speak with him on the top of the hill by mid-day." The saint persistently refused to go, day after day, until at last he was threatened with the words, "If you don't come, Collen, it will be the worse for you." This disconcerted him, and, taking some holy water with him, he went. On reaching the place, Collen beheld there the most beautiful castle that he had ever seen, with the best-appointed troops: a great number of musicians with all manner of instruments; horses with young men riding them; handsome, sprightly

maidens, and everything that became the court of a sumptuous king. When Collen entered, he found the king sitting in a chair of gold. Collen was welcomed by him, and asked to seat himself at the table to eat, the king added that beside what Collen saw thereon, he should have the rarest of dainties, and plenty of every kind of drink. Collen said, "I will not eat the tree-leaves." "Hast thou ever," asked the king, "seen men better dressed than these in red and blue?" Collen said, "Their dress is good enough, for such kind as it is." "What kind is that?" asked the king. Collen said that the red on the one side meant burning, and the blue on the other, cold. Then he sprinkled holy water over them, and they all vanished, leaving behind them nothing but green tumps.

Collen certainly passed into Brittany, as the church of Langolen, near Quimper, in ancient Cornouaille, venerates him as founder.

In some old Welsh kalendars his festival day is given as March 21st. Colan feast is on the Sunday after the first Thursday in May.

St. Columba, Virgin Martyr.

This Virgin Martyr is a very puzzling person. She was not only given two churches in Cornwall, and one of these by far the wealthiest in the peninsula, but also a Holy Well.

There was a Columba, Virgin Martyr, at Sens, and a famous abbey bore her name. In the diocese of Rennes was a parish dedicated to her. According to a relation of S. Ouen, there was a chapel dedicated to her at the time of S. Eligius (d. 658). But, in fact, in France there are more than thirty parishes that bear her name. According to the Roman Martyrology, she was slain with the sword, in the reign of the Emperor Aurelian, about 273, after having triumphed over the power of fire. The Acts which are, however, fabulous, make Aurelian, in person, try Columba at Sens, but Aurelian never was in Gaul, at all events when emperor, and it has been suggested that for Aurelian we should read Marcus Aurelius, who was there perhaps to quell some of the risings which took place in his reign (161—180).

The cult of S. Columba is certainly very ancient. She is the only Gallic female saint who has found a place in the Mozarabic Liturgy of the 7th century, and her name is found in the Gothic Liturgy of a still earlier period. The legend is a poor and extravagant romance, which probably rests entirely on popular tradition, but which has been filled in with inflated and tedious discourses.

According to this authority—a very worthless one—Columba was daughter of a royal pagan family in Spain, but as she had received the rudiments of Christianity, she resolved to run away from home, and she took as her companions Augustine, a kinswoman Beata, an attendant Sanctianus, and others, and they made their way through Gaul to Vienne, where she was baptised. A quarter of the town still bears her name, from a monastery founded there in the 8th century, and this contained a baptistery in which it was pretended she had been admitted into the Christian church. From Vienne, S. Columba and her attendants to the number of twenty, pushed on to Sens, where the emperor was, who ordered their arrest. He sentenced all to be put to death, with the exception of Columba, whom he sent to the amphitheatre to be shut up there in one of the dens. There, by his orders, she was devoted to insult; but a she-bear burst into the den, and defended her.

The Emperor then offered to unite his son to her in marriage if she would renounce Christ, but she refused. Previous to this, however, in order to get the bear to leave its guard over the virgin, he was constrained to set fire to the prison. The bear broke through the rising flames, and an opportune thundershower extinguished the fire before Columba was hurt. As the virgin would not listen to the offers of the emperor, he sent her to decapitation, and, "more sanctorum," having her head cut off, she stood up and carried it.

At the same time lived a prince near Sens, with the Teutonic name of Autbert, who was blind. He sent and had the body of the martyr buried, and found that a fountain had miraculously sprung up where her blood had fallen, and that an ox was keeping guard over it, with flames burning at the ends of its horns. Some of the blood of the martyr, applied to the eyes of Autbert,

restored his sight. The site of this chieftain's residence is pointed out as the Pré Aubert. Over her body, he took care to erect a church.

The anachronism of making a Gothic-chief resident at Sens is sufficiently gross, but it is possible enough that an Autbert at a much later period did erect a shrine on the site traditionally pointed out as the scene of the martyrdom. The fountain, elicited by her blood, is called la Fontaine d'Azon, and is between the villages of S. Clement and S. Denys near where the old Roman road runs from Meaux to Sens. Every year, on the Tuesday before Easter, *i.e.* Tuesday in Holy Week, this Holy Well was a great object of resort, but the chapel over it was destroyed in 1793, and no traces of it now remain. It had been rebuilt in 1553.

In Sens itself was a cellar which was supposed to have been the prison of the saint, and over it was a chapel or *martyrium*, called Sainte Colombe-la-Petite. From the chapel, by a stair of nineteen steps, the reputed prison was reached, and here also was a holy well.*

In Finistère S. Columba receives veneration at Plougoulm, but great uncertainty exists there whether she be the patroness, or a Colman who founded the Plou. The feast there is on September 26th.

At Sens her feast is December 31st.

At S. Columb, in Cornwall, November 13th.

There is a difficulty in understanding how a virgin martyr of Sens could have become patroness of two parishes in North Cornwall; and I venture to offer a suggestion that the true patron is S. Columba (a male) of Tir-da-glas.

This saint was a native of Leinster; his father was king Ninnidh, of the race of Crimthan. He was educated by S. Colman at Clonkeen in Louth, in his earliest youth, and then passed through the hands of S. Finian of Clonard, where he was a companion of S. Columba of Iona. Thence he started for Rome and Tours, to visit the tombs of the Apostles and of S. Martin. On his way home, he tarried some time in Britain, where he converted a king and all his house. The writer of his

*Brulée, Hist. de l'abbaye de Ste Colombe-les-Sens, Sens, 1852.

Life says that Columba preached to the Saxons, but there is a difficulty in accepting this statement. How was an Irishman, who had never been brought in contact with Saxons, to acquire their tongue so as to be able to preach in it with fluency? Moreover, the route to and from the continent was, for the Irish of the southern parts of their Island, by Porth Mawr near S. David's, then to Milford Haven, to cross to Padstow, thence over the back-bone of Cornwall to one of the estuaries on the south, where they embarked for Dol, or S. Malo.

The life of S. Columba was not written till after his death. Finding, whilst in Britain, that one of his disciples was compiling his biography, he threw the MS. into the fire, and spoke on the matter so seriously to them, that none ventured to commit to writing anything concerning him, till after his death. But the Life we have is a much later composition, and unhappily only a single copy remains, so that we have no means of saying which of the statements made in it are additions by a late redactor. It is quite possible that the editor, in the 12th or 13th century, finding in the original that his hero had preached and converted a *Rig* in Britain, added the information that this was a Saxon king.

It was not till 577 that the West Saxons set their faces to the setting sun, and defeated the Britons at Deorham, took and burnt Gloucester, Bath, and Cirencester. The Saxons then spread over Somerset to the marshes of the Axe below Weston-super-Mare. It was not till the second half of the eighth century that Devon was conquered.

Now, the period when Columba was returning to Ireland must have been before 550, and one does not see how he could have ventured among Saxons, so far out of his way, and whom, moreover, he could not address in their own tongue.

But if, as I suspect was the case, in crossing Cornwall, so as to take ship for Wales, he came into contact with a Domnonian *Rig* at Castle-an-Dinas, and converted him, a necessary consequence would be a grant of land, and the founding of a monastic settlement. Conversion has two meanings, it is applied to the rescuing of a Pagan from heathenism to Christianity, and also to the bringing of a secular into the monastic life.

The conversion of Conan, at Pencarrow, led to the formation of S. Breoc's settlement, a very large parish, at Wadebridge. The conversion of another Prince, at Castle-an-Dinas, or Rialton, may have been the occasion of the formation of the two parishes of Columb Major and Minor, near Newquay, with an acreage of 17,605.

The only other dedication to S. Columba in the West of England is that of the village of Culbone, on the Western headland of Porlock Bay. The dedication of the church is to S. Culbone, which is a corruption, apparently, of Columbanus. But as this cannot be Columbanus of Luxeuil, we may suspect that we have here the same Columba of Tyr-da-glas as at Columb in Cornwall.

On leaving his settlement in Britain, Columba returned to Ireland, where his brother, Coirpre gave him a site; there Columba established a monastery, and placed his disciple Cronan in charge of it. "Oh, Master!" exclaimed the latter, "I had set my heart on my place of Resurrection being with thee." "So it shall be, in a fashion," said Columba, and he cut off one of his own fingers. "There," said he, "bury that and make your grave by it." He went thence to Clonenagh, in Queen's County, and made a settlement, and remained there over a twelvemonth.

He made a great many other foundations, and is reported to have cured the deafness of a boy named Setna, whom he found herding swine on a mountain. He ended his days on Iniskeltra, but, according to his heart's desire, his body was finally transferred to Tyr-da-glas. It is said of him that such was his gentleness, that the wild birds came about him and played, flapping their wings in his face.

A disciple named Nadcuim, said to him "How is it that we frighten the birds away, but they go to you readily?" "Why should birds avoid a bird?" he answered, playing on his name Columba, that signifies "a dove."

When S. Finian of Clonard was dying, he sent for Columba, who gave him the last communion. This was in 552. He himself died very soon after, in fact in the same year.

The day of S. Columba of Tyr-da-glass is December 13, in the Irish Martyrologies. He is mentioned in the Festology of

Oengus, as "the abstinent Columb." He is in the Donegal Martyrology as well. That of Tallaght is deficient in the November and early December entries.

The Episcopal Registers of Exeter always give the churches in Cornwall of Columb Major and Minor as dedicated to a female saint. But this is not to be wondered at, as the former was dedicated in the 12th century to Columba of Sens. Hals says, "the tutelar patron or guardian of the church is S. Columb, to whom the same is dedicated, an Irish gentleman by birth; though, contrary to this opinion, at the bottom of Camden's Britannia, in Cornwall we are told that this church bears the name of.....a holy woman who lived in those parts, and that her life was written in the Cornish tongue, and in possession of one Mr. Roscarrock."

In the Roman Martyrology, S. Columba V.M. of Sens is commemorated December 31; on this day she occurs also in Whyteford's Martyrologe, 1526. The feast at S. Columb has, certainly, no connexion with that of the Virgin Martyr.

S. Conan, Bishop, Confessor.

A saint of this name is Cynon, called son of Brychan in the Welsh "account of Brychan," but in another part of the same set down as grandson by Hynyd or Neffyd daughter of Brychan; Tudwal Befr was his father.

A saying of his has been preserved:—"Good ale unlocks the heart."

His mother was buried "under the rock Melthrem." His "yellow-haired" father is not to be confounded with Tudwal the Bishop.

There is a Church dedicated to S. Conan in S. Brieux (Brittany).

His date is about 936.

Conan to whom a chapel in the parish of Egloshayle is dedicated, is, it seems, not this Conan, but a Cornish bishop who, as one of Athelstan's court, signed charters in 931, 932, 934. His name is also found attached to charters the genuine-

ness of which has been called in question. Nothing whatever is known of him, and his exaltation to be a saint, and to giving a title to a canon's stall in Truro Cathedral, is due solely to Bishop Benson.

S. Constantine, King, Confessor.

This Constantine was King of Domnonia, which comprised Cornwall, and was the son of Cado or Cador, Duke of Cornwall, and first cousin of S. Cuby. He was attacked unmercifully by Gildas as "the tyrannical whelp of the unclean lioness of Damnonia," who, disguising himself as an abbot, penetrated to where the sons of Modred, nephew of Arthur, had concealed themselves in sanctuary, and had slain them. Geoffrey of Monmouth, tells the story thus :-- "Upon Constantine's advancement to the throne, the Saxons, with the two sons of Modred, made insurrection against him, though without success, for, after many battles, they fled, one to London, the other to Winchester. Constantine pursued the Saxons, and reduced them under his yoke. He also took the two sons of Modred; and one of them, who had fled for sanctuary to the church of S. Amphibalus in Winchester, he murdered before the altar. The other had hidden himself in a convent of friars at London, but at last was found out by him, and brought before the altar, and there put to death."

Geoffrey is absolutely untrustworthy as to the broad lines of history, but he worked dexterously into his romance various historical and traditional facts, though not always in their proper places.

Gildas, who was a contemporary, confirms this incident. The young ruffians apparently richly deserved their fate, and the crime, such as it was, consisted, in his eyes, not in killing the princes, but in violating the rights of Sanctuary. His words are: "after taking a dreadful oath—he, nevertheless, in the habit of a holy abbot amid the sacred altars, did wound and tear two royal youths with their attendants, with sword and javelin, when they were even in the bosoms of their temporal mother, and of the church their spiritual mother;—and, when he had done it, the mantles red with clotted blood, did touch the place of the holy sacrifice."

Geoffrey is certainly wrong in making the murders, to have taken place in London and Winchester. For Winchester, probably, we should read Caer Went in Monmouthshire.

Gildas goes on, "Not one worthy act could he boast of, previous to this cruel deed; for, many years before, he had stained himself with the abomination of many adulteries, having put away his wife."

Geoffrey says that three years later the vengeance of heaven fell on Constantine, who was killed by his nephew Conan. But we cannot tell whether Geoffrey drew this from traditions or from his own imagination.

In or about 547, a Constantine, King of Cornwall, was converted by S. Petrock; but the Cambrian Annals give the date 589. If the latter be the true date, then Constantine, the Saint, can hardly be the Constantine assailed by Gildas. Nor is it easy to see how he can have been a disciple for a short while of S. David. The simplest explanation is that the date in the Annals is wrong by some thirty years.

The story of the conversion of S. Constantine is that he was hunting, when the beast he pursued took refuge in the cell of Petrock, who protected it; and the king was so touched by the sanctity, the reproaches and exhortations of the holy abbot, that he placed himself in his hands, that his penitence might be directed aright.

Constantine remained near at hand, where is now the ruined church that bears his name, situate in the sands, in the parish of S. Merryn, to whose oversight, perhaps, S. Petrock gave the aged king. After a while, Constantine went to Menevia, to be advised by S. David.

From Menevia, Constantine went into Ireland and then to Scotland, where he founded a monastery. In the Aberdeen Breviary it is said that the cause of his conversion was grief at the loss of his wife. It is possible to reconcile the discrepancy between this account and that of Gildas. He had a quarrel with his queen on account of his infidelities, but, in time, it was patched up, and he became sincerely attached to her. She is said to have been an Armorican. The story is well known of how, one day, when in the monastery, he was set to grind corn in a hand

quern, he paused, burst out laughing, and exclaimed, thinking he was alone, "Who would suppose that I, who do this, am a king!" but he was overheard, and so his condition was discovered. Besides the church of Constantine, in the deanery of Penwith, there is that just mentioned, on the sands in the parish of S. Merryn, on the site of his oratory when doing penance after his conversion. The church also of Milton Abbot, in Devon, owns him as patron, and there was a chapel dedicated to him in Marazion.

Near the ruined church in S. Merryn, is the Holy Well.

The feast of S. Constantine, in Kerrier, is March 9th. At S. Merryn, it is on March 11th; which is the day in the Aberdeen Breviary.

In the Bodmin Antiphonary, as we learn from William of Worcester, he was entered on March 9, as King and Martyr. In the Aberdeen Breviary he is said to have been assailed by heathen in Kintyre, who knocked him down, and cut off his right arm. Having called his brethren about him, he blessed them, and bled to death. The same Breviary makes him son of Padarn, King of Cornwall, instead of Cadwr, an error through the name of Padarn being more familiar than the other. His death is put down variously at 576 and 600.

In the parish of S. Constantine, in Kerrier, is a Merthan, where, perhaps, there may have been a *Martyrium*, a memorial chapel to him as a martyr.

In Grandisson's time, there was a legendarium in the church of S. Constantine (1331) which certainly contained his legend complete.

There was a chapel of S. Constantine in Illogan.

The Irish Martyrologies notice him. In that of Donegal, in a later hand, he is entered as "Constantine, royal monk at Rathain with Mochuda, son of Fergus" on March 11. The Martyrology of Tamlacht says that this was Constantine the Briton, or else Constantine, son of Fergus, who was of the Picts.

Constantine, monk of Rathain, flourished about A.D. 588, and Constantine, son of Fergus, died in 820. Constantine, the king, is mentioned in the Feliré of Oengus, as the abbot of Rathen in King's County. It is most probable that several of the same name have been confounded together.

In Art he should be represented with a quern and a crown at his feet.

S. Corentine, Abbot, Confessor.

This Saint was the son of one of the refugees from Britain in the 5th century. He retired into a solitude in Plou-Modiern in Armorican Cornouaille, and was granted lands by Grallo. He is reckoned the first Bishop of Quimper, and he signed the Canons of the Council of Angers in 453. Among these was one condemning "those vagabond monks who ramble about unnecessarily, and without letters of recommendation," a blow levelled against the Celtic Saints, who were greatly addicted to this rambling, but who did so to good purpose, for the establishment of *lanns* or religious centres for the several clans or tribes.

Corentine had a little pool, with a spring of water in it, near his cell. By a special miracle, a fish lived in this basin, which served Corentine with a meal every day. He put his hand into the water, drew out the fish, cut off as much of its flesh as he wanted, and then threw it back into the spring, where it recovered itself before his next meal. There was a lame priest, a hermit, named Primael, who had a chapel at Château-neuf-de-Faon. Corentine went to visit him. He slept the night at his hermitage, and next morning, Primael went to fetch water from the spring, which was at some distance. As the old man was lame, and the way was long, Corentine pitied him, and driving his staff into the ground, elicited a bubbling fountain at the hermit's door.

Two eminent saints visited him one day. Corentine was in despair. He had flour, and could give them pancakes for dinner, but pancakes, before it was understood how to season them with sugar, nutmeg, and lemon, were thought to be very insipid. He went to his fountain to have a look at his fish. It would be killing the goose that laid the golden eggs, if he broiled for his visitors the entire fish. But, to his great joy, he found the spring full of plump eels. He cooked them for dinner in light wine; and his visitors left, licking their lips, and praising heaven for having given them so dainty a meal.

However, one day King Grallo lost his way when hunting, and arrived hungry at the cell of the saint. Corentine was obliged then to cut a large slice out of the back of his fish. The king's cook, without whom Grallo prudently did not lose himself, scoffed at the small supply, but as he began to fry the slice of fish, it multiplied in the pan sufficiently to satisfy the king and all who came up to the hermitage. Grallo was naturally curious to see the fish itself, and Corentine took him to the fountain, where they found the creature frolicking about quite uninjured. An attendant of the king tried his knife on the fish, and the wound remained unhealed till Corentine discovered what had been done, restored the fish to soundness, and bade it depart lest it should get into mischief again through the concourse of the curious, who would be sure to come to the fountain on hearing of the miracle. The prose for the feast of S. Corentine in the Quimper Breviary says that it was the bishop of Léon who tried his knife on the fish, but the lesson for the festival in the Léon Breviary repudiates the charge, and lays the blame on an attendant of the king. Grallo, charmed with the miracles he had witnessed, presented the forest and the hunting-lodge of Plou-Vodiern to the saint.

Corentine had several disciples, but the most eminent of these was S. Winwaloe.

Corentine is believed to have died about 460. What was his connexion with Cornwall is difficult to determine. It is probable that Cury was a foundation made by Breton settlers planted by King Athelstan after 935.

In the Exeter Martyrology his feast is marked on May 1st, but in the parish of Cury it is observed on November 2nd.

In the dioceses of Léon, Quimper, and S. Brieuc, his day is December 12, in that of Nantes, on Dec. 11.

Cury parish, it will be noticed, adjoins that of Gunwaloe, dedicated to his illustrious disciple, S. Winwaloe.

In Britany S. Corentine is invoked against paralysis. He has there numerous churches and chapels, especially in the diocese of Quimper. At Serignac are two chapels under his invocation.

In Art he is represented with a fountain at his side, in which is a fish.

There can be little hesitation in conjecturing that to him has descended a mythological attribute. The sun is the imperishable gold-fish that swims athwart the basin of the blue sky. It dies daily, and as often revives.

The same story attaches to other saints, and therefore it is probably an early myth which adhered, here and there, when the Celtic people adopted Christianity.

S. Cornelius, Pope, Martyr.

Cornelly, as he is called both in Brittany and Cornwall, is the patron of a little church near Tregony, charmingly situated, nestling among trees on the sheltered side of a hill. How Cornelius, Pope and Martyr, should have received veneration in Brittany and Cornwall is difficult to explain, unless the names were taken as having something to do with Corn* (Cornwall). He is the patron of the church of Carnac, where his cult is of a peculiar description. His feast begins on September 13, is attended by enormous numbers, and is celebrated with great pomp; after High Mass, horned beasts are blessed at the door of the church. These beasts, donations of the peasants of Cornelly, are then conducted with a banner borne before them to the fair, where they are sold for the profit of the church, and are eagerly purchased, for the presence of one in a stable is thought to guarantee the health of the rest for a twelve-month. On the same day the inhabitants of Crach and Ploemel arrive in procession to thank S. Cornelly for having delivered their cattle from murrain. The feast of S. Cornelius is on September 16. During the octave, at night, processions of oxen go about, to the number of from twenty to forty, from one village to another.

The whole savours much of a Christian adaptation of an old Pagan sacrifice. But why associated with S. Cornelius is not obvious. Very much the same custom existed in Wales at Clynnog, in the diocese of Bangor. In 1589, in Leland's Collectanea ii, p. 648, is found an account "from the library of

* Cornu,=horn.

John Anstiss, Esq., Garter," of a superstitious practice in Wales- "Being occasioned the last yere to travaile into mine owne native countrye, in North Wales, and having taryed ther but a while, I have harde by dyvers, of great and abbominable Idolatry committed in that countrye, as that the People went On Pylgrymage to offer unto Idoles far and nere, yea, and that they do offer in these Daies not only Money (and that liberally) but also Bullocks unto Idoles. And having harde this of sundrye Persones while I was there,—upon Whitsoundaye last, I went to the Place where it was reported that Bullocks were offered, that I might be an Eye Witnesse of the same. And upon Mondaye in Whitsonne Week there was a yonge Man that was carried thither the Night befor, with whome I had conference concerning the Maner of the Offerings of Bullocks unto Saints, and the yonge man touled me after the same Sort as I had hard of many before; then dyd I aske him whether was ther any to be offered that Daye? He answered that ther was One which he had brought to be offered: I demanded of him where it was? he answered, that it was in a close harde by. And he called his Hoste to goe with him to see the Bullocke, and as they went I followed them into the Close, and the yonge Man drove the Bullocke befor him (beinge about a yere oulde) and asked his Hoste what it was worth? His Hoste answered that it was worth aboute a Crowne, the yonge Man said it was worth more, his Hoste answered and said that upon Sonndaye [Note by Leland: By the which Words it is manifest that there was another offered that Daye.] was Senight Mr. Viccar bought here a Bullocke about the Bigness of your Bullocke for Sixteen Groats, therefor you are like to have no more for yours; then the yonge Man said, How shall I do for a Rope against aven to tye the Bullocke with? His Hoste answered, We will provyde a Rope; the yonge Man said againe, Shall I dryve him into the Church-yarde? His Hoste answered, you maye; then they drove the Bullocke before them toward the Church-yarde: And as the Bullocke dyd enter throughe a litle Porche into the Church-yarde, the yonge Man spake aloude, THE HALFE TO GOD AND TO BEYNO. Then dyd I aske his Hoste, Why he said the Halfe and not the Whole? His Hoste answered in the yonge man's hereing, He oweth me thother Halfe. This was in the Parishe of Clynnog in the Bishopricke

of Bangor, about Fifteen Myle from Bangor, in the yere of our Lord 1589.....There be many other things in that Countrye that are verye grosse and superstitious: As that the People are of Opinion, that Beyno his Cattell will prosper marvelous well; which maketh the People more desyrous to buye them. Also, it is a common Report amongest them, that ther be some Bullocks which have had Beyno his Marke upon their Eares as soone as they were calved."

The indignation of the narrator seems to be very unreasonable. One cannot see what difference there is between giving in money, or in kind. But that this was a survival of a sacrifice of a horny animal is possible enough. The custom at Clynnog spoken of, has fallen into disuse only within the present century; till a hundred years ago it was usual to make offerings of calves and lambs which happened to be born with a slit in the ear, popularly called *nôd Beuno*, Beuno's mark. They were brought to church on Trinity Sunday, and delivered to the churchwardens, who sold them, and put the proceeds into a great chest, called *cyff Beuno*. This was made of one piece of oak, secured with three locks, which gave rise to the Welsh proverb, when a person attempted any very difficult thing, "You may as well try to break open S. Beuno's chest." In illustration I may quote a fact from the borders of Dartmoor, that took place as late as 1879. A farmer from Highhampton, whose name I know, but which I do not give,—as he is still on his farm, and my informant requested me not to publish it,—having had bad luck with his cattle, several of which died of disease, on his farm of C., in the parish of M., took a sheep on to the moor above his house and burnt it there, as a sacrifice to the Pixies. After that, his cattle recovered and did well. The particulars were given to me, in 1893, by one who had been told them by the farmer himself.

S. Creda, Widow.

In the life of S. Canice, and in a few stray notices elsewhere, is all we learn about this Saint.

She was the daughter of Senach Ron, son of Nathi of the Huy Eircc family. He is called Ron or Ronan, king of Leinster, but he was not more than a chieftain. He retired from the

world into a monastery, and became an intimate friend of S. Canice, who calls him "one of my monks," or, in another copy, "one of my friends." S. Canice was a pupil of S. Cadoc of Llancarvan. One day he told his monks that he had heard the voice of Senach Ron calling him, as from a great distance, and that he knew he was dead, but that he had striven with Satan to save the soul of his disciple. Senach Ron had been killed in the South of Leinster. Senach was of Inverk in the south-west of Ossory which was occupied by his clan, the Huy Ercc, and was a cousin of S. Colman of Iverk.

One day Findach, a robber, came to the church near the house where Creid was, and concealed himself in a thorn tree above the Holy Well, hard by, waiting for an opportunity to break into the church and rob it.

Whilst he was there concealed, Crida or Creid came to the well to wash her hands. Findach, beholding her beauty, forgot about the church treasure and carried her off, instead. By him she became the mother of S. Boethin, who is commemorated on May 22.

In the Feliré of Aengus she is spoken of thus:—

> "Cred, good was the woman,
> Daughter of Ronan, King of Leinster.
> With her loveable church, constant, pure,
> Mother of Boethin, son of Findach."

In the Martyrology of Donegal, on August 11, is the commemoration of "the Daughter of Senach," but it does not give her name.

She had a church at Kilcredy, in the deanery of Ida, dedicated to her, and that was probably the place of her residence. Another of her churches is Kilcready in Upper Ossory. These two churches, and another in Rosture, now Rosmore, near Kilmanagh, are the only mementos of her existence in the land.

Aedh, son of Senach, was one of the ecclesiastics who accompanied S. Moling, Bishop of Ferns, about 673, to obtain the remission of the Boromæan tribute of cows paid by the Leinster men to the King of Ireland. It has been supposed that he was brother of S. Creid, but it is hardly possible to put Crida so late. S. Canice, her father's friend, died at the age of

eighty-four in 598; there is no reason for supposing that Senach Ron became a monk and died, till he was at a good age, and I do not see how we can put S. Crida down as living later than 670. Aedh must have been a grandson and not son of Senach. She must have had sisters, for the Martyrology of Tallaght gives, on August 11, "The daughters of Senach."

In Bishop Stapeldon's Register, Creed is called Ecclesia Sanctæ Cridæ (1310), so also in that of Bytton (1314); and in the Taxation of Pope Nicholas IV.

It may be noticed that Creed is not in the district colonised by SS. Senan, Ia, Erc, Briacha, Burien, and Kieran. But then she belonged to a century, or nearly a century, later, viz. to that of S. Finbar, with whom possibly she may have come.

On account of the population having drifted to Grampound, the church of S. Creed has been allowed to fall into a condition of ruin. It is picturesquely situated, and is very late in architecture.

S. Creed Feast is on the Sunday nearest to November 30th.

In 1411, Ralph Tregrisiou, Dean of Exeter, bequeathed to the church of S. Crida, the Virgin, "ubi fui oriendus," 40^{sh} to the store for the church, and a silver cup engraved with the Arms of the See. A fresco representing a female saint labelled "S. Crede," crowned, and holding a sceptre, was uncovered in Lanivet church. There was a chapel of S. Crida at Padstow.

S. Credan, Confessor.

Leland (*Coll.* I, 10) says that the body of this saint reposed at Bodmin; that he with Medan and Dagan or Dechan were disciples of S. Petrock is not to be doubted, Leland says as much.

He was the son of Illadhan or Iolladan, whom we find at Illogan, and is variously called Criotan, Critoc, Cred, and Credan, also Mocritoc. The terminations *oc* and *an* are used indifferently as diminutives.

How long Credan remained with S. Petrock we do not know, but he must have left him to make a foundation of his own, for we have him at Sancreed, entered in Grandisson's

Register as S. Credus, 1331 and 1332. In Bishop Stafford's Register he becomes S. Sancreotus, but in the Taxation of Pope Nicholas he is S. Credus. He went to Ireland and settled at Aghamanach in Moyne and Ballinachor in the County of Wicklow. It is "The plain of the monks," encircled by sheltering hills in a highly romantic situation. Not far off, are the townlands of East and West Macreddin or Moycredin, the *Magh*, or plain, of S. Credan. Illadhan, his father, was son of Cormac, king of Leinster, who abdicated in 535, and became a monk. His great-aunts were baptized by S. Patrick about 460.

The aunts of S. Credan were, as I hope to show later on, the founders of a church at Camborne, and one at Sithney. As Illadhan died about 560, we may suppose that Credan died in 590.

As already stated, (*see* S. Carantoc, p. 501), Credan seems to have been associated for a while with S. Cairnech of Oriel (Donnycarney), who is to be distinguished from Cairnech or Carantoc, who lived earlier.

S. Credan's day in the Irish Calendars is May 11.

S. Crewenna, Virgin.

This Saint, according to Leland and William of Worcester, was one of the party of Irish that came over and settled in Penwith and Kirrier at the dawn of the 6th Century.

The Parish Church of Crowan is dedicated to her, and her feast is observed on February 2.

The Bollandists gave her on Oct. 27.

The name is common in the Irish Calendars as Croine. She has left her name at Kilcrony, in Wicklow. She was of the race of Maine, son of Niall of the Nine Hostages. Ainmire, King of Ireland, 568-571, was her brother. Her father was Setna Mac Erc, son of Fergus, son of Conall Gulbain, son of Niall. Her day in the Irish Calendars is January 27. She had, however, a kinswoman of the same name, also a saint, commemorated on July 7.

She is invoked in S. Moling's poem on the Saints of Leinster:—

"O Nun from Cetharladit,
O highly happy nun,
O Cron, daughter of Setna,
Bless the track of my way!"

In the Life of S. Molua, of Clonfert, we have a story relative to Croine, who is represented as his sister, but as he was son of Carthagh the Red, this cannot have been, and she was only his spiritual sister, or else the Croines must be distinguished.

Molua had been on a visit to Wexford. On his return to his own people, he found his sister Croine dead, or apparently so, and the women were weeping around her.

"May there be everlasting joy for thee in heaven, sister!" exclaimed S. Molua. Hearing his voice, she opened her eyes and smiled. Then he bade her rise and accompany him to the church, where he celebrated the Eucharist and communicated her. And when he had so done, she said "I am aweary, let me enter into my rest."

So she returned to her bed, laid herself down and died.

S. Setna was a friend of Molua, and the latter may have entrusted his sister to Setna to bring over to Cornwall. But Molua's death in 608 is too late to allow that his sister can have come across with the first swarm of Irish Saints.

S. Cross.

Grade Church, in Bishop Stapeldon's Register is entered, in 1317, as Ecclesia Sanctæ Crucis in Kerrier. It has been suggested that S. Critha is S. Cross, but there is no evidence to favour such a suggestion. There was a church of the Holy Rood at Bodmin, at a much later date. Its tower remains.

S. Cuby, Abbot, Confessor.

This Saint was son of Selyf or Solomon, King of Domnonia, and nephew of S. Cador or Cadwr, Duke of Cornwall, and of S. Jestyn.

S. Cuby has been well treated by Mr. Adams, in the "R.I.C. Journal," vol. ii, p. 314.

He was born in Cornwall, between the Tamar and Lyner.

His mother was Gwen, daughter of Gynyr, of Caer Gawch, and sister of Non, mother of S. David. It is certainly remarkable that it is precisely in this neighbourhood, that we find the great sanctuary and extensive parish of Altarnon. If Non were there, she must have been very near to her sister Gwen.

His father, so says the "Life," was a man of war, but Cuby was sent early to school to be brought up to the peaceable avocation of a Saint.

At the age of twenty-seven Cuby went to Jerusalem, and on his way home, so says the story, he was ordained Bishop, by Hilary of Poitiers, and on the strength of this statement he is entered in some lists as Regionary Bishop of Poitiers. But S. Hilary died in 369, more than a century and a half before. The mistake arose through confounding Hilary with Elian, Cuby's friend and companion. We have no reason to believe that Cuby ever was a bishop.

On Cuby's return to Cornwall, "he was asked whether he would be King of the Cornishmen?—but he would not accept the power of the present world." The period was a troubled one, Melyan the Prince had been murdered by Rivold, whom Leland calls "invasor Cornubiæ," and Cuby left the peninsula for Edelygion, in Gwent.

The Life, which is concerned only with Cuby's acts in Wales, passes over the whole of his doings in Cornwall, but he must have been there some of the "fifty years" that he was with Elian who is transformed into S. Hilary.

His principal Cornish settlement was near Tregony, at that time a place of importance, for "the tide then flowed far above the town, bringing merchant vessels to the very base of the Castle-hill; and the main street of the town sloped down to a quay, whence the mineral treasures of the central mining district were exported. Tregony was at that time one of the most thriving and populous towns west of Exeter."*

Here he had a Sanctuary, which implies the establishment of an ecclesiastical tribe. Within a walk was Dingerein, the

*Rev. J. Adams "Chronicles of Cornish Saints" in Journal of the R. Inst. of Cornwall for 1867.

palace of his cousin Geraint II. It is possible also that he had a church at Veryan, the old name of which was Elerkey which may be a corruption of Eglos-Cuby. But whether so or not he had one, and a holy well likewise, at Duloe. At Exeter, in the British town was a church, afterwards known as S. Cuthbert's, which may have been a foundation of his, as is Cubert on the North Coast of Cornwall, now also attributed to S. Cuthbert, but where the parish feast, held on S. Cuby's day, testifies to the earlier dedication.

In Gwent, S. Cuby, with ten disciples, planted himself "in a meadow," Etelic, the prince, sent to enquire who had settled on his land without leave. The servant returning, said, "they are monks." Etelic, says the biographer of the saint, at once went to expel the intruders, but his horse fell under him and died. Such an accident was quite sufficient to alarm a superstitious man; he lived in deadly fear of the curses of these all-powerful medicine-men or schamans, the Saints. Moreover, on closer inquiry he learned that Cuby was a man highly connected and with powerful relatives. It was not to the interest of the chiefs of Gwent to quarrel with those of Domnonia. He accordingly gave S. Cuby two pieces of land. Mr. Adams in his notice of S. Cuby in the "R.I.C. Journal," 1867, thinks that Etelic was Prince of a portion of Cornwall, and that the bits of land given him were Landeghe, now S. Kea, and Tregony. But I cannot see this; the pieces of land were the sites of Llangyby and Llandaverguer. Llangyby is in Monmouth, the other place may be Llandovery otherwise Llandingat, in Carmarthen. Apparently S. Cuby was at the Synod of Llandewy Brefi, and in its neighbourhood is the latter church then founded by him.

After a while Cuby crossed into Ireland, taking with him his uncle Cyngar, who was very old and could no longer eat solid food. He therefore kept for him a cow. The cow's calf was stolen by Crubther Fintan, a chief, and the cow would not yield her milk when the calf was away. Cuby prayed, and the calf came bounding back; it had dragged its rope and torn away the bush to which it had been attached.

Crubther made the place too hot for Cuby, and he was obliged to leave. He and his disciples constructed a coracle,

covered with hides, and committed themselves to the sea. They crossed into Wales, where, at the time Maelgwn Gwynedd was King paramount, and in Wales Cuby's most important establishment was Caergyby or Holyhead, in Anglesey, and there he had his friend Elian near him, and died there about 566.

The feast of S. Cuby, at Tregony, is October 4.

The feast, at Cubert, is on November 9.

According to the "Life of S. Cuby," his festival is celebrated "on the 8th day of Nov., that is, on the sixth of the Ides of November." It is however generally observed on the 9th, probably the day of his interment.

In the Welsh Calendar, published in the "Iolo MSS.," on November 5.

A Calendar of the 12th century containing Welsh Saints, now in the British Museum, gives Nov. 7, but this is probably a mistake.

A short Latin Life is in Rees's "Cambro-British Saints," it was composed in the 12th century.

A saying of S. Cuby has been preserved:—"There is no disaster like Sin."

S. Curig, Bishop, Abbot, Confessor.

Curig "the Grey" is remarkable as the only known instance of a Welsh Saint of ignoble birth. His parentage was humble, but he forced his way into esteem by his holiness of life, his austerities, and his great work for souls.

He was a disciple of S. Tugdual, and accompanied him from Wales into Armorica, when the family of refugees to which Tugdual belonged, thought it safe to return.

He remained, for a while, with his master at Treguier, but presently swarmed off with twelve companions to Loc-Kirec.

His fame having reached S. Paul of Léon, that Saint visited him, and found him wearing one garment only, and living on bread, water, and a few herbs. S. Paul ordained him bishop and employed him in Léon. He was attacked by fever near Landernau, and died on the 17th of February, about 547.

Giraldus tells us that, in his time, his crozier was preserved at S. Harmon's, near Llangwrig, in Montgomeryshire.

He must have been at some time in Cornwall, along with his master, for the church of Egloskerry was placed under his patronage conjointly with S. Petrock. It is probable that elsewhere he has been displaced to make room for S. Cyriacus, either with or without Julitta, mother of the latter.

Newton S. Cyres, near Exeter was, probably, previously dedicated to S. Curig; now it is supposed to have Cyriacus, the boy-martyr of Tarsus, as its patron.

Luxulyan church is dedicated to SS. Cyriacus and Julitta, so also is Calstock.

The Cell in S. Veep (S. Cadoc's), though entered in the Episcopal Registers occasionally as S. Cyriacus, was dedicated to S. Caradoc.

Two hymns by S. Curig, in Welsh, have been preserved and are printed in the "Lives of the Cambro-British Saints." The Life of S. Curig is in Le Grand, from the legendaries of Léon and Folgoat. This gives no account of his labours elsewhere than in Brittany.

There he is called either Kirec or Guevroc. At Perros-Guirec, in Cotês du Nord, he is patron of the parish church and also of a chapel.

His festival, in Brittany, is February 17; but in Wales, as well as elsewhere, he has been melted into S. Cyriacus and is there commemorated on the day of that child Saint of Tarsus, June 16.

S. Cynog, King, Confessor.

A feast of SS. Cadoc and Cynog was kept at Padstow, on January 24.

Cynog was one of Brychan's sons, he was in fact his eldest by Banhadlwedd, daughter of the Prince of Powys, whom he had seduced. It is questionable whether Cynog had or could claim tribal rights, and he was forced to adopt the ecclesiastical profession and form a tribe of his own out of refugees.

When Cynog was born, his mother brought him to the Caer, where Brychan then was, and presented him to his father, who took off the bracelet from his arm, and gave it to the child. "This bracelet," says the author of the "Cognatio," about 900, "is preserved in the district of Brecknock among its precious relics, to the present day."

Cynog obtained some patches of land, here and there, and founded several *llans*. He is said to have been murdered at a place called Merthyr Cynog, in Brecknockshire.

It is by no means improbable that he came into Cornwall when the great invasion took place, headed by his kinsmen, and that we have him at Boconnoc and at S. Pinnock (*see under* Pinnock). A saying of his has been preserved:—"Half of learning is in the Head." That is to say,—a readiness of mind to acquire knowledge, is half the matter.

S. Cynog's day is October 7.

[*To be continued.*]

	Mollusk larvæ.	Trochiata.	
	—	—	
	—	—	
	—	—

Date.	Wind.	Surface temperature.	Tide.	Locality.	Algæ & Diatoms.	Infusoria and Radiolarians.	Medusæ.	Echinoderm larvæ.	Worm larvæ.	Chætognaths.	Crustacean larv.	Entomostraca.	Mollusk larvæ.	Tunicata.
1897.														
Jan. 7th.	S.E.	48°F	ebb.	Harbour.	—	—	—	—	—	2 Sagitta bipunctata. 1 Spadella cephaloptera.	—		—	—
,, 11th.	calm.	47°9 F	h.w.	do.	—	—	—	—	—	1 Sagitta bipunctata.	—	—	—	—
,, 12th.	S.E.	47°6 F	flood	do.	Coscinodiscus.	—	1 dead, unrecognizable.	—	—	—	—	Clausia elongata A. Corycæus anglicus A. Calanus finmarchicus A.	—	—
,, 18th.	E.	45°9 F (noon)	flood 1 hour	½ mile South of Lighthouse.	3 Halosphæra viridis.	1 Acanthometra elastica †	Mugiæa atlantica Phialidium temporarium (Browne).	—	—	Sagitta bipunctata.	—	1 Centropages typicus † Clausia elongata A.	—	3 Appendicularia.
Feb. 26th.	W.	47°9 F	¾ on flood.	Harbour.	—	Campanella Pelagica A.	—	1 plutus larva.	—	—	—	1 Evadne Nordmanii † 1 Thalestris mysis * Oithonia spinifrons A.	Veliger larvæ.†	1 Appendicularia.
Mar. 25th.	S.W.	49°F	h.w.	¼ mile South of Pendennis Point.	Rhizosolenia.	—	1 Obelia lucifera.	—	—	—	Decapod larva zoëa stage.	1 Clausia elongata B. 1 Corycæus anglicus. Euterpe gracilis A.		
Apr. 8th.	S.W.	47°6 F	½ hour ebb.	Harbour.	1 Halosphæra viridis. Rhizosolenia A. Tetraspores A.	1 Noctiluca. 1 A. Elastica †	—	Plutei A.	Polychæte larvæ A. trochospheres.	—	Cirripede Naup B. Zoëæ B.	Corycæus anglicus.* Oithonia spinifrons. Clausia elongata. Evadne Nordmanii A.	Veliger larvæ.	Appendicularia A.
,, 13th.	S.E.	49°F	¾ flood.	do.	Tetraspores Coscinodiscus B.	—	Obelia lucifera A.	—	do.	—	do.	1 Clausia elongata B. Euterpe gracilis. 1 Centropages typicus. 6 Podon. Evadne Nordii A. 3 Microniscus calani.	— —	
,, 27th.	E.	50°6 F	flood.	do.	Tretraspores. Rhizosolenia B. Coscinoliscus B.	—	Obelia lucifera A. Phialidium temp. A. 3 Sarsia tubulosa.	—	do.	—	Decapod larvæ var. species. Zoëæ A.	Clausia elongata B. Temora longicornis B. Dias longiremus B Evadne B. Podon B. Corycæus anglicus B. Calanus finmarchicus B. Euterpe gracilis.	— —	
May 11th.	N.W.	51°F	¾ flood.	do.	Tetraspores. Coscinodiscus B.	—	Obelia lucifera A. Sarsia tubulosa B. Phialidium temporarium. Willia stellata A.	—	do.	—	do.	Clausia elongata B. Temora longicornis B. Dias longiremus B. Evadne Nordii. A. Corycæus anglicus A 1 Microniscus calani	Veliger larvæ.	
,, 20th.	S.W.	52°F	flood.	2 miles South of Pendennis Point.	Tetraspores. Coscinoliscus A.	—	Same as on 11th.	—	do. B.	—	do.	Oithonia spinifrons A. Dias longiremus A 1 Podon. intermedius. Euterpe gracilis A.	do.	Appendicularia A.
June 2nd.	E.	53°9 F	h.w.	Harbour.	—	—	Obelia lucifera A. Sarsia prolifera.	—	do.	—	Decapod larvæ var. species A.	O. Spinifrons A. Clausia elongata C. Evadne Nordmanii. A. Centropages typicus A. Dias longiremus A.		Appendicularia B.
,, 10th.	W.	56°3 F 2.15 p.m.	flood.	Falmouth Bay, 3 miles out.	—	—	—	Plutei A. Auricularia A.	Polychæte larvæ A.	—	Decapod larvæ var. species A.	Clausia elongata B. Evadne & Podon A.		Appendicularia A.
,, 12th.	S.W.	55°F	do.	Falmouth Bay.	—	—	—	—	—	—	Decapod larvæ var. species A.	1 Anomalocera Patersonii. Podon A. Centropages typicus A. Clausia elongata A.	— —	—
,, 19th.	N.W.	58°6 F	do.	Harbour.	—	—	Sarsia Prolifera B. Obelia lucifera A. Lizzia octopunctata.	—	Terebellid larvæ. larvæ of Leucodore ciliata (?) A.	—	—	Dias longiremus A. Oithonia spinifrons. Clausia elongata A. 1 Monstrilla rigida *	—	— —
,, 29th.	W.	58°3 F 7 a.m.	do.	Off Helford Estuary.	—	—	Phialidium temporarium.	Plutei.	do.	3 Sagitta bipunctata.	Decapod larvæ Zoëæ and megalop.	Dias longiremus. C. finmarchicus. O. elongata B.	Veliger larvæ.	— —
July 6th.	S.W.	59°6 F	h.w.	Falmouth Bay, 4 miles out.	—	—	Phialidium temp. A.	Plutei C.	1 Tornaria. 1 Holothurian larva very advanced.	Sagitta bipunctata B.	do.	Dias longiremus B. C. finmarchicus and Anomalocera Patersonii A. C. elongata B.	do.	—
,, 23rd.	W.	63°F 3 30 p.m.	do.	Bream Bay.	—	—	—	Plutei C.	2 Tornaria larvæ. 1 Holothurian larva.	Sagitta bipunctata A.	Do., also a few larvæ of Penæus (?)	Centropages typicus A. 6 Corycæus anglicus. O. Spinifrons. Dias longiremus A.	do.	Appendicularia B.
Aug. 5th.	S.W.	63°F	do.	do.	—	—	Mugiæa atlantica.	Plutei B.	—	do. B.	do. A.	Calanus finmarchicus B. Dias longiremus B. O. spinifrons B. & Anomalocera Patersonii B. Centropages typicus A.	do. B.	do. B.
,, 13th.	S.W.	60°F 3.45 p.m.	do.	Falmouth Bay, 3 miles out.	—	—	Mugiæa atlantica with stolons. Lizzia octopunctata. B. obelia lucifera.	do.	—	do. gonads ripe.	—	Podon & Evadne A. others as on 5th.	do. B.	do. B.
,, 15th.	S.E.	60°9 F	ebb.	1 mile South of Lighthouse.	—	—	Mugiæa atlantica. Obelia lucifera B. Lizzia octopunctata B.	—	2 Pilidium larvæ. 1 Terebellid larva.	—	Cirripede Nauplii A. larvæ of Leucodore ciliata (?) A. larvæ of Penæus (?) A.	Clausia elongata. O. spinifrons. Calanus finmarchicus, all A. 1 Corycæus anglicus* 6 Evadne Nordii.	Veliger larvæ. 2 larvæ of Nereis Punctilineata.	do. B.
,, 19th.	N.W.	59°F	do.	Bream Bay.	—	—	Mugiæa atlantica 4 Phialidium Buskianium. Obelia lucifera B.	—	—	Sagitta bipunctata A. gonads ripe.	do.	Calanus finmarchicus B. Dias longiremus A. 3 C. anglicus.*	Veliger larvæ.	do. B.
,, 23rd.	S.W.	57°F	flood.	Falmouth Bay, 3 miles out.	—	—	Obelia lucifera B. Mugiæa atlantica A.	—	—	do.	—	Centropages typicus A. C. anglicus B. Evadne.* 1 Microniscus calani. Centropages typicus.	do.	do. A.
,, 27th.	S.W.	57°6 F	low water.	Off Pendennis Point, 1 mile.	—	—	Mugiæa atlantica B. Lizzia octopunctata A.	Plutei A.	—	do.	Zoëæ var. spec larvæ of Penæus (?) A.	Corycæus anglicus. Dias longiremus. Evadne* and Podon,* all A. Clausia elongata B.	Veliger larvæ B.	do. A
Sept. 7th.	N.W.	56°9 F	flood.	Bream Bay.	—	—	Obelia lucifera Leptomedusæ A. species uncertain.	—	1 Terebellid larva.	1 Sagitta. bipunctata.	1 Calagus rapax larvæ of Penæus B.	Evadne.* Podon* Dias longiremus. Clausia elongata B. C. anglicus. Oithonia spinifrons.	—	— —
,, 10th.	E.	57°F	flood 2 hours.	Falmouth Bay, 2 miles out.	Chætoceros B.	—	—	Plutei.	—	—	Cypris stage of Balanus B.	Evadne,* Podon,* Corycæus anglicus B.		
,, 15th.	N.W.	58°F 4.20 p.m.	flood.	Harbour.	Chætoceros B. Rhizosolenia B. Diatoms C.	Noctiluca miliaris B	Mugiæa atlantica. Obelia lucifera. Lizzia octopunctata. ,, blondina B.	Plutei advanced stages.	Actinotrocha.	—	do. larvæ of Hippolyte (?) (B).	Centropages typicus. Anomalocera Patersonii. Clausia elongata, all A. Oithonia spinifrons B. Evadne* and Podon* A.	— —	— —
,, 22nd.	N.W.	57°6 F 3 p.m.	do.	Falmouth Bay, 5 miles out.	do.	—	—	do.	do. Spinid larvæ.	—	do.	Same as on 15th. Clausia elongata.	— —	— —
Oct. 5th.	S.E.	57°F 1 p.m.	ebb.	Harbour.	do.	—	Mugiæa atlantica. Lizzia octopunctata.	—	—	Sagitta bipunctata A.	do. A	Clausia elongata B. Evadne* and Podon.* Corycæus anglicus.	— —	
,, 19th.	N.	57°F	h.w.	do.	Ceratium tripos B.	Acanthometra elastica.	1 Beroë ovatus. M. atlantica † Obelia lucifera.	—	—	do.	do. A	Dias longiremus A. Centropages typicus A. Corycæus anglicus D.*	— —	— —
Nov. 16th.	S.	54°F	ebb 1 hour.	do.	—	—	—	—	—	—	—	Clausia elongata A. Corycæus anglicus A Euterpe gracilis A.	— —	— —
,, 18th.	W.	54°6 F	h.w.	do.	—	—	—	—	—	—	—	Clausia elongata B. Centropages typicus. Euterpe gracilis.	— —	— —
Dec. 17th.	S.W.	52°F	do.	do.	—	—	—	—	—	—	—	Clausia elongata A. Corycæus anglicus A. Euterpe gracilis B.		— —

In the above table the following symbols have been used:—

* Ova attached to abdomen; or sexual elements in a ripe condition.
† The specimens recorded were dead.

A.—Few. B.—Average.
C.—Many. D.—Exceptionally abundant.

Date.	Wind.	Temperature.	Tide.	Place.	Diatoms & Other Organisms.
1897.					
Apr. 7th.	[illegible]	[illegible]	[illegible]	Blackman	—
" 11th.	[illegible]	[illegible]	[illegible]	do.	—
" [illegible]	[illegible]	[illegible]	[illegible]	—	—
" 18th.	E.	48°F (noon)	Good 1 hour	½ mile South of Lighthouse.	Halosphæra viridis.
" [illegible]	W.	[illegible]	[illegible] flood.	Harbour.	—
May [illegible]	[illegible]	[illegible]	[illegible]	Pendennis Point.	Lithodesmium [illegible]
Apr. 8th.	S.W.	[illegible]	½ hour ebb.	Harbour.	Halosphæra viridis. Melosoleniis A. Tetraspores A.
" [illegible]	[illegible]	[illegible]	½ flood.	do.	Tetraspores
" 27th.	E.	50°F	flood.	do.	Tetraspores. Coscinodiscus B.
May 11th.	N.W.	51°F	½ flood.	do.	Tetraspores. Coscinodiscus B.
" 20th.	S.W.	52°F	flood.	2 miles South of Pendennis Point.	Tetraspores. Coscinodiscus A.
" [illegible]	E.	[illegible]	[illegible]	Harbour.	—
" [illegible]	N.	[illegible]	[illegible]	3 miles out.	—
" [illegible]	W.	[illegible]	[illegible]	Falmouth Bay.	—
" [illegible]	S.W.	[illegible]	do.	Harbour.	—
" [illegible]	W.	[illegible]	[illegible]	[illegible]	—

FAUNA NOTES FOR 1897.

By RUPERT VALLENTIN, Falmouth.

The absence of Tetraspores from the neighbourhood of Falmouth during the spring of the year, is of sufficient importance to call for special notice. It usually happens that towards the end of every March, the employment of the tow-net, for capturing pelagic forms, has to be discontinued for a month or six weeks, owing to the abundance of these organisms in the sea; but this year, from some cause or other, they were almost absent, and would have entirely escaped notice unless the tow-net had been freely used.

Infusoria. The extreme scarcity of Noctiluca miliaris in this district is also of interest. I made a special point of hunting for specimens of this Infusorian since the beginning of the year, but it was not till the 8th of April, that a single specimen was found, in the gathering made that morning. During the early part of the autumn—15th September—a fair quantity of Noctiluca were secured, but the wind soon changed to the north, and since then they have vanished from the neighbourhood.

There is a singularly delicate little Infusorian usually to be met with in the upper reaches of both Truro river and Penryn creek during the summer months; and after prolonged northerly winds these specimens may even be found in the tidal docks, but never in any quantity beyond that spot. I have been familiar with this species for some years, having first seen them during the summer of 1890. Quite recently, while examining some of the plates in The Annales du Musée d'histoire Naturelle de Marseille,[1] I found some figures of an Infusorian which agreed in every feature with the above-noticed species, and which is named by its discoverer Campanella pelagica.

Medusæ. Ephyræ were exceptionally scarce in the spring of the year, and as a natural consequence the adult medusa, Aurelia aurita was almost absent from the district during the whole summer. I made several trips up Truro river as far as

Malpas, at intervals during the summer and autumn, in quest of them, but never succeeded in finding a single specimen. The first adult Aurelia was seen in the harbour on the 27th of April, and it was found to measure 65 m.m. in diameter. On the 11th of the next month, about a dozen more specimens were seen in the harbour, and after that no more were seen for the year.

On the 13th of June, several Bolina hydatina, and Beroë ovatus, were ladled from the sea inside the Eastern breakwater, but neither of these were noticed in the tow-net gatherings made during that time.

Near the same place, on the 23rd of June, a single specimen of Thaumentias pilosella was secured, this being the only example of that species seen for the year.

While collecting during a spring-tide under the same breakwater, on the 30th of the same month, I saw numbers of Tira octona. The majority of the specimens were small, the largest measuring 5 m.m. in height.

The attractive little gonozooid of Cladonemma radiatum has been exceptionally abundant during the summer and autumn of this year. Its favourite habitat appears to be in small pools of water amid decaying Zostera and other rubbish, at the edge of low water. In a similar spot on the 14th of August, six ambulatory gonozooids of Clavatella prolifera were secured. These specimens were detected the next morning crawling up the sides of the jar in which the water from a small muddy pool had been placed; the six long arms formed the organs for locomotion, the mouth in every instance being close to the glass. Their mode of progression is very slow and deliberate, reminding one very much of a very diminutive brittle-star. According to some authors the arms of this species vary in number. Claparède found that most of his specimens possessed eight arms, and he has met with specimens in which there were two ocelli at the base of each arm. All my specimens had six arms, with a single pigment spot at the base of each. By far the most interesting feature about this gonozooid is that it can increase very rapidly by budding, these buds being formed on the inter-radial spaces. Mr. Hicks[2] states that "Germination is confined to the spring" in this

species.. ., "and, later on in the season, gives place to the production of ova as in the common Hydra." It so happened that several of the gonozooids were actually budding when I discovered them, and in one mounted specimen the bud has just become separated from its parent, owing to the slight pressure caused by the cover-glass.

The polypides have so far escaped my notice; but this is hardly to be wondered at, they are so very minute.

The hitherto known habitats of Clavatella are Whitby, Filey-Brigg, Ilfracombe, and Torquay.

There was an appreciable scarcity of all kinds of medusæ from this district during the whole autumn.

Actinaria. Early in July several living specimens of Gonactinia prolifera were noticed attached to some clean dead oyster valves, which had been obtained from the main channel of the harbour. While removing some of these from the shells with the aid of a fine needle, I was astonished to observe that almost directly the point of the needle came in contact with any part of the adhesive disk of a specimen, it would directly sever its connection with the shell, and swim about in the water quite vigorously for a few moments, by simultaneously opening and closing its tentacles. When this singular method of propulsion was ended, the individual would passively sink in the pan of sea-water, and remain motionless on the bottom till a further stimulus was administered.

This experiment was repeated, on five similar specimens, always with the same result.

Echinodermata. The plutei captured in the tow-net during September were in a very advanced stage of development, the majority of the specimens being furnished with ciliated epaulettes.

A few spherical ova measuring about one and a half millimetres in diameter, were found in the tow-net on the 18th of November, and from thence to the end of the year one or more specimens could be found in every gathering. As soon as an ovum had finished segmenting, it at once left the surface of the pan of sea-water, in which it was placed, and sank a little, and in a few days, when further developmental changes had set in, it remained always on the bottom.

The ova which I had in captivity underwent their developmental changes very slowly. It was not till six weeks had passed that I had several young holothurid larvæ crawling about in pans of sea-water by means of their tentacles. The five transverse rows of cilia were clearly visible at a stage earlier than this.

I have been unable to determine to what species these larvæ belonged, but it must be a common species.

Gephyrea. The developing embryos of Phoronis were noticed in abundance within the tentacles of numerous specimens toward the end of July, but the advanced free swimming form was exceptionally scarce during the whole autumn.

Crustacea. During June and July there were immense numbers of Decapod larvæ in the sea, but to what species they belonged I am unable definitely to determine. Those in the megalop stage, which occurred in such abundance during the end of July, belonged to the genus Portunus, owing to the fifth pair of feet in most of the specimens being flat and broad at their distal extremities.

About this time, during any calm day, it was not unusual to observe specimens of these crustaceans swimming on the surface of the sea, and if a blade of Zostera or a frond of Fucus happened to be near, one could detect a dozen or more of these young forms holding on to the weed, and so being carried along by the current. This curious habit of these young crabs was observed on several separate occasions.

The most interesting crustacean observed during the year, was secured under rather curious circumstances on the evening of the 28th of August. On that occasion I was out in the Bay about three miles from land, and having finished tow-netting, decided to have a little mackerel fishing, as there was every evidence of an abundance of fish in the immediate neighbourhood. On slinging the third or fourth mackerel into the well of my canoe, I noticed a comparatively large sessile-eyed crustacean tumble either from the mouth or back of this fish. I at once picked up the crustacean, and finding it alive placed it in a collecting jar, with some sea-water, and proceeded to examine the mackerel, in hope of finding some more specimens.

During the next half-hour I caught a good many mackerel, but failed to find another crustacean. Being unable to identify this animal, I forwarded it to the Rev. Thomas R. R. Stebbing, who very kindly replied as follows:—"The specimen you send is Rocinela danmoniensis, Leach; first described from a Plymouth specimen. The species appears to be very rare so far south, although it is more common further north." Messrs. Bate and Westwood[3] do not record any of the circumstances under which Mr. Loughrin secured his single specimen of this species while at Polperro.

A closely allied form, Æga monophthalma, is stated by Dr. Johnson to have been "taken adhering to a large cod-fish.... in Berwick Bay." My first impression was that the crustacean was disgorged from the mouth of the fish, but the fact that it lived in a jar of sea-water for two days, seems to show that it was attached to the skin of the mackerel, but I could not find any mark on its delicate skin shewing where the crustacean had been attached.

The Rocinela spent most of its time on the bottom of the jar, but would occasionally swim very rapidly about in the sea-water by means of the foliaceous plates attached to its tail.

Mollusca. Examples of Archidoris tuberculata were, as in previous years, as numerous as ever in the harbour. All other species of nudibranchs have been very scarce in this district during this year. Only one specimen of Antiopa cristata was noticed during the fall of the year, where last autumn they were so very abundant.

Till this summer it has never been my good fortune to secure the ova of Sepia officinalis. I was collecting along the outer edge of the mud-bar at Helford, on the 16th of July, when I noticed a large mass of capsules deposited by these mollusks attached to some blades of Zostera marina. On further examination I found that these capsules had only been recently deposited, so about three dozen were placed the next day in a cylindrical case, each end being closed with fine gauze, and sunk in the sea about a fathom from the surface. Twenty days later the embryos were found to be in an advanced stage of development. Five days later the delicate silvery shell could

be seen through the mantle; but it was not till the specimens had attained the length of 7 m.m. that the chromatophores became visible. I was much interested to observe that on accidentally stimulating an embryo at this stage with a needle point, an immediate discharge of ink from the ink-sac followed; and that this experiment could be repeated with the same results till the animal was exhausted. No changes of interest could be observed with these embryos, other than a decrease in the size of the yelk, and a corresponding increase in the size of the mollusks till the 11th of September, when they began to hatch out, the yelk by this time being quite absorbed. I tried on several occasions to observe an individual free itself from its capsule, but in no instance was I successful. The mollusks, it was noticed, invariably gained their freedom by means of a slit about 3 m.m. in length, which was always found just beneath he far extremity of each capsule. Microscopical examination shewed that the edges of each slit were very jagged, and so it seems very probable that the jaws were used to make an exit for the contained embryo. Three days later all my specimens had hatched, and so one may conclude that an interval of from sixty to seventy days must pass between the laying and hatching of the capsules of Sepia officinalis.

On the 30th of July, while collecting in the calm water under the Eastern breakwater, I got a specimen of Sepiola atlantica under rather interesting circumstances. On securing a large mass of Fucus which was floating on the surface of the sea, my attention was attracted by a small brown object near the centre of the weed, which proved on closer examination to be a specimen of this mollusk.

Having never before found a cephalopod in such a singular hiding place, I thought the capture worth recording.

Pisces. A most brilliantly coloured specimen of Gobius minutus was detected on my small oyster bed on the 17th of March. I was examining my oysters on that morning, during low-water, and while recovering some of the bivalves which had sunk in the mud, I discovered a single oyster shell which had sunk only a quarter of its length in the mud, and, concealed in a small pool of water in front of the shell, was the above-

mentioned fish. Further examination shewed that the interior of the shell was lined with eggs deposited by this species, and I have no doubt that the fish was protecting the ova from predatory animals. The next day I carefully arranged both fish and shell in their original positions, and made an instantaneous photograph of the group, natural size. These ova were found on microscopical examination to be in a very advanced stage of development.

Mr. Holt[4] has fully described and figured the minute structure of the ova of this species.

Although specimens of Centronotus gunnellus have been as abundant as ever during the past year, I have not been able to find a single mass of ova deposited by this species during this spring. This fact is very singular when one considers how very abundant the ova of this species were in the harbour last year.

On the 25th of October, while in my praam, under the Eastern breakwater during a fresh southerly breeze, a single specimen of Brill (Rhombus lævis), was captured in a tin cup. This exceptionally late specimen swam vertically in the water, and measured 18 m.m. in length, the right eye being just on the verge of coming round to the left side of the head. During May, of every year, the young of this species are fairly abundant in the harbour, it being by no means unusual for one to secure several specimens during a calm morning; but to find a specimen in its pelagic stage, so late in the year, is very interesting.

It will be noticed that this year I have drawn up my observations on the plankton in a tabular form, as being more convenient for reference. A glance at the tables will give a general notion of the usual contents of a tow-net gathering made at any season of the year. A closer examination will show the relative quantities of the several species in each collection. Fish ova are not included in these returns.

In my notes on the Fauna of the district, I have incorporated such remarks as I had to offer on specimens secured in the tow-net.

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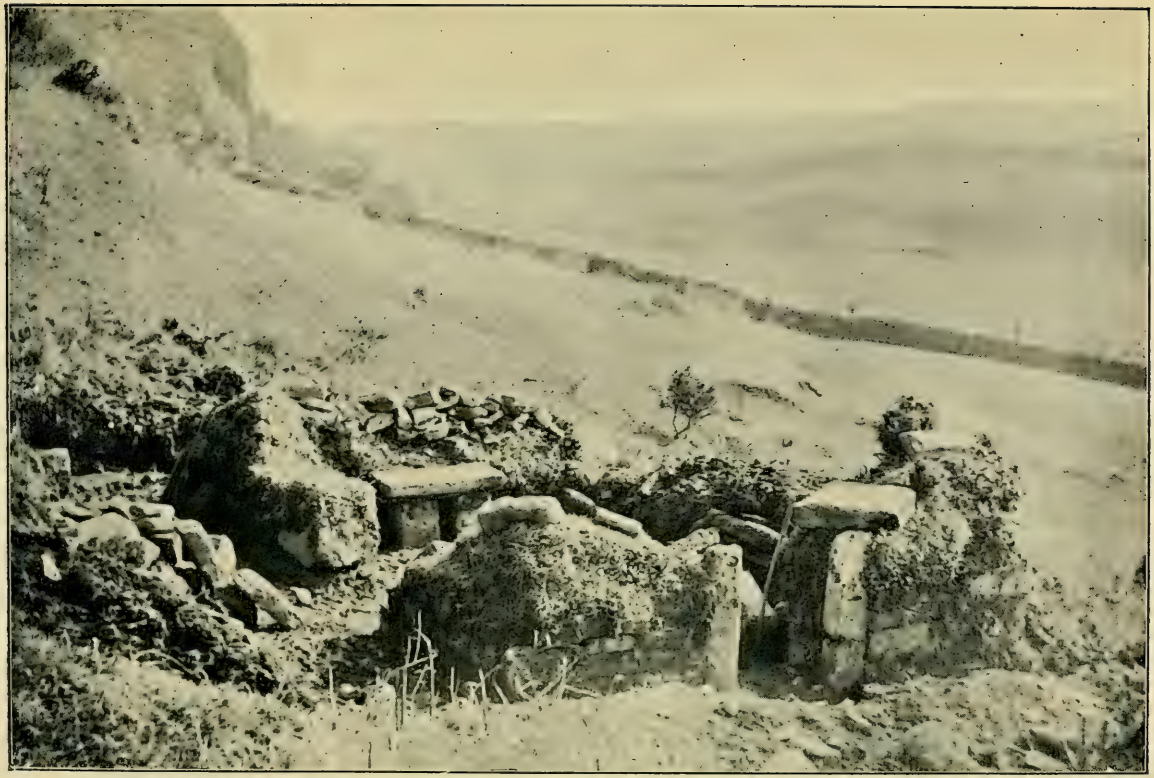
(1). M. Paul Gourret. Considérations sur La Faune Pélagique du Golfe de Marseille, Ann. du Musée d'histoire Naturelle de Marseille Zool. Tom. II.

(2). Thomas Hincks. A History of the British Hydroid Zoophites, 1868.

(3). C. Spence Bate and J. O. Westwood. A History of the British Sessile-eyed Crustacea, 1868.

(4). E. W. L. Holt. Annals and Magazine of Natural History, No. XXXI, July, 1890.



St. Clether Chapel and Wells previous to Restoration.

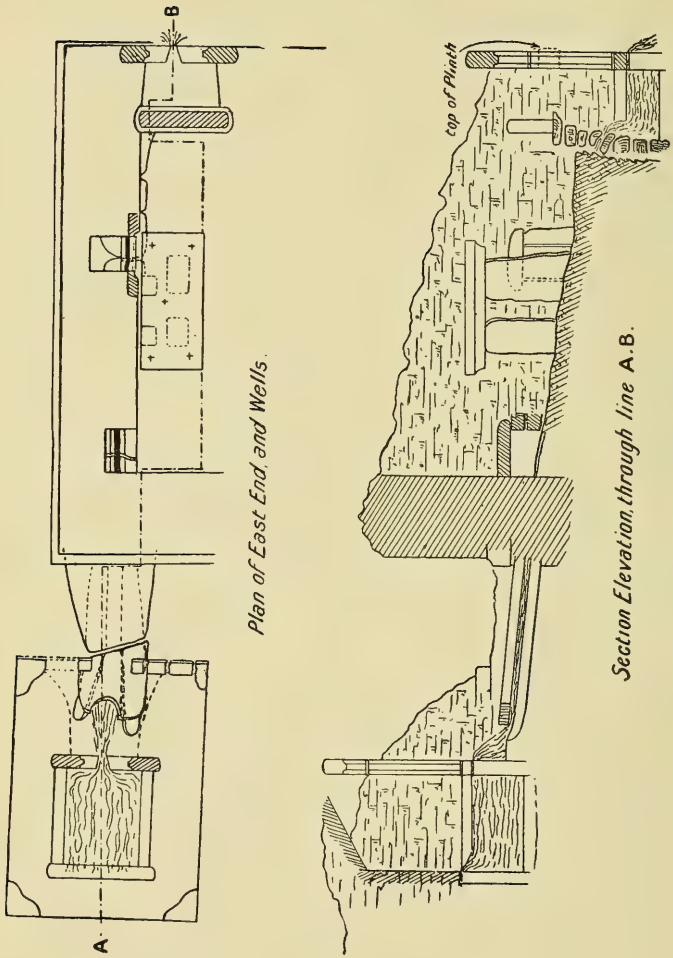
ST. CLETHER CHAPEL AND HOLY WELLS.

By the Rev. A. H. Malan.

When some tentative digging was commenced in 1897, in a certain quagmire about a quarter of a mile South West of St. Clether Church, where were known to be submerged vestiges of a building, there was no idea that the outcome would be the complete restoration of a chapel, and the rescue from oblivion of an unique arrangement of holy wells in connection therewith.

It came about thus. The situation is romantic!—many a young raven has been hatched among the bold, terraced rocks, and many a trout caught in the serpentine Inney just below; some fox-cubs were born and grew up last spring within a stone's-throw, and young hawks were reared hard by. Here had been St. Clether's cell, in an ideal spot,—open to the south, sheltered from the north; here was the well, perhaps pagan, that he blest, and also, no doubt, his baptistery. And this combination of wild nature and early ecclesiastical association, so whetted the antiquarian zeal of Rev. S. Baring-Gould (to whom all that has been done entirely owes its inception), that he put himself into communication with Mr. T. Spry, of Witherdon, the landowner, and was granted permission to ascertain what remains existed.

Whatever building there might have been, had obviously almost buried up its surviving traces amid its own ruins. The front-edge, indeed, of the altar-top could be detected, and a faint tradition existed in the parish that "the water came up from under the altar;" but anything like inspection was quite impossible, in the general tangle of weeds and brambles. In fact all that any visitor could do, when taken by the Vicar, the Rev. F. Partridge, "to see St. Clether's Chapel," was to stand afar off, and catch a glimpse of a bit of wall sticking up in a swamp, or have pointed out to him a hole in the ground whence issued a stream, flowing away into what might possibly be a doorway, and then dispersing in all directions.



EAST END OF CHAPEL AND WELLS, PREVIOUS TO RESTORATION.

Such being the condition of things, manifestly the restorers cannot have laid to their charge any of that spirit of vandalism which delights in pulling down an ancient building merely to set up a modern one in its stead.

The first thing to be done was to get the water under command;—a slushy undertaking, neither easy nor expeditious, as several springs had to be diverted into temporary channels. Draining and excavation soon brought to light the outline of the (upper) holy well, with the jambs in place, the arch (broken), and sufficient walling *in situ* to make it apparent what the well had been like; the oblong trough, of cut granite slabs on edge, proving to be quite perfect, though of course choked up with fallen stones.

At this period it became the intention of Mr. Baring-Gould simply to re-erect this well at his own expense; but clearly some of its stones might have slid down the slope and been submerged, —hence search must be prosecuted with pick and shovel about the north wall of the chapel. This resulted in such encouraging finds, that, while about it, it seemed desirable to excavate all around the foundation courses, and within the area, of the chapel. For, when walls and gables collapsed, part fell in, part fell out, and part rolled downwards; and, until the whole was cleared, it was impossible to know what worked stone there might be.

Having the supervision of this clearance, my attention was first drawn to the inner face of the east wall, about ground-level and close to the north-east corner, where was a small recess, for which no use could be imagined, the sludge under foot preventing adequate investigation. As matters proceeded, the altar was found to be standing on all its four upright supports; and this is a remarkable thing, considering the top merely rests on, and is not mortised on to the legs, and considering the weight of many of the stones that had fallen by its side. Then, at the south end of the altar, in the east wall, another recess was unearthed, larger and altogether more carefully fashioned than the preceding one. Next, forming the inner face of the south wall, at its south-east corner, a granite slab, set on edge and resting on a set-off, was noticed—and severely left alone.

Presently, passing to the outside, and working along the east end, some lengths of gable-coping and heavy wall-plate, the sill, massive jambs, and the tracery of the east window, were laid bare; and when the men proceeded on, and removed the *debris* from the east corner of the south wall, there were found two jambs set in its face, with a granite trough within, and a fallen arch just outside; revealing a second well.

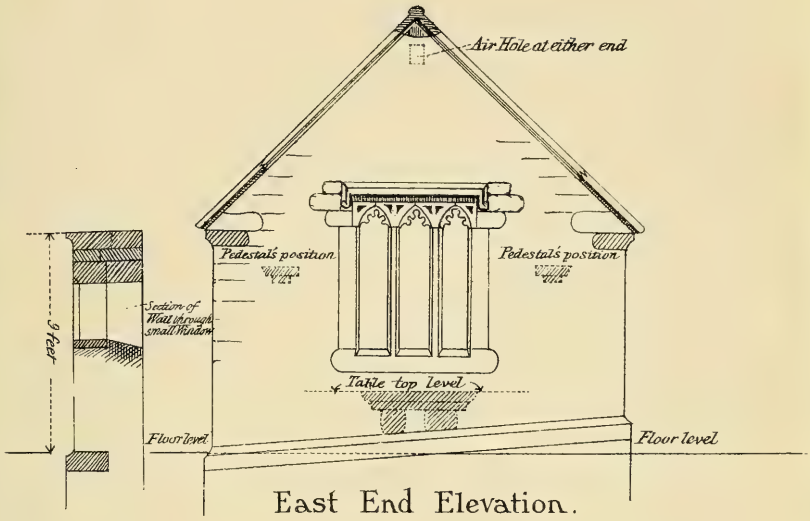
Within this well, above the trough, there was noticed the seeming lip of an out-flow;—giving the first hint that there might be a passage from the upper to the lower well, through the east wall, and *viâ* the *loculi*. To test this point promptly, covering-stones were sought, found, and taken up at the mouth of the upper well, and when a carefully-hollowed granite drain was observed underneath, passing into the East wall, all doubt vanished. Long hazel rods were quickly procured from the river-bank, and pushed up the line of the drain, from each recess, and from the opening in the lower well; and, with first a trickle, then a rush, down came the water through the original conduit, in which it had not flowed for centuries.

It is necessary to be thus precise in description, in order to show that all, having been buried up, had escaped injury. And as, when the bramble roots and loose rubble were cleared off, very particular care was taken that the lower courses of the east wall were left absolutely untouched, the water arrangement is now in exactly the same condition as when the chapel fell; there having been no interference or alteration whatever.

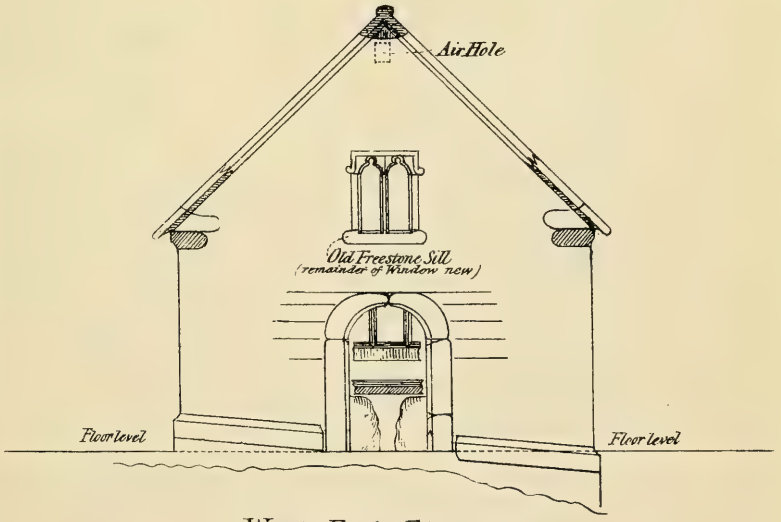
No trace of a floor was found, and scarcely a chip of roofing slate. The walls had apparently a very thin coat of white plaster.

The clearance completed, and pretty well all the wrought-stone forming doorways, windows, wall-plate, and gables being accounted for, it was seen that the Chapel was of fifteenth century architecture, and of rough construction—e.g., nine inches wider at the west than at the east end, with the plinth on the north side nineteen inches higher than that on the south; the altar being roughly cut, the heavy top not even flat, though chamfered underneath, and the front supports merely tapered, to widen at the base. The three-light east window

St. Clether Baptistery.



East End Elevation.



West End Elevation.

SCALE – *One Eighth of an Inch = One Foot.*

was fairly well executed; and two pedestals, for statues, were better cut than anything else. All the worked stone is granite, with the exception of the sill of a small two-light window, of freestone.

Upon such interesting features and so much material being made visible, Mr. Spry, approached once more, came forward with a generous donation; other well-wishers (especially Mr. Baring-Gould) kindly contributed; and thus matters proceeded —with the happiest results. There was no committee, and therefore no committee meetings were held; by mutual suggestion one step after another was decided upon, till the whole was finished.

Practically no difficulty was experienced in getting out the plans for the masons' guidance. The sill of the east window had fallen, but there was still about four feet of wall standing; therefore it could never have been lower than that. The height of this wide window would not permit the walls being much less than nine feet high, and there were not enough coigns for them to be higher than that; therefore nine feet was the height settled upon. The gable-ends and gable-top easily gave the pitch of the roof; the jambs of the west door were in place, and, though those of the north door were fallen, the wall-splay was there, and also the arch-head, to give the width between them. The sill of the two-light window being found outside the west door suggested a position in that gable; and the only other window was a small single-light, of which the position was not ascertained, but which might be set up where it would give most light to an officiating minister. The proper position of the two pedestals was unknown; let them, then, be set on either side of the east window; while, as for two corbels of which the use was not evident but which might have been connected with a screen, let them be set where the ends of a screen-top would most probably have been.

The floor was a problem; no trace, as was said, having been found. There would be probably no step up to the altar; and a level struck from the foot-stone of the west door gave the reasonable height of 2 feet 8 inches to the table-top, the tread of the north door being 11 inches above this level. But there

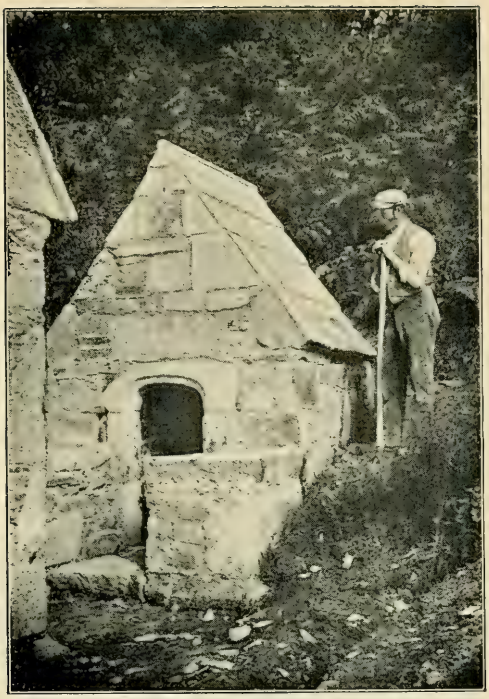
must have been a step down from the altar-end, as otherwise the *loculus* would have been un-come-at-able; and therefore when the concrete was laid level throughout, it was sunk flush with the loculus-floor.

Throughout the work, the chief difficulty had been to keep the interior fairly dry; and eventually several drains had to be made from the vicinity of the upper well, and carried round east and west of the chapel, before the springs on the North side (exclusive of the holy-well-spring), were finally disposed of.

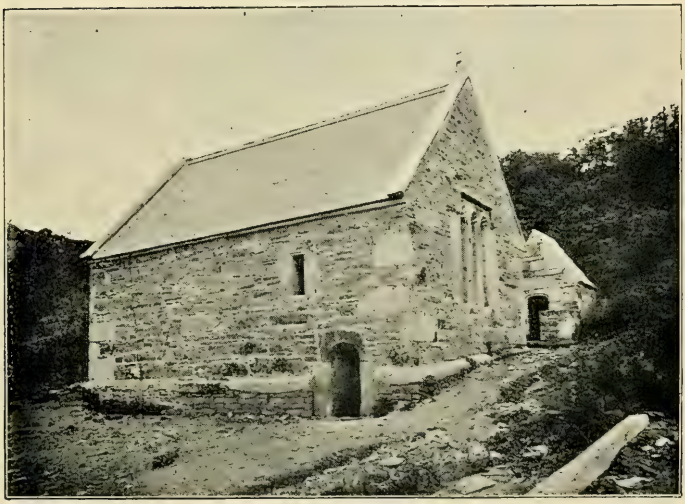
In the reconstruction of the Chapel, let it be frankly admitted that sentiment rather than practical utility has been the motive. The parish church, close at hand, serves all spiritual purposes; and the chapel will be only occasionally used—for baptisms, or perhaps on the Festival of the Saint—when it has been handed over to the church, as is believed to be Mr. Spry's pious intention. But one cannot avoid thinking that sentiment must have been largely the cause of the erection of the fifteenth-century edifice; viz. to perpetuate the memory of the site of St. Clether's oratory. For at that period the parish church would suffice for all worshippers; and though the Chapel was attached to the neighbouring mansion of Lower Basil, the ancient home of the Trevelyans, it could but ill have served as a private chapel; the first essential of a domestic chapel being that it forms part and parcel of a house, whereas in this case the church and the chapel are about equi-distant from Basil.

The stone altar, never thrown down, conclusively proves the fifteenth-century building to have been more than a Baptistery; but why, and by whom it was set up, and for what purposes used, is all unknown. The upper well appears to have been its *fons et origo*. This well is not square with the chapel, and the chapel appears to have been placed where it is, so that a straight drain might run through the substance of its east wall.

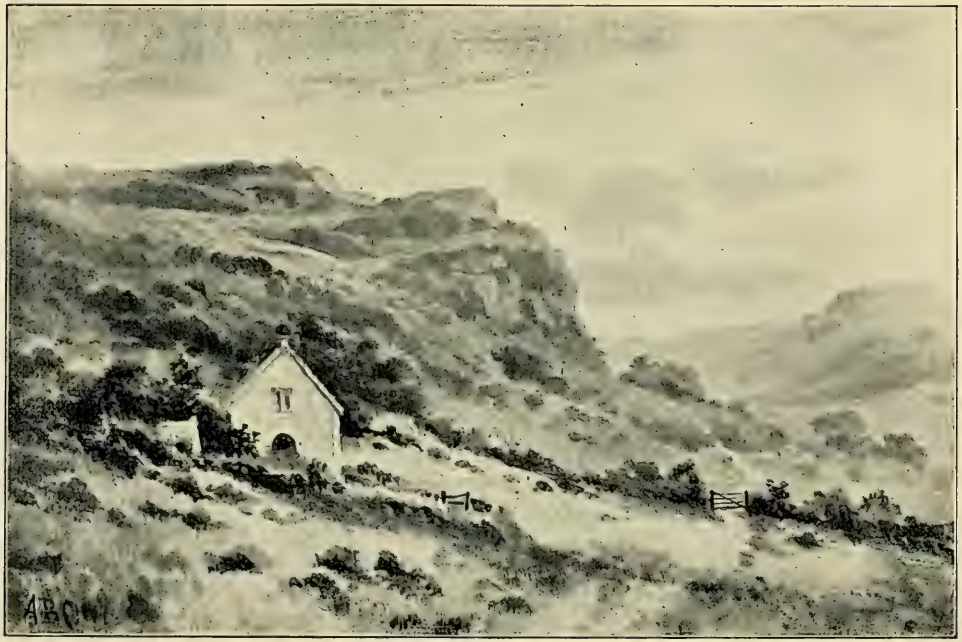
In reference to the *loculus* Mr. Baring-Gould writes: "My theory of the recess and second well is this:—The bones of the saint (or some other bones), were inserted in the recess; and



THE HOLY WELL.



CHAPEL AND HOLY WELL.



THE WELL CHAPEL OF ST. CLETHER.

the people, seeking a cure, drank, out of the lower well, the water thus sanctified. (*a*) We know, from the life of St. Patrick, that this was done in Pagan Ireland. (*b*) We know that this was done in mediæval Brittany. (*c*) We know that water, out of the skull of St. Teilo, was drunk as a cure for epilepsy, till quite recently, in Pembrokeshire."

Doubtless some such purpose was intended. For the upper recess is merely a rough opening for clearing the drain upwards; but the lower one is quite different in structure. It has a cut granite lintel, and jambs with rebates for a door; and the stone support of the altar has been kept back, out of its normal position, so that a person stooping down might insert or remove some object, or articles; all indicating a distinct purpose connected with a recess which was of sufficient importance to require a door, and was so constructed as to be in direct communication with the water from the upper well, and, by means of that water, with the lower well.

As for the upper well, perhaps it never had more than two roofing courses, with a flat curb above; Laneast well, in the adjoining parish, is thus finished off; and only the roofing blocks of one, or, at most, of part of two courses, were found here. But Mr. Baring-Gould suggested a ridge and roll, after the manner of Linkinhorne and other wells, and his wishes have been carried out.

Before the cap-stones were set up, an inscribed leaden tablet was inserted, recording when and by whom the ruinous Chapel and Well were re-erected, and terminating with the fitting aspiration:—

"DEW RE BO GORDHYYS."

THE CORNWALL DOMESDAY AND GELD INQUEST.

Part I.—The Inquisitio Geldi from the Exeter Domesday Book.

By H. Michell Whitley, F.G.S., Hon. Mem. R.I.C., and Hon. Sec. Sussex Archæological Society.

The increasing interest that is felt in the study of Domesday Book, and of the various matters on which it throws light, has caused many County Archæological Societies to undertake the translation, and publication, of the portions of the work relating to their own districts; and (amongst them) the Devonshire Association has printed an admirably arranged extension and translation of the Geld Inquest, and the Exeter, and Exchequer Domesday Books, relating to that County. The following paper contains a translation of the Geld Roll for Cornwall on the same plan as that so carefully carried out for Devon.

In the year 1085, at Midwinter the King held his Court at Gloucester, there he "had very deep speech with his *witan* about this land, how it was peopled or by what men; then sent he his men ôver all England, into every shire, and caused to be ascertained how many hundred hides were in the shire, or what land the King himself had, and cattle within the land, or what dues he ought to have in twelvemonths from the shire. Also he caused to be written how much land his archbishops had, and his suffragan bishops, and abbots, and his earls; and—though I may narrate somewhat prolixly,—what or how much each man had who was a holder of land in England, in land, or in cattle, and how much money it might be worth. So very narrowly he caused it to be traced out, that there was not one single hide, nor one yard of land, nor even, it is shame to tell, though it seemed to him no shame to do, an ox, nor a cow, nor a swine was left, that was not set down in his writ. And all the writings were brought to him afterwards."[1]

The result of this survey was Domesday Book, or as it will be termed in these pages the Exchequer Domesday, to distinguish it from the Exeter Domesday.

[1] Anglo-Saxon Chronicle B Thorpe (Rolls Series), Vol. II, p. 186.

This latter Book which is preserved amongst the muniments of the Dean and Chapter of Exeter (whence its name), is supposed to be an extract transcript of the original returns, for the Counties of Wilts, Dorset, Somerset, Devon, and Cornwall, from which as well as from others the Exchequer Domesday was compiled.

Prefixed to the Manuscript is the "Inquisitio Geldi" or taxation of the above-written Counties, being a record of the payment of a great geld, without doubt that of six shillings in the hide levied in the winter of 1083-4, when "the King becoming older, more covetous and despotic, cruelly extorted six shillings from each single ploughland that is a hide of land from the whole Kingdom."[2]

When King William was firmly seated on the throne of England, he found amongst his most valuable rights that of levying a land tax known as Danegeld, Heregeld, and the King's geld.

In A.D. 991, in the reign of Ethelred "the unready," the first mention of this tax appears, it was a great and ever increasing sum of money paid to the Northmen as a tribute to depart and leave England in peace.

But step by step they crept on, ever returning with increasing numbers, until despair spread over the nation, and as the old Chronicler tells us, "It was as if all counsel had come to an end, and the King and Aldermen, and all the high Witan went home, and let the toil of all the nation lightly perish."

The first Danegeld, levied in A.D. 991, amounted to £10,000;[3] three years afterwards the south of England was overrun and plundered by the same warriors, and this time the tribute exacted was £16,000.[4] In A.D. 1002 it had risen to £24,000,[5] in A.D. 1007 to £30,000,[6] in 1018 Canute exacted the heaviest geld of all £11,000 from London, and £72,000 from the rest of the Kingdom.[7] To avoid such heavy demands Canute was elected King, and Danegeld (as such) came to an end, what was henceforward levied being Heregeld or the King's geld,

[2] Matthew of Westminster, edit. 1570, p. 8.

[3] Earle, Two Chronicles, pp. 130.1. [4] Ibid, pp. 132-3. [5] Ibid, p. 137. [6] Ibid, p. 141. [7] Ibid, pp. 160-1.

which was employed as an occasional war tax, levied more than once by Edward the Confessor, and stated to have been abolished by him about the year 1051. But William reinstated it;—newly crowned "he laid on men a geld exceeding stiff;" in the next year he set "a mickle geld" on his subjects, and in 1083-4 he imposed the crushing tax of six Norman shillings on the hide, the record of which for the five western counties is preserved in the Exeter geld roll.

The roll begins with a duplicate list of hundreds. These were then seven in number. Conarton or Conarditon, Tibestern Tibesta or Tibesten, Winneton or Winnenton, Straton, Fawiton, Rielton or Rileston, and Pauton,—these names including the nine present hundreds of Cornwall.

The alteration in the Hundreds took place between the date of the geld roll and the latter part of the thirteenth century. The exact boundaries of the Hundreds do not appear to be accurately determined, and these require further investigation. The late Rev. John Carne has given the following list:—

STRATONE. The present Hundreds of Stratton and Lesnewth, and the Northern part of East.

FAWITONE. West, with the Southern part of East.

PAUTONE. Trigg, and probably the seven eastern parishes of Pydar.

RIELTONE. Pydar, except the eastern parishes, and probably the north-western part of Powdar.

TIBESTEN. Powdar with the exception of its north-western portion.

WINNENTONE. This was Kerrier.

CONARTONE. This coincided with Penwith.[8]

The returns for the several hundreds, give the following details.

1st. The number of hides at which it was taxed.

2nd. The number of hides on which the tax was paid, and the amount.

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[8] An attempt to identify the Domesday Manors in Cornwall, R.I.C. Journal, Vol. I, No. 4, p. 11, 1865.

3rd. The lands held free of Geld. Firstly those by the King and his barons in demesne, and secondly lands free of geld by custom.

4th. The lands for which the tax had not been received, and the reason for such arrear.

The exemptions from the payment of this tax were moreover numerous. The King's land in demesne was exempt, so also was that of his barons, who however had the heavier dues of service laid on them. Exemption from geld was also freely granted by successive Kings to religious houses, and in Cornwall out of a total of 400 fiscal hides, 93 were returned as thus held by the Church, whilst other lands were claimed to be held free of geld by custom. When these deductions from the total hidage were made, it will be seen that the burden fell on the poorer classes of tenants with crushing severity, which gave rise to serious discontent. That this must have been so is evident if this levy be compared with those of A.D. 1130 and 1156 when the King's geld was assessed at two shillings a hide. The hide was the unit of assessment;—was it an actual measure, and if so of how many acres did it consist? I do not intend to deal with this question at length, for my doing so would expand this paper beyond due limits, but I shall assume that the Domesday-measures in Cornwall are fairly expressed by the following;—representing the general consensus of opinion of modern Domesday students; and with which, after a careful enquiry, I am in full agreement.

First, the hide:—this represented the holding of one taxpayer, a man of one ploughteam, land enough to be cultivated in a year, with pasture and meadow sufficient; (for arable land only was taken into account); this I take to be 120 acres—a long hundred.

A great deal of confusion has arisen in dealing with this question, through taking the hides, in Domesday, as the actual area of the arable land in the Manor or Vill. This was not so, they were hides of assessment, and there may have been twenty hides of arable land in a Manor in Cornwall and yet it would only pay on perhaps five or six. Sir Henry James's translation, prefixed to his edition of the Domesday Book of

Cornwall, is hardly a happy (although an accurate) rendering of the latin; as an example, he there says of Winetone "the land is sixty Carucates," I prefer to translate it—"There is land for sixty ploughteams," and this is clearly shewn in the Exeter Domesday where the entry runs "these can be ploughed by sixty ploughteams." In the time of King Edward there were only fifteen hides of assessment.

Domesday was a geld book,—a tax book; and the hides returned were hides on which the tax, to be collected, was assessed.[9]

And on no other principle could an equitable tax be assessed; the arable land of Cornwall was far inferior to that in the eastern counties of England, a rough rule of one pound value per hide seems shadowed out in them, but in the western Counties poverty is apparent. Whilst in Surrey a teamland was worth 26 shillings, and in Dorset 23 shillings, in Devon it was worth only 8 shillings, and in Cornwall 5 shillings and 6 pence.[10] The County therefore to compensate for the poverty of its soil, was assessed far below the actual area of its arable land,—in other words it was "underhidated."

Taking the Hide at 120 acres,[11] the virgate or yardland was a fourth, or 30 acres; and the farthing a fourth of the virgate, or $7\frac{1}{2}$ acres.

Money may be reckoned at thirty times its present value.

On the following pages I have given a translation of the Geld Roll, and after the entry for each hundred, a tabular statement showing how the hidage is made up.

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[9] This question of the hide has been exhaustively treated by Mr. F. W. Maitland in "Doomsday Book and beyond."

[10] Maitland, idem, p. 403.

[11] The Rev. O. J. Reichel, F.S.A., writing of Devonshire considered that "The Saxon homestead, here as elsewhere, contained approximately 100 acres of arable land, sometimes more, occasionally less, but in this County (*Devonshire*) probably less than elsewhere, say 65 acres as a minimum, 115 as a maximum."

Trans. Devonshire Association, vol. 27, *p.* 171.

The Inquisitio Geldi

From the Exeter Domesday Book.

Translation and Tabular Statement of hides in each hundred.

THESE ARE THE HUNDREDS OF CORNWALL.

Of Saint Petrock, the hundred of Rielton. The hundred of Conarton The hundred of Winneton. The hundred of Tibestern. The hundred of Fawiton. The hundred of Straton. The hundred of Pauton.

The hundred of Pauton. The hundred of Tibesta. The hundred of Winneton. The hundred of Rielton. The hundred of Fauuiton. The hundred of Conarton. The hundred of Straton.

These.

Exon. Domesday, fol. 63, *Printed Edition, p.* 57.

THESE ARE THE HUNDREDS WHICH ARE HELD IN CORNWALL.

CONARDITONA.

In the hundred of Conarditona are thirty-three hides. Thence the King has of his geld, three pounds less three pence, for ten hides and half a virgate. And from these ten hides and half a virgate, Walter de Claville owes twenty pence. And the King and his barons have in demesne fourteen hides. Of these the King has seven in demesne and [*the church of*] St. Michael two hides. And [*the canons of*] St. Berrian one hide which never rendered geld. And the Bishop, two hides, which were never gelded, which Roland holds of him. And the Earl of Moretain two hides. And the men of the Earl four hides less one farthing, which were never gelded, according to the witness of the hundredmen. And for one hide which Baldwin the sheriff holds, of the gelded land of the King, the King has

not had his geld. And for three hides which Walter de Claville holds, of the King's land, the King has not had his geld. And for one hide and a half less one farthing, which Gotselm holds, of the King's land, the King had not geld.

Exon. D. fol. 72, *p.* 65.

					hides	virgates	far things
Geld received for					10	0	2
Lands held free of Geld:							
In demesne.		h.	v.	f.			
1	The King	7	0	0			
2	The Church of St. Michael ..	2	0	0			
3	The Canons of St. Berrien ..	1	0	0			
4	The Bishop	2	0	0			
5	The Earl of Moretain	2	0	0			
					14	0	0
Free of Geld by custom.		h.	v.	f.	h.	v.	f.
	The Men of the Earl	3	3	3	3	3	3
Lands for which Geld not received:							
1	Baldwin the Sheriff	1	0	0			
2	Walter de Claville	3	0	0			
3	Gotselm	1	1	3			
					5	1	3
	Hides				33	2	0

Note.—*It will be seen that the total does not agree with the figures given in the entry, by half a hide.*

Tibestena.

In the Hundred of Tibestena are sixty-one hides and a half and three farthings. Thence the King has of his geld five pounds and eleven shillings and nine pence for eighteen hides and a half and two farthings. And the King and his barons have in demesne twenty-four (*hides*). Of these the King has in demesne two hides, and (*the canons of*) Saint Probus one hide and (*the church of*) Saint Petrock one hide, and (*the canons of*) Saint Carentock half a hide, and (*the church of*) Saint Goran half a hide, and the Bishop of Exeter ten hides, and the Earl

of Moretain nine hides, and the barons of the Earl have eighteen hides and one farthing, which never rendered geld, according to the English custom. And for one hide which Baldwin the sheriff holds, of the King's manor, the King had not geld.

Exon. D. fol. 72, *pp.* 65-6.

					h.	v.	f.
GELD RECEIVED FOR					18	2	2
LANDS HELD FREE OF GELD:							
	IN DEMESNE.	h.	v.	f.			
1	The King	2	0	0			
2	The Canons of St. Probus ..	1	0	0			
3	The Church of St. Petrock ..	1	0	0			
4	The Canons of St. Crantock ..	0	2	0			
5	The Church of St. Goran ..	0	2	0			
6	The Bishop of Exeter	10	0	0			
7	The Earl of Moretain	9	0	0			
					24	0	0
FREE OF GELD BY CUSTOM.							
	The Earl's barons	18	0	1	18	0	1
LANDS FOR WHICH GELD NOT RECEIVED.							
	Baldwin the sheriff	1	0	0	1	0	0
		Hides ..			61	2	3

WINNENTONA.

In the Hundred of Winnentona are thirty-six hides and a half. Thence the King has of his geld thirty-six shillings for six hides. And the King and his barons have in demesne twelve hides and a half. Of these the King has seven hides in demesne, and (*the canons of*) St. Keverne one hide, and (*the church of*) Saint Constantine half a hide, and the Bishop of Exeter four hides. Excepted out of this demesne the men of the Earl have fifteen hides which have never rendered geld according to the English custom, and for three hides of the land of Harold, which B(*aldwin*) the sheriff holds under the King's hand, the King had not geld.

Exon. D. fol. 72, 72*b*, *p.* 66.

		h.	v.	f.	h.	v.	f.
GELD RECEIVED FOR					6	0	0
LANDS HELD FREE OF GELD BY		h.	v.	f.			
1	The King	7	0	0			
2	The Canons of St. Keverne ..	1	0	0			
3	The Church of St. Constantine	0	2	0			
4	The Bishop of Exeter	4	0	0			
					12	2	0
FREE OF GELD BY CUSTOM.							
	The men of the Earl	15	0	0	15	0	0
LAND FOR WHICH GELD NOT RECEIVED.							
	Baldwin	3	0	0	3	0	0
		Hides ..			36	2	0

STRATONA.

In the Hundred of Stratona are eighty-three hides and three virgates. Thence the King has of his geld eight pounds and six shillings and six pence for twenty-seven hides and three virgates; and the King and his barons have in their demesne twenty-eight hides and three virgates. Of these the King has four hides, and (*the church of*) St. Petrock three (*hides*), and (*the canons of*) Saint Pieran one hide and a half. The Earl of Moretain seven (*hides*) and the Bishop of Exeter twelve (*hides*) and the Abbot of Tavistock one hide and one virgate. Taken out of this demesne the Earl's men have twenty-two hides and one virgate, which by the English custom never rendered geld, and for four hides which were of the lands of Count Harold which B(*aldwin*) the sheriff holds, the King had not geld and for one hide which was of the lands of Bristric, which Walter de Claville holds, the King had not geld.

Exon. D. fol. 72*b*, *p.* 66.

					h.	v.	f.
GELD RECEIVED FOR					27	3	0
LANDS HELD FREE OF GELD:							
	IN DEMESNE.	h.	v.	f.			
1	The King	4	0	0			
2	The Church of St. Petrock ..	3	0	0			

3	The Canons of St. Piran ..	1	2	0			
4	The Earl of Moretain	7	0	0			
5	The Bishop of Exeter	12	0	0			
6	The Abbot of Tavistock ..	1	1	0			
					28	3	0
FREE OF GELD BY CUSTOM							
	The Men of the Earl	22	1	0	22	1	0
LANDS FOR WHICH GELD NOT RECEIVED							
1	Baldwin the Sheriff	4	0	0			
2	Walter de Claville	1	0	0			
					5	0	0
		Hides ..			83	3	0

FAWITONA.

In the hundred of Fawitona are forty-three hides and a half. Thence the King has of his geld three pounds and nine shillings, for eleven hides and a half. And the King and his barons have in their demesne, sixteen hides and one virgate. Of these the King has in demesne two hides, and [*the church of*] St. Petrock one hide, and [*the church of*] St. Niet one hide, and one virgate, and the Bishop of Exeter one hide, and the Earl [*of Moretain*] eleven [*hides*]. Taken out of this demesne the men of the Earl have fourteen hides and three virgates, which by the English custom never rendered geld. And for one hide which was of the lands of Harold, which B[*aldwin*] the sheriff holds, the King had not geld.

Exon. D. fol. 72*b*, *p.* 66.

					h.	v.	f.
GELD RECEIVED FOR					11	2	0
LANDS HELD FREE OF GELD							
	IN DEMESNE.	h.	v.	f.			
1	The King	2	0	0			
2	The Church of St. Petrock ..	1	0	0			
3	The Church of St. Neot ..	1	1	0			
4	The Bishop of Exeter	1	0	0			
5	The Earl of Moretain	11	0	0			
					16	1	0

FREE OF GELD BY CUSTOM						
The Men of the Earl	14	3	0	14	3	0
LANDS FOR WHICH GELD NOT RECEIVED						
Baldwin the sheriff	1	0	0	1	0	0
Hides ..				43	2	0

RILESTONA.

In the hundred of Rilestona are sixty-eight hides and six farthings. Thence the King has of his geld six pounds and ten shillings, and six pence, for twenty-one hides and three virgates. And the King and his barons have in their demesne twenty-five hides and a half. Of these the King has six hides in demesne, and [*the canons of*] St. Stephen two hides and a half, and the Bishop fifteen hides, and the Abbot of Tavistock two hides. Taken out of this demesne, the men of the Earl have in their own demesne fifteen hides and a half and two farthings, which according to the English custom were never gelded. And for five hides and a half of the lands of Harold, which B[*aldwin*] the sheriff holds under the King's hand, the King had not geld.

Exon. D. fol. 72*b*-73, *p.* 66.

					h.	v.	f.
GELD RECEIVED FOR					21	3	0
LANDS HELD FREE OF GELD:							
IN DEMESNE.		h.	v.	f.			
1	The King	6	0	0			
2	The Church of St. Stephen ..	2	2	0			
3	The Bishop of Exeter	15	0	0			
4	The Abbot of Tavistock ..	2	0	0			
					25	2	0
FREE OF GELD BY CUSTOM.							
The Men of the Earl		15	2	2	15	2	2
LANDS FOR WHICH GELD NOT RECEIVED							
Baldwin the sheriff		5	2	0	5	2	0
Hides ..					68	1	2

Pautona.

In the hundred of Pautona are forty-four hides. These were never gelded according to the English custom, except for eight hides; of these the King has not had thence his geld for this year. Of the land gelded which B[*aldwin*] the sheriff holds under the King's hand in Cornwall, of the lands of Harold, the King had not his geld, this is four pounds and thirteen shillings. And of the lands of Bristric the King had not his geld, it is twenty-seven shillings and six pence.

Exon. D. fol. 73, *pp.* 66-7.

[*The Church of*] St. Petrock has thirty hides of land which have never been gelded.

Exon. D. fol. 73, *p.* 67.

Summary showing the number of Hides in each Hundred.

	h.	v.	f.
Conarditona	33	0	0*
Tibestena	61	2	3
Winnentona	36	2	0
Stratona	83	3	0
Fawitona	43	2	0
Rilestona	68	1	2
Pautona	44	0	0
Lands of the Church of St. Petrock	30	0	0
Total ..	400	3	1

Part II.—The Exchequer and Exeter Domesday Books.

From the account already given of the origin of Domesday Survey it will be seen that the policy embodied in it was adopted freely by the general assembly of the land, as being necessary for obtaining the requisite information for the defence of the realm, furnishing as it did a roll of the tenants responsible for the military strength of the country. In accordance with the king's instructions, Commissioners were

* Or, 33 2 0 (*see* page 554).

appointed, who collected the particulars in every county, which were afterwards embodied at Winchester into the Exchequer Domesday These returns were much fuller in information than the Book itself, but, unfortunately, with the exception of the Exeter Domesday, and the returns for the county of Cambridge, they are no longer in existence.

The commissioners' duty was to obtain information on the following points, from the sworn evidence of the Sheriffs, Lords of the manors, Priests, Reeves, Bailiffs, and six villeins of every village :—

The name of the place : who held it in the time of good King Edward, and by whom held now? How many hides, ploughteams, freemen, villagers, and serfs? What wood, pasture, and meadow? How many horses, oxen, sheep, goats, and swine? And what was its value?

The returns from Cornwall, taken in accordance with these instructions, lend themselves readily to condensation in a tabular form, and in this form I have embodied the information contained in the Exchequer and Exeter Books.

With regard to the measurements, I have already pointed out, in the first part of this paper (that relating to the Geld Roll) that the hide was taken as a unit of taxation, and that nominally, it was land for one ploughteam, which may be taken as 120 acres, but in the western counties was probably smaller.

The Rev. O. J. Reichel, F.S.A., considered the hide or land for one ploughteam in Devonshire to have contained 100 acres.*

Cornwall was a poor county, and there was often only one ploughteam on land estimated as being sufficient for two.

It is clear from the returns for Cornwall that eight oxen went to a ploughteam for Exchequer purposes.

The word "Mansio" in the Exeter Domesday I have, for convenience, translated as Manor, although it may be better represented by the word Hall, and Reichel considers that in Devonshire it is best expressed by "Capital Barton."

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* Trans. Devon Assoc., Vol. 28, p. 363. See also page 552 (note).

The names of the estates are not the names of Parishes, although the priests of some churches are mentioned as holding lands. In the Sussex Domesday, Churches are often mentioned; but in Cornwall, except as landowners, they are omitted.

Turning now to the names of the men of the soil, Villeins, Colberts, Bordars, and Serfs:—The villeins or villagers were in servitude to the lord of the soil, and held the common land by which they supported themselves and their families; they were attached to the land, holding what they tilled by copy of Court Roll, and performing services in kind generally; these holdings would be as follows:—

For the Villeins or villagers—the holding on death descended from father to son—first reverting to the lord, who was bound by custom to regrant it to the heir on payment of a fine; the villein could not leave his holding nor marry his daughters without his lord's consent, and he was bound to perform such work in cultivating his lord's demesne as custom required.

The Colberts, of which there were only 49 in Cornwall, and these on two royal manors, Winnetone and Rentis, were tenants who held their free-tenancy under conditions of certain works and services.

The Bordars were cottars or hinds holding a little wooden cottage with, perhaps, an acre or less of land.

Lastly came the Serfs—practically slaves, they were protected by the law from personal injury from their lord, but were absolutely at his disposal. A Saxon MS. of the tenth century gives an account of their condition thus:—

"What sayest thou, ploughman? How do'st thou do thy work?"

"Oh, my lord, hard do I work! I go out at daybreak driving the oxen to field, and I yoke them to the plough. Nor is it ever so hard winter that I dare loiter at home, for fear of my Lord, but the oxen yoked, and the ploughshare and coulter fastened to the plough, every day must I plough a full acre or more * * * * Ha! Ha! hard work it is, hard work it is; because I am not free."†

† Seebohm, "English Village Community," p. 166.

But the lot of the serf was not hopeless. The Bodmin Gospels contain the entries of numerous grants of freedom to slaves in the 10th and 11th centuries, thus :—

"These are the names of the men whom King Edmund freed upon the altar of St. Petrock: Tancwoystel, Weneriet, before these witnesses, Wulfsie priest, Adoyre, Milian clerk ; and on the same day he sent away free the woman Arganteilin before the same witnesses."

"Bishop Wulfsie freed Aedoc, daughter of Catgustel, for his soul and King Edgar's, upon the altar of St. Petroc."

It is noticeable in Domesday that the king had forty brewers on his Manor of Henlistone.

I have already stated that churches are not noticed in Domesday, and Bodmin is the only town mentioned, where there were 68 houses; this does not prove that other towns did not exist in Cornwall, but certainly no mention of them is made in Domesday.

Of castles there were two, Dunheved or Launceston, and Trematon ; both belonging to the Earl of Mortain.

There were markets at Bodmin, Liskeard, Trematon, and St. Germans. At this latter place the market held on a Sunday, which belonged to the Bishop and Canons of St. Germans, was worth nothing, owing to the Earl of Mortain having established a market at his own castle of Trematon, near, on the same day.

Mills are mentioned at Conarditone, Cargau, Liskeard, Treviscoit, and two at Dunheved ; whilst at Stratton there were 10 saltpans. With regard to the money, it was paid in three different ways—1st, by weight and assay, or weighed and burnt, this was how the king's gold was collected, the suspected coin being burnt in a crucible over a fire, and then weighed, as a safeguard against base money ; 2ndly, by weight only—the money tendered being weighed, and twenty shillings accounted equal to a pound—and 3rdly, by tale or count only.

Generally, Cornwall seems to have been extremely underrated, doubtless, on account of its poverty ; and the land as a rule appears to have much decreased in value ; except, curiously to relate, those lands under the "dead hand of the Church," where the values in the time of King William fairly corresponded

to those in the time of King Edward, whilst in some cases a marked increase, more than double, had taken place in the value.

The returns themselves bear witness to the thorough manner in which the Conqueror's instructions were carried out in compiling this great tax book of England.

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William	Lord in the Time of King Edward.	No. of Hides.	Taxed for	Land for Plough Teams	Plough Teams.	Villeins.	Cottars
						THE LAND O				
					h. v. f.	h v. f				
1	Winetone ...	Winnetona ...	The King ...	Earl Harold ...	...	15 0 0	60	26	24	4
2	Renti ...	Rentis ...	Ulward ...	,, ..	1 0 0	...	12	1	...	
3	Schewit ...	Eschewit ...	Cheneret ..	,, ...	...	1 0	1	...	...	
4	Trenant ...	Trenant ...	Bletu	,, ...	...	2 0	4	...	...	
5	Garverot ...	Garverot ...	Godwin ..	,, ..	...	⅓ 0	1	...	...	
6	Trenbras .	Trembras ...	Brixi	,, ...	...	⅓ 0	1	...	...	
7	Trigoi ..	Tricoi ...	Guihummar ...	,, ...	...	1 0 0	8	...	...	
8	Cariahoil ..	Cariahoil ...	Haimelin ...	,, ..	...	2 0	3	...	...	
9	Lusart ...	Lusart ...	Richard ...	,, ..	...	1 0 0	6	2½	...	
10	Sainct Mawan	Saint Maiuian	Bristritius ...	,, ..	...	1 0 0	4	...	...	
11	Boten ..	Boten	Andreas ..	,, ...	...	1 0	2	...	...	
12	Trellewaret ..	Trellewaret ...	Turstin ..	,, ...	...	1 0 0	5	...	...	
13	Heligin ...	Heligan ...	Turstin ...	,, ...	..	1½ 0	3	...	...	
14	Bodeworwei ..	Bodeworwei ...	Bristritius ..	,, ...	...	1 0	2	...	...	
15	Trouthel ..	Trouthel ..	Turstin ...	,, ...	2 0	...	5	...	...	
16	Treurnivet .	Treurniuet ..	Alwin	,, ...	1 acr.	...	1	...	...	
17	Tretland ...	Tretlant ...	Dodo ...	,, ...	4 acr.	...	2	...	...	
18	Tretdeword ...	Tretdewort ...	Lewenod ..	,, ...	1 0 0	...	8	...	...	
19	Trewode ..	Trewada ...	Alward ..	,, ...	1 0 0	...	6	...	...	
20	Roscarnan ..	Roscarnan ...	Grifin .	,, ...	1 0	...	2	...	...	
21	Tragol ...	Tragol ..	Turotin ..	,, ...	2 ac.	...	2	...	...	
22	Travider ..	Travider ...	Ulward ...	,, ...	1 0	...	2	...	...	
23	Henlistone ...	Henlistona ..	The King ..	Earl Harold ...	6 2 0	2 0 0	40	20	30	
24	Bewintone ..	Dewintona ...	Do.	,, ...	3 0 0	1 0 0	20	18	16	
25	Lanehoc ...	Lannohoo ...	Do.	,, ...	5 0 0	2 0 0	22	22	59	
26	Podestoc	Podestot ...	Iovin ...	...	1 2 0	...	12	...	...	
27	Sainguinas ...	Sainguinas ...	Do.	...						
28	Chilchetone ...	Rilchetona ...	The King ..	Earl Harold ..	...	7 0 0	40	35	26	
29	Glustone ...	Glustona ..	Do.	,, ..	4 0 0	2 0 0	30	19	40	
30	Pendavid ..	Pendavid ...	Boia, the priest of Bodmin *under the Earl*	,, ...	1 0 0	..	6	...	...	
31	Paindran ...	Paindran ...	The King ...	,, ..	1 0 0	2 0	6	2	...	
32	Pennadelwan	Tumadelwan...	Canons of St. Stephens by Launceston of the Earl of Mortain	...	2 2 0	...	10	...	...	
33	Botconoan ...	Botchonoam..								
34	Botchatuno ..	Botchatunno								
35	Carneton .	Carnetona ...	The King ...	Earl Harold ...	5 0 0	3 0 0	30	20	43	
36	Clismestone ...	Clismestona ...	,, ...	,, ...	5 0 0	2 2 0	24	20	30	
37	Calwetone ...	Calwitona ...	,, ..	,, ...	4 0 0	2 0 0	30	18	24	
38	Ritwore ...	Ritwori ...	,, ...	,, ..	...	1 0 0	30	13	13	
39	Pennehel ...	Pennehel ..	,, ..	,, ..	2 2 0	1 0 0	30	22	24	
40	Conarditone ..	Conarditona ...	,, ...	Bristric afterwards Matilda the Queen	7 0 0	3 0 0	40	31	30	
41	Gudiford ...	Gudiforda ...	,, ...	,, ...	1 3 0	1 0	16	10	7	
42	Bennartone ..	Bennartona ..	,, ...	,, ...	8 0 0	4 0 0	60	18	32	
43	Melledham ...	Melledam ..	,, ...	,, ...	1 0 0	2 0	8	5	4	
44	Carewrge ...	Carewrga ...	Ainlf ...	,, ..	0 1 0	...	2	1	...	
			Walter de Clavilla	,, ...	...	1 0	2	...	...	
						LAND OF THE				
45	Trewel ...	Treliuel	The Bishop of Exeter	Bishop ...	...	1 2 0	20	14	30	
46	Matele ...	Matela		Leofric ...	1 2 0	1 0 0	15	9	15	
47	Tregel ...	Trigel ...	,, ..	,, ...	12 0 0	2 0 0	60	18	18	
48	Pautone ...	Pautona ..	,,	,, ...	44 0 0	8 0 0	60	43	40	
49	Bernerh ...	Berner ...	Richard son of Turold under the Bishop	,, ...	...	1 2 0	12	8	8	
50	Ecclesia S. Germani (6)	Sanctus Germanus ...	The Bp. and the Canons of St. Germans	This manor was Bishop Leofric's	12 0 0	2 0 0	20	18	30	
					12 0 0	never taxed	40	26	24	

Unbroken Horses.	Brood Mares.	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood.	Meadow.	Pasture.	Value. T.R.W. £ s. d.	Value. T.R.E. £ s. d.	
E KING.												
14	...	3	...	128	...	...	leugas. 1×½	acr. 6	leugas. 4×2	12 0 0*	.....	*By Weight and Assay.
...	...	...	1	30	...	...	.....	...	½×½	10 0	2 0 0	
...	...	...	...	...	...	...	.....	...	.....	.....	15 0	
...	...	...	...	...	...	...	.....	...	.....	2 6	1 0 0	
...	...	...	...	...	...	...	.....	...	.....	5 0	15 0	
...	...	...	...	...	...	...	.....	...	.....	...	15 0	
...	...	...	...	...	...	...	.....	...	.....	2 6	2 0 0	
...	...	...	...	...	...	...	.....	...	.....	10 0	15 0	
...	...	...	...	...	...	...	.....	...	.....	1 10 0	2 10 0	
...	...	...	...	...	...	...	.....	...	.....	3 0	1 0 0	
...	...	...	...	...	...	...	.....	...	.....	10 0	1 0 0	
...	...	...	...	...	...	...	.....	...	.....	15 0	1 10 0	
...	...	...	...	...	...	...	.....	...	.....	5 0	10 0	
...	...	...	...	...	...	...	.....	...	.....	5 0	10 0	
...	...	...	...	...	...	...	.....	...	.....	10 0	2 0	
...	...	...	...	...	...	...	.....	...	.....	2 6	5 0	
...	...	...	...	...	...	...	.....	...	.....	10 0	1 0 0	
...	...	...	...	...	...	...	.....	...	.....	2 6	10 0	
...	...	...	...	...	...	...	.....	...	.....	3 0	2 0 0	
...	...	...	...	...	...	...	.....	...	.....	10 0	10 0	
...	...	...	...	...	...	...	.....	...	.....	3 0	3 0	
...	...	...	...	...	...	...	.....	...	.....	5 0	10 0	
2 14	...	8	...	200	...	...	1×½	4	5×3	8 0 0†	.....	40 Brewers here.
1 5	...	17	...	200	...	...	½×3 fur.	2	3×1	5 0 0†	.....	†By Weight and Assay.
...	...	9	...	120	...	...	1×3 fur.	1	60 acres.	6 0 0†	.....	
...		...	...	...	...	...	.....	...	.....	2 0 0	3 0 0	Taken out of Lanehoc.
...	...	50	...	600	20	40	1×1 fur.	30	5 fur.×4 fur.	18 0 0‡	.....	
...		...	3	70	...	...	1 l.×½ l.	1	3 l.×1½	6 0 0‡	.....	‡ by Weight.
...		...	...	...	...	...	.....	.	.....	10 0	1 0 0	Taken out of Glustone.
...	...		...	...	...	...	1×½	...	200 acres.	3 0 0	.....	By Weight.
...	...	...	...	...	...	...	.....	...	.....	12 0	2 0 0	Taken out of Paindran.
...	...	6	...	180	...	...	.....	2	1×1	7 0 0§	.....	§ By Weight.
...	...	7	...	187	...	.	3×1	3	4×4	6 0 0§	.....	
...	...	7	...	180	...	..	½×2 fur.	...	3×½	6 0 0§	.....	
...	...	6	...	150	...	...	½×2 fur.	2	1×½	4 0 0§	... ..	
...	...	7	...	100	...	...	13 acres.	11	30 acres.	5 0 0§	.....	
3 ...	40	13	...	300	...	5	.....	1	2×1	12 0 0‖	.....	A Mill returning yearly thirty pence. ‖ by tale.
...	...	4	...	45	...	.	.....	...	.....	3 0 0	.....	
45	...	12	...	60	...	5	1×½	2	2×2	10 0 0	... ..	From this Manor the Ch. of S. Petrock had by Custom 30 pence and 1 ox and 7 sheep, T.R.E, now it is taken away.
...	...	5	...	100	...	5	1×½	...	.....	4 0 0	.....	
...	...	...	...	...	...		... ..	...	.....	7 0	7 0	Renders 8d. by custom to the Church of S. Petrock.
...	...	...	...	...	...		.....	...	.....	5 0	10 0	
SHOP OF EXETER.												
...	5	...	2	30	...	...	60 acres.	...	2×2	4 0 0	4 0 0	‡ Coppice Wood. The Earl of Mortain has a yearly market in this Manor.
...	...	...	3	20	...	...	60‡ acres.	...	40 acres.	2 0 0	2 0 0	
...	...	...	2	40	...	...	1×½	...	½×½	8 0 0	5 0 0	
...	...	5	...	50	...	...	2×1	...	6×2	24 0 0	10 0 0	
...	...	4	...	150	6	...	10 acres.	...	60 acres.	2 0 0	2 0 0	
...	...	...	...	30	...	...	2×1	...	4×2	8 0 0	5 0 0	The Bishop's part.
...	...	..	...	60	...	...	4×2	...	2×1	5 0 0	.....	The Canons' part.

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William	Lord in the Time of King Edward.	No. of Hides. h.	v.	f.	Taxed for h.	v.	f.	Land for Plough Teams.	Plough Teams.	Villeins.	Colberts.	Borders.	Pack Horses.	Unbroken Horses.	Brood Mares.	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood.	Meadow.	Pasture.	Value. T.R.W. £	s.	d.	Value. T.R.E. £	s.	d.	
	THE LAND OF THE KING.																																
1	Winetone ...	Winnetona ...	The King ...	Earl Harold ...	...			15	0	0	60	26	24	41	33	...	14	...	3	...	128	...	...	leugas. 1×½	acr. 6	leugas. 1×2	12	0	0*	.....			*By Weight and Assay.
2	Renti ...	Rentis ...	Ulward ...	,, ..	1	0	0	...			12	1	...	8	...	...	...	...	..	1	30	...	...	.....	...	½×½	10	0		2	0	0	
3	Schewit ..	Eschewit ...	Cheneret ..	,, ...	...			1	0	1	...	...	...	...	...	...	...	.	..	...	...	...	...	.....	...	.....	...	..		15	0		
4	Trenant ..	Trenant ...	Bletu	,, ..	...			2	0	4	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.. ...	2	6		1	0	0	
5	Garverot ..	Garverot ...	Godwin ..	,, ..	...			½	0	1	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	5	0		15	0		
6	Trenbras	Trembras ...	Brixi	,, ...	...			⅓	0	1	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	... ..	...			15	0		
7	Trigoi .	Tricoi ...	Guihummar ...	,, ...	...			1	0	0	8	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	2	6		2	0	0	
8	Cariahoil ..	Cariahoil ..	Haimelin ...	,, ..	...			2	0	3	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	10	0		15	0		
9	Lusart ..	Lusart ...	Richard ...	,, ..	...			1	0	0	6	2½	...	...	...	...	...	...	...	...	.	..	...	.....	...	.. ..	1	10	0	2	10	0	
10	Saint Mawan	Saint Maiuian	Bristritius ...	,, ...	...			1	0	0	4	...	...	...	...	...	...	...	..	...	...	...	...	.....	...	.....	3	0		1	0	0	
11	Boten	Boten	Andreas ..	,, ...	...				1	0	2	...	...	...	...	...	...	...	...	...	...	...	...	.. ...	...	.....	10	0		1	0	0	
12	Trellewaret ..	Trellewaret ...	Turstin ..	,, ...	...			1	0	0	5	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	15	0		1	10	0	
13	Heligin ..	Heligan ...	Turstin ...	,, ...	.			1½	0	3	...	...	...	...	...	...	...	...	.	...	...	...	...	.....	...	... ..	5	0		10	0		
14	Bodeworwei	Bodeworwei ..	Bristritius ..	,, ...	...			1	0	2	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	5	0		10	0		
15	Trouthel ..	Trouthel ..	Turstin ..	,, ...	2	0		...			5	..	...	...	...	...	...	...	...	...	..	..	...	.....	...	.....	10	0		2	0		
16	Treurnivet	Treurniuet ..	Alwin	,, ...	1 acr.			...			1	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	2	6		5	0		
17	Tretland ...	Tretlant ...	Dodo ...	,, ...	4 acr.			...			2	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	10	0		1	0	0	
18	Tretdeword ...	Tretdewort ...	Lewenod ..	,, ...	1	0	0	...			8	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	2	6		10	0		
19	Trewode ..	Trewada ...	Alward .	,, ...	1	0	0	...			6	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	3	0		2	0	0	
20	Roscarnan ..	Roscarnan ..	Grifin .	,, ...		1	0	...			2	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	10	0		10	0		
21	Tragol ..	Tragol ..	Turotin ..	,, ...	2 ac.						2	...	...	...	...	...	...	...	..	...	...	...	...	.....	...	.....	3	0		3	0		
22	Travider ..	Travider ...	Ulward ...	,, ...		1	0	...			2	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	.....	5	0		10	0		
23	Henlistone ..	Henlistona ..	The King ..	Earl Harold ...	6	2	0	2	0	0	40	20	30	...	20	2	14	...	8	...	200	...	...	1×⅓	4	5×3	8	0	0†	.....			†0 Brewers here.
24	Bewintone ..	Dewintona ...	Do.	,, ...	3	0	0	1	0	0	20	18	16	...	40	1	5	...	17	...	200	...	..	½×3 fur.	2	3×1	5	0	0‡	.....			‡By Weight and Assay.
25	Lanchoc ...	Lannohoo ...	Do.	,, ..	5	0	0	2	0	0	22	22	59	...	26		..	...	9	...	120	...	..	1×3 fur.	1	60 acres.	6	0	0‡	.....			
26	Podestoc	Podestot ...	Iovin ...	...	1	2	0	...			12	...	...	...	...	...	...		..		...	...	...	.....	...	.....	2	0	0	3	0	0	Taken out of Lanchoc.
27	Sainguinas ...	Sainguinas ...	Do.	...																													
28	Chilchetone ...	Ridchetona ...	The King ..	Earl Harold ..	...			7	0	0	40	35	26	...	23		...	.	50	...	600	20	40	1×1 fur.	30	5 fur. × 1 fur.	18	0	0‡	.....			
29	Glustone ...	Glustona ..	Do.	,, ..	4	0	0	2	0	0	30	19	40	...	[illegible]		...	...	...	3	70	...	...	1 l. × ½ l.	1	3 l. × ½	6	0	0‡	.....			‡ by Weight.
30	Pendavid ..	Pendavid ...	Boia, the priest of Bodmin *under the Earl*	,, ...	1	0	0	..			6	...	...	...	...		...		...	..	...	...	...	.....	.	.....	10	0		1	0	0	Taken out of Glustone.
31	Paindran ...	Paindran ...	The King ...	,, ..	1	0	0	2	0		6	2	...	...	13	...	...	...		...	...	...	...	1×½	...	200 acres.	3	0	0	.....			By Weight.
32	Pennadelwan	Tunadelwan...	Canons of St. Stephens by Launceston of the Earl of Mortain	...	2	2	0	...			10	...	...	...	...	.	...	...	..	...	...	...	..	.....	...	.....	12	0		2	0	0	Taken out of Paindran.
33	Botconoan ...	Botchonoan..																															
34	Botchatuno ..	Botchatunno																															
35	Carneton .	Carnetona ...	The King ...	Earl Harold ...	5	0	0	3	0	0	30	20	43	...	14	.	...	.	6	...	180	...	..	.....	2	1×1	7	0	0‡	.....			‡ By Weight.
36	Clismestone ...	Clismestona ...	,, ...	,, ...	5	6	0	2	2	0	24	20	30	...	24	...	...	...	7	...	187	...		3×1	3	4×1	6	0	0‡	.....			
37	Calwetone ...	Calwitona ...	,, ...	,, ...	4	0	0	2	0	0	30	18	24	...	14	.	...	...	7	...	180	...	..	½×2 fur.	..	3×½	6	0	0‡	. ..			
38	Ritwore ...	Ritwori ...	,, ...	,, ..		...		1	0	0	30	13	13	...	15	2	...	..	6	...	150	...	..	½×2 fur.	2	1×½	1	0	0‡	... .			
39	Pennchel ...	Pennchel ..	,, ..	,, ..	2	2	0	1	0	0	30	22	24	...	16	..	...	...	7	...	100	...	...	13 acres.	11	30 acres.	5	0	0‡		..		
40	Conarditone ..	Conarditona ...	,, ...	Bristric afterwards Matilda the Queen	7	0	0	3	0	0	40	31	30	...	20	3	...	40	13	...	300	...	5	... ..	1	2×1	12	0	0	. ...			A Mill returning yearly thirty pence. by tale.
41	Gudiford ...	Gudiforda ...	,, ...	,, ...	1	3	0		1	0	16	10	7	...	6	...	...	...	4	.	45	...		.....	.	.....	3	0	0	.....			From this Manor the Ch. of S. Petrock had by Custom 30 pence and 1 ox and 7 sheep. THEY now it is taken away.
42	Bennartone ..	Bennartona ..	,, ..	,, ...	8	0	0	4	0	0	60	18	32	...	25	.	46	...	12	...	60	...	5	1×½	2	2×2	10	0	0	..			
43	Melledham ..	Melledam ...	,, ..	,, ...	1	0	0		2	0	8	5	4	...	7	...	...	...	5	...	100	...	5	1×½	..	... ..	4	0	0	... .			
44	Carewrge ...	Carewrga ...	Ainlf Walter de Clavilla	,, ..	0	1	0	...			2	1	...	...	3	...	...	...	...	...	...	...		... ..	...	.....	7	0		7	0		Renders 8d. by custom to the Church of S. Petrock.
				,, ...	...			1	0	2	...	...	...	...	...	...	...	...	...	...	...	...		.....	...	.....	5	0		10	0		
	LAND OF THE BISHOP OF EXETER.																																
45	Trewel ...	Trelinel	The Bishop of Exeter	Bishop Leofric ...	...			1	2	0	20	14	30	...	4	..	...	5	...	2	30	...	...	60 acres.	...	2×2	4	0	0	4	0	0	‡ Coppice Wood.
46	Matele ...	Matela			1	2	0	1	0	0	15	9	15	..	4	...	...	...	...	3	20	...	...	60‡ acres.	...	40 acres.	2	0	0	2	0	0	The Earl of Mortain has a yearly market in this Manor.
47	Tregel ...	Trigel ...	,, ..	,, ...	12	0	0	2	0	0	60	18	18	...	12	...	...	...	...	2	40	...	...	1×½	...	½×½	8	0	0	5	0	0	
48	Pantone ...	Pantona ..	,, ..	,, ...	44	0	0	8	0	0	60	45	40	...	40	...	...	...	5	...	50	...	...	2×1	...	1×2	24	0	0	10	0	0	
49	Bernerh ...	Berner ...	Richard son of Turold under the Bishop	,, ...	...			1	2	0	12	8	8	...	12	...	...	...	4	...	150	6	...	10 acres.	...	60 acres.	2	0	0	2	0	0	
50	Ecclesia S. Germani (6)	Sanctus Germanus ...	The Bp. and the Canons of St. Germans	This manor was Bishop Leofric's	12	0	0	2	0	0	20	18	30	...	12	...	...	...	...	...	30	...	...	2×1	...	4×2	8	0	0	5	0	0	The Bishop's part.
					12	0	0	never taxed			40	26	24	...	20	...	...	...	..	...	60	...	...	4×2	...	2×1	5	0	0	.....			The Canons' part.

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord, in the time of King William.	Lord in the time of King Edward.	No. of Hides. h. v. f.	Taxed for h. v. f.	Land for Plough Teams	Plough Teams.	Villeins.	Colberts.
51	Lanherwev ...	Lanherven ...	Fulcard, under the Bishop.	Bishop Leofric	3 0 0	1 0 0	10	4	8	...
52	Thinten ..	Tinten ...	Richd., under the Bishop.	,, ...	1 0 0	0 2 0	6	4½	5	...
53	Langvitetone	Languitetona	The Bishop ...	,, ..	11 0 0	4 0 0	40	31	27	...
54	Landicle ...	Landicla ...	Roland, the Archdeacon under the Bp.	,, ..	1 2 0	1 0 0	12	4	13	
55	Sanwinvec ...	San Winnuc ...	Godfrey, under the Bishop.	,, ...	...	1 0 0	6	3	5	...
				LANDS OF THE CHURCHES						
56	Treiwal ...	Treiwal ...	The Ch. of St. Michael	Brismar ..	2 0 0	never taxed	8	1	1	...
57	Lanscavetone	Lanscavetona	The Canons of Saint Stephens	Earl Harold ...	4 0 0	,,	20	9	...	...
58	Bodmine ...	Bodmine ...	The Church of St. Petrock	The Church of St. Petrock	1 0 0	,,	4	2	5	...
59	Lanwenehoc..	Languihenoc	,, ...	,, ...	1 0 0	,,	4	2	8	...
60	Rieltone ...	Rieltona ...	,,	,, ...	7 0 0	,,	30	12	30	...
61	Lanchehoc ..	Lanchichue ...	Berners	Cadwalant	1 0 0	...	4	1	...	..
62	Tiwarthel ..	Trivarthel ...	Earl Robt.	Algar	7 0 0	...	20	14	15	..
63	Elhil ..	Elhil ..	,,	A Thane	1 0 0	...	3	3	2	...
64	Calestoch ...	Calestoc ..	,,	,,	1 0 0	...	4	...	...	...
65	Cargav ..	Cargau ...	,,	,,	2 0 0	...	15	9	12	...
66	Trelloi ..	Trelloi ..	,,	Godric	1 0 0	...	4	2	...	.
67	Heglosenuder	Hecglosenuda	The Earl (Under the Church of S. Petrock)	Godric (under the Church of S. Petrock)	1 0 0	never taxed.	6	2	2	.
68	Botcinnii ..	Botcinnu ...	,,	Edwy	1 0 0	..	6	1	3	
69	Tremael ..	Tremail ..	,,	Eiulf	0 3 0		5	3	2	..
70	Polrode ..	Polroda ..	,,	A Thane	0 2 0	..	3	2	4	..
71	Turgoil ..	Turgoil ..	,,	Godric	1 0 0	...	6	4	4	
72	Fosnewit * ...	Fosnewit ..	Macos	Macos	1 0 0		7	4	8	...
73	Elil	Elil .	Church of St. Petrock	Church of St. Petrock	2 0 0	..	8	3½	8	...
74	Widie ..	Widie ..	,, ...	,, ..	1 0 0	,,	8	4	8	...
75	Tretdeno ..	Tretdeno ...	,,	,, ..	2 0 0	,,	8	3½	7	...
76	Lannachebran	Lannachebran	The Earl under the Canons	The Canons of St. Keverne	11 acres	...	7	..	...	...
77	Lanbrebois ...	Laubrabois ...	The Canons of St. Probus	King Edward	1 1 0	never taxed	8	4½	3	...
78	Langoroch ...	Langorroc ..	The Earl under the Canons	The Canons of St. Crantock	3 0 0 less 2 acrs.	...	10	1½	3	...
79	Lanpiran ...	Lanpiran ..	,, ...	The Canons of St. Piran	3 0 0	...	8	2	4	...
80	Eglosberrie ...	Ecglosberria ..	The Canons of St. Buryan	The Canons of St. Buryan	1 0 0	...	8	...	6	.
81	Neotestou ...	Nietestou ..	The Priests of St. Neots	The priests of St. Neots	2 0 0	never taxed	.	...	..	...
82	Sanctus Constantinus	...	...	...	...	...	..	.	...	...
				THE LAND OF THE CHURCH						
83	Savioch ..	Savioch ..	Ermenhald under the Abbot of Tavistock	Abbot Sitric ...	...	1 0 0	9	5	6	..
84	Antone ...	Antona ..	,, ...	,, ..	...	0 2 0	6	7	12	...
85	Rame ...	Rame ..	,, ..	,, .	1 0 0	0 2 0	7	4	4	...
86	Tregrenon ..	Tregrenon ...	,, .	,, .	.	0 2 0	4	3	9	...
87	Pennehalgar...	Pennehalgar	,, ..	,, ...	0 1 0	0 0 2	2	1	6	...
88	Talgar ...	Talgar .	,, ...	,, ..	...	0 0 2	1	...	...	...

* After Fosnewit the Exeter Domesday inserts the manor of Eglostudic.

Pack Horses.	Unbroken Horses.	Brood Mares	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood.	Meadow.	Pasture.	Value. T.R.W.	Value. T.R.E.	
									acr.	leugas.	£ s. d.	£ s. d.	
...	..	...	..	...	...	...	...	.....	...	2×1	2 10 0	5 0 0	There is a market on Sunday here, but it is now worth nothing, as the Earl of Mortain has established a market at his own Castle near on the same day.
...	...	...	3	..	20	...	...	1 ac.	..	... ..	1 5 0	1 5 0	
1	...	...	...	2	40	...	...	10 ac.	8	100 acres	17 0 0	8 0 0	
1	...	...	..	3	30	.	...	.....	2	2×1 leugas	3 0 0	3 0 0	
..	...	...	...		30	...	...	½×1 fur.	...	½×½	1 0 0	2 0 0	
OF CERTAIN SAINTS.													
...	..	...	4	...	60	...	..	.....	...	10 acres	1 0 0	...	
...	...	...	5	...	50	..	...	60 acres	...	leugas 3×2	4 0 0	8 0 0	
...	.	...	..	...	...	...	...	6 acres	...	30 acres	1 5 0	...	There were in the manor 68 houses and a market
...	...	...	...	...	...	..	..	.....	...	24 acres	0 10 0	...	
...	...	...	...	...	20	...	...	60	...	300	4 0 0	...	
...	...	...	6	...	80	...	...	.....	...	leugas 1×1	0 10 0	...	
...	20	...	10	1	250	...	...	12	...	5×1	13 18 4	...	
...	...	...	...	1	75	...	...	.....	1	20 acres	1 0 0	2 0 0	
...	...	...	2	...	30	...	...	10	...	.....	0 3 0	1 0 0	
...	12	...	7	...	60	7	11	4	...	leugas 2×1	3 0 0	10 0 0	1 Mill worth 30d. per annum.
...	...	...	7	...	80	...	20	.....	...	15 acres	1 0 0	2 0 0	
...	...	...	3	...	20	...	10	.....	..	20 acres	0 15 0	0 15 0	
...	...	...	6	...	40	..	...	.....	...	30	0 15 0	0 15 0	The villeins possessed 2 oxen.
...	...	...	15	...	100	..	...	.....	..	100	1 0 0	1 10 0	
...	...	...	3	...	20	...	4	3 acres	..	17	0 15 0	1 0 0	
..	..	...	5	...	50	...	...	3 acres	...	60	1 0 0	1 0 0	
...	...	...	...	...	..	...	...	.....	...	30	0 10 0	...	
...	...	...	...	...	20	...	...	.....	..	leugas 1×½	1 0 0	...	
...	...	...	...	...	24	..	..	12	...	1×1	0 15 0	1 5 0	
...	...	...	...	...	...	...	...	.....	...	100 acres	0 15 0	1 5 0	
...	...	...	...	...	30	...	...	.....	...	20	0 5 0	2 0 0	
...	...	...	20	...	160	...	...	.....	...	20	2 0 0	...	
...	...	...	15	...	110	6	...	.....	...	.....	0 5 0	2 0 0	
...	...	...	8	...	30	...	...	.....	...	10	0 12 0	2 0 0	
...	...	...	12	...	12	...	...	.....	...	20 acres	0 10 0	2 0 0	There are also 4 oxen.
...	...	...	...	...	20	...	10	.....	...	.....	0 5 0	...	One ox, also.
...	...	...	...	...	..	...	...	.....	...	.....	...	...	
OF TAVISTOCK.													
...	...	...	3	...	80	...	12	60 acres	...	30 acres	2 0 0	2 0 0	
...	...	...	7	...	80	...	...	30	...	10	5 0 0	5 0 0	
...	.	...	8	...	100	...	18	10	...	30	2 0 0	2 0 0	
...	...	...	3	...	108	12	...	.....	1	2	1 0 0	1 0 0	
...	...	...	...	3	30	2	6	10	...	10	0 10 0	0 10 0	
...	..	...	...	...	...	...	...	.....	...	1	0 5 0	0 5 0	The bordars have 2 oxen.

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord, in the time of King William.	Lord in the time of King Edward.	No. of Hides. h. v. f.	Taxed for h. v. f.	Land for Plough Teams	Plough Teams.	Villeins.	Cotlerts.	Bordars.	Serfs.	Pack Horses.	Unbroken Horses.	Brood Mares	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood.	Meadow. acr.	Pasture. leugas.	Value. T.R.W. £ s. d.	Value. T.R.E. £ s. d.	
51	Lanherwev ...	Lanherven ...	Fulcard, under the Bishop.	Bishop Leofric	3 0 0	1 0 0	10	4	8	...	6	4	...	..	...	..	...	...	...	...	.....	...	2×1	2 10 0	5 0 0	There is a market on Sunday here, but it is now worth nothing, as the Earl of Mortain has established a market at his own Castle near on the same day.
52	Thinten ..	Tinten ...	Richd., under the Bishop.	,, ...	1 0 0	0 2 0	6	4½	5	...	2	1	...	...	...	3	..	20	...	...	1 ac.	..	... ..	1 5 0	1 5 0	
53	Langvitetone	Languitetona	The Bishop ...	,, ..	11 0 0	4 0 0	40	31	27	...	20	7	1	...	...	...	2	40	...	...	10 ac.	8	100 acres	17 0 0	8 0 0	
54	Landicle ...	Landicla ...	Roland, the Archdeacon under the Bp.	,, ..	1 2 0	1 0 0	12	4	13	.	4	3	1	...	..	..	3	30	.	...	.....	2	2×1 leugas	3 0 0	3 0 0	
55	Sanwinvec ...	San Winnuc...	Godfrey, under the Bishop.	,, ...	...	1 0 0	6	3	5	...	6	2	..	...	...	...	.	30	...	...	½×1 fur.	...	½×½	1 0 0	2 0 0	

LANDS OF THE CHURCHES OF CERTAIN SAINTS.

56	Treiwal ...	Treiwal ...	The Ch. of St. Michael	Brismar ..	2 0 0	never taxed	8	1	1	...	2	...	...	..	...	4	...	60	...	...	.....	...	10 acres	1 0 0	...	
57	Lanscavetone	Lanscavetona	The Canons of Saint Stephens	Earl Harold ...	4 0 0	,,	20	9	...	...	...	...	...	...	...	5	..	50	..	...	60 acres	...	leugas 3×2	4 0 0	8 0 0	
58	Bodmine ...	Bodmine ...	The Church of St. Petrock	The Church of St. Petrock	1 0 0	,,	4	2	5	...	6	...	...	.	...	..	...	...	...	...	6 acres	...	30 acres	1 5 0	...	There were in the manor 68 houses and a market
59	Lanwenehoc..	Languihenoc	,, ...	,, ...	1 0 0	,,	4	2	8	...	4	2	...	...	...	...	...	...	..	..	.....	...	24 acres	0 10 0	...	
60	Rieltone ..	Rieltona ...	,,	,, ...	7 0 0	,,	30	12	30	...	15	2	...	...	...	...	...	20	...	...	60	...	300	4 0 0	...	
61	Lanchchoc ..	Lanchichue ...	Berners	Cadwalant	1 0 0	...	4	1	...	..	6	2	..	..	...	6	...	80	...	...	.....	...	leugas 1×1	0 10 0	...	
62	Tiwarthel ..	Trivarthel ...	Earl Robt.	Algar	7 0 0	...	20	14	15	..	16	10	...	20	...	10	1	250	...	...	12	...	5×1	13 18 4	...	
63	Elhil ..	Elhil ..	,,	A Thane	1 0 0	...	3	3	2	...	6	1	...	...	...	...	1	75	...	...	.....	1	20 acres	1 0 0	2 0 0	
64	Calestoch ...	Calestoc ..	,,	,,	1 0 0	...	4	...	...	...	...	12	...	...	...	2	...	30	...	...	10	...	.....	0 3 0	1 0 0	
65	Cargav ..	Cargau ...	,,	,,	2 0 0	...	15	9	12	...	22	16	...	12	...	7	...	60	7	11	4	...	leugas 2×1	3 0 0	10 0 0	1 Mill worth 30d. per annum.
66	Trelloi ..	Trelloi ..	,,	Godric	1 0 0	...	4	2	..	.	8	5	...	...	...	7	..	80	...	20	.....	...	15 acres	1 0 0	2 0 0	
67	Hecglosenuder	Hecglosenuda	The Earl	Godric	1 0 0	...	6	2	2	.	8	3	...	...	...	3	...	20	...	19	.....	..	20 acres	0 15 0	0 15 0	
68	Botcinnii ..	Botcinnu ..	,,	Edwy	1 0 0	...	6	1	3	.	3	1	...	...	...	6	...	40	..	...	.....	...	30	0 15 0	0 15 0	The villeins possessed 2 oxen.
69	Tremael ..	Tremail ...	,,	Eiulf	0 3 0	...	5	3	2	..	16	2	...	...	...	15	...	100	..	...	.....	..	100	1 0 0	1 10 0	
70	Polrode ..	Polroda ..	,,	A Thane	0 2 0	...	3	2	4	.	3	1	...	...	...	3	...	20	...	4	3 acres	..	17	0 15 0	1 0 0	
71	Turgoil ..	Turgoil ..	,,	Godric	1 0 0	...	6	4	4	.	4	3	..	..	...	5	..	50	...	...	3 acres	...	60	1 0 0	1 0 0	
72	Fosnewit * ..	Fosnewit ..	Macos	Macos	1 0 0	...	7	4	8	...	8	1	...	...	...	...	...	...	...	...	.....	...	30	0 10 0	...	
73	Elil .	Elil .	Church of St. Petrock	Church of St. Petrock	2 0 0	...	8	3½	8	...	8	4	...	...	...	...	...	20	...	...	.....	..	leugas 1×½	1 0 0	...	
74	Widie ..	Widie ..	,, ...	,, ..	1 0 0	,,	8	4	8	...	15	2	...	...	...	...	...	24	..	..	12	...	1×1	0 15 0	1 5 0	
75	Tretdeno ..	Tretdeno ...	,,	,, ..	2 0 0	,,	8	3½	7	...	8	2	..	...	...	...	...	...	...	...	.....	...	100 acres	0 15 0	1 5 0	
76	Lannachebran	Lannachebran	The Earl under the Canons	The Canons of St. Keverne	11 acres	...	7	..	...	...	...	2	...	...	...	...	...	30	...	...	.....	...	20	0 5 0	2 0 0	
77	Lanbrebois ...	Laubrabois ...	The Canons of St. Probus	King Edward	1 1 0	never taxed	8	4½	3	...	8	5	...	...	...	20	...	160	...	...	.....	...	20	2 0 0	...	
78	Langoroch ...	Langorroc ..	The Earl under the Canons	The Canons of St. Crantock	3 0 0 less 2 acrs.	...	10	1½	3	...	...	...	...	...	...	15	...	110	6	...	.....	...	.....	0 5 0	2 0 0	
79	Lanpiran ..	Lanpiran ..	,, ..	The Canons of St. Piran	3 0 0	...	8	2	4	...	8	2	...	...	...	8	...	30	...	...	.....	...	10	0 12 0	2 0 0	
80	Eglosberrie ...	Ecglosberria .	The Canons of St. Buryan	The Canons of St. Buryan	1 0 0	...	8	...	6	.	6	...	...	...	...	12	...	12	...	...	.....	...	20 acres	0 10 0	2 0 0	There are also 4 oxen.
81	Neotestou ..	Nietestou ..	The Priests of St. Neots	The priests of St. Neots	2 0 0	never taxed	...	.	.	.	4	...	...	...	...	...	...	20	...	10	.....	...	.....	0 5 0	...	One ox, also.
82	Sanctus Constantinus	...	...	...	...	...	..	.	...	...	...	...	...	...	...	...	...	..	...	...	.....	...	.....	...	...	

THE LAND OF THE CHURCH OF TAVISTOCK.

83	Savioch ..	Savioch ..	Ermenhald under the Abbot of Tavistock	Abbot Sitric ...	...	1 0 0	9	5	6	..	17	4	...	...	...	3	...	80	...	12	60 acres	...	30 acres	2 0 0	2 0 0	
84	Antone ...	Antona ..	,, ..	,, ..	...	0 2 0	6	7	12	..	15	4	...	...	...	7	...	80	...	...	30	...	10	5 0 0	5 0 0	
85	Rame ...	Rame ..	,, ..	,, .	1 0 0	0 2 0	7	4	4	...	15	4	...	.	...	8	...	100	...	18	10	...	30	2 0 0	2 0 0	
86	Tregrenon ..	Tregrenon ...	,, .	,, .	.	0 2 0	4	3	9	...	...	2	...	...	...	3	...	108	12	...	.....	1	2	1 0 0	1 0 0	
87	Penuchalgar...	Penuchalgar	,, ..	,, ..	0 1 0	0 0 2	2	1	6	...	2	...	...	...	...	...	3	30	2	6	10	...	10	0 10 0	0 10 0	
88	Talgar ...	Talgar .	,, ...	,, ..	...	0 0 2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	1	0 5 0	0 5 0	The bordars have 2 oxen.

* After Fosnewit the Exeter Domesday inserts the manor of Eglostudic.

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William	Lord in the time of King Edward.	No. of Hides. h.	v.	f.	Taxed for h.	v.	f.	Land for Plough Teams	Plough Teams.	Villiens	Colberts
89	Fawintone ...	Fawitona ...	The Earl ...	Merlaswegen	2	0	0	1	0	0	30	21	30	...
90	Liscarret ...	Liscarret ...	,, ...	,, .	12	0	0	2	0	0	60	16	35	...
91	Stratone ...	Stratona ...	,, ...	Bishop Osbern and Alured the Marshal	2	0	0	1	0	0	30	19	30	..
92	Henliston ..	Henlistona ...	,, ..	Algar ...	2	0	0	1	0	0	15	12	20	...
93	Teglaston ..	Treglastan ...	,, ...	Earl Harold ...	6	0	0	2	0	0	20	14	24	...
94	Tibesteu	Tibesten ...	,, .	Radulf, master of the horse	3	0	0	1	0	0	30	13	27	...
95	Trenwit .	Trenuwit ..	,, ..	Abbot Sitric ...	6	0	0	2	0	0	40	17	30	...
96	Bernel ...	Bernel ...	,, ..	Brismar ...	1	2	0	1	0	0	20	9	12	...
97	Moireis .	Moireis ...	,, ...	Ordulf ..	2	0	0	1	0	0	10	7	5	...
98	Trewitghi ..	Trewitghi ...	,, ...	Merlesuen ..	2	0	0	1	0	0	16	13	15	...
99	Alwaretone	Alwartona ...	,, .	Alward ..	3	0	0	2	0	0	60	15	35	...
100	Tedintone ...	Tedentona ...	,, ..	Ordulf ...	3	0	0	2	0	0	50	17	25	...
101	Risleston ..	Risllestona	,, ..	Brismar ..		...		1	0	0	15	10	15	...
102	Landiner ..	Landiner ...	,, ...	Edith the Queen	0	1	0	0	0	1	2	...	...	...
103	Hela ..	Hela ..	,, ..	Ailmer ...	0	0	1	0	0	½	1	...	...	...
104	Treiswantel ..	Treiswantel ...	,, ...	Abbot Sitric ...	0	1	0	0	0	1	2	...	...	...
105	Heli ..	Heli ..	,, ...	,, ...	0	2	0	0	0	1	2	...	2	...
106	Peret ...	Pedret ...	,, .	Wadel ...	0	1	0	0	0	1	2	...	2	...
107	Trewille ...	Trevilla ...	,, ...	Alestan ..	0	2	0	0	0	1	...	...	...	...
108	Trebihan ...	Trebihan ...	,, ...	Osulf ...	0	2	0	0	0	1	2	...	..	...
109	Hesland ..	Heslant ...	,, ...	Alestan ..				0	0	2	2	...	...	...
110	Dunhevet ..	Dunheuet ...	,, ..	..	1	0	0	0	1	0	10	5	1	...
111	Trewelle with	Trewelle with	Rainald de	...		...			...		...	...	...	...
112	Gargalle	Gargalla	Valletort under the Earl	Brismar ...		...		0	1	0	5	4	6	...
113	Trewellogen ..	Trevelloien ..	,, ..	Alwin ..	0	2	0	0	0	3	6	3	4	...
114	Lanher ...	Lanner ...	,, ...	Edmer ..	0	1	0	0	0	1	1	1	...	...
115	Languer ..	Languer ...	,, .	Grim ..	0	1	0	0	0	1	1	...	...	...
116	Brodehoc ...	Brodehoc ..	,, ...	Aluric ...	0	2	0	0	1	0	4	2	3	...
117	Raswale ...	Raswala ...	,, .	Alveva ...	0	2	0	0	1	0	3	2	2	...
118	Chilorgoret ...	Chilorgoret ..	,, ...	Ustret ...	1 acre			0	0	½	1	...	...	...
119	Telbrig ...	Telbricg ...	,, ..	Aluric ...	1 acre			0	0	½	1	...	...	...
120	Lantien ..	Lantien ...	,, ..	Alric ...	0	1	0	0	0	1	2	..	...	..
121	Lanlaron ...	Lanlaron ...	,, ...	Osbern ...	0	1	0	0	0	1	3	1	...	...
122	Tremetone ...	Tremetona ...	,, ...	Brismar	5	0	0	2	0	0	24	10	20	...
123	Calestoch ...	Kalestoc ...	,, ..	Asgar ...	2	2	0	1	0	0	12	8	30	...
124	Pennhalgar ...	Pennahalgar	,, ..	Elmer ..	1	0	0	0	1	0	16	8	11	...
125	Macretone ...	Macretona ...	,, ..	King Edward	1	0	0	0	1	0	8	3	6	...
126	Trehinoch ...	Trehynoc ...	,, ...	Algar ...	0	1	0	1 acre			1	1	2	...
127	Argentel ...	Argentel ...	,, ...	Brismar				0	1	0	3	2	3	...
128	Haltone ...	Haltona ...	,, ...	Earl Harold .	1	0	0	0	1	0	10	4	10	...
129	Piletone ..	Pilatona ...	,, ...	Merlatona ..	0	2	0	0	1	0	6	3	7	...
130	Tremor ...	Tremor ..	,, ...	Brismar ..	0	1	0	0	0	1	2	...	1	...
131	Langver ...	Languer ..	,, ..	Grim ...	0	1	0	0	0	1	1	...	...	...
132	Trehavoc ...	Trehavoc ...	,, ...	Brismar ..	0	1	0	0	0	1	2	1	...	...
133	Pænpav ...	Penpau ..	,, ...	Aluric ..	1 acre			1 acre			3	3	6	...
134	Treverim ...	Treverim ...	,, ...	Leveron ...	0	1	0	0	0	1	3	2½	5	...
135	Niweton ...	Niwetona ...	,, ...	Aluric ..	0	2	0	0	1	0	6	2	3	...
136	Pedeleford ...	Pedeleforda ...	,, ..	Chinestan ..		...		0	1	0	6	2	3	...
137	Bichetone ...	Bichetona ..	,, ..	,,	0	1	0	0	0	1	2	...	...	...
138	Aissetone ...	Aissetona ...	,, ...	Aluric	0	2	0	0	1	0	2	...	...	...
139	Niwetone ...	Niwetona ...	,, ...	,, ..	1	0	0	0	1	0	8	1	10	...
140	Lander ...	Landrei ...	,, ...	Saulf ...	0	1	0	0	0	1	1	1	1	...
141	Richan ...	Ricann ...	,, ...	Wallo ...	0	1	0	0	0	1	2	...	...	...
142	Langenewit ...	Langunuit ...	,, ..	Britric ..	0	1	0	0	0	1	2	...	...	...
143	Trewillen ...	Trewillien ...	,, ...	Alric ..	0	0	1	0	0	½	1	...	...	...
144	Caer ...	Caer ...	,, ...	Brismar ..	0	1	0	0	0	1	2	...	...	...
145	Cudawoid ...	Cudawoit ...	Richard, son of Turold under the Earl	Alwin ...		...		1	0	0	12	9	15	...
146	Polescat ...	Poleschat ...	,, ...	Alnod ...	0	0	2		0	1	1	...	...	...
147	Thersent ...	Thersent ...	,, ...	Alwin ...	2	0	0	1	0	0	12	7	5	...

Pack Horses.	Unbroken Horses.	Brood Mares	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood.	Meadow.	Pasture.	Value T. R. W. £ s. d.	Value T. R. E. £ s. d.	
								acres.	acr.	leugas.			
...	33	..	23	...	287	7	15	200	...	7×4	16 18 4	8 0 0	
...	8	..	10	...	250	...	...	300	...	4×2	25 18 4	8 0 0	A Mill returning 12s. a year A Markst „ 4s. „
...	...	..	30	...	300	...	...	20	...	200 acres	35 18 4	30 0 0	10 salt-pans returning 10s. a year.
...	18	...	10	...	150	5	12	10	...	3×2	15 18 4	15 18 4	
...	4	...	4	...	50	..	...	.....	...	300 acres	15 18 4	12 mrks slvr.	
..	..	...	14	...	160	4	...	40	...	3×1 leugas	15 18 4	12 0 0	
...	21	...	12	...	...	...	...	240	...	1000 acres	25 18 4	12 mrks slvr	
...	20	...	2	...	150	...	...	40	...	4×2 leugas	12 18 4	Do.	
...	...	...	10	...	100	...	7	.....	...	.....	9 18 4	5 0 0	
...	...	4	10	...	180		...	60	...	800	8 0 0	5 0 0	
]	17	...	9	..	100	4	...	...	3	2×1 leugas	20 0 0	8 0 0	
...	15	...	10	...	110	...	...	1×1 leugas	2	3×1 leugas	20 0 0	8 0 0	
...	15	..	..	...	60	...	...	60 acres	...	300 acres	15 & 1 mark of slvr. & 5s.	30 0 0	
...	...	...	...	...	...	..	...	... ..	5	40	2 6	10 0	
...	...	...	...	..	...	...	...	.. ..	1	30	1 0	2 6	
...	...	...	2	...	...	...	...	.....	..	30	2 6	10 0	
...	..	...	...	..	...	..	...	.....	...	30	5 0	15 0	
..	...	...	...	..	...		.	.....	...	5	2 0	7 0	
...	...	...	...	...	...	..	...	5	...	60	3 0	10 0	
...	...	...	...	...	...	...	..	.....	...	200	5 0	1 0 0	
...	...	...	...	..		...	..	.. ...	...	30	2 0	1 0 0	
..	...	...	5	..	50	...	..	.....	...	40	4 0 0	20 0 0	2 Mills which return 40s. a year
...	...	...	...	...	...	...	.	.....	...	...	..	...	Here is a Castle of the Earl's.
...	...	...	...	...	...	...	...	3×1 leugas	...	..	1 5 0	3 0 0	
...	...	...	6	5	40	...	12	60 acres	...	60	1 0 0	1 0 0	
...	...	...	..	..	20	...	10	30	...	10	8 0	8 0	
...	...	...	...	..	...	...	...	10	...	..	2 0	4 0	
..	..	..	..	...	36	...	10	20	...	100	10 0	12 0	
...	...	...	3	...	40	5	.	.....	...	30	7 0	10 0	
...	...	...	...	...	10	3	10	10	...	...	3 0	3 0	
...	...	...	..	...	...	...	...	.....	...	30	1 3	...	
...	...	...	...	...	..	...	..	3	...	...	2 0	10 0	
..	...	...	...	...	20	...	...	5	...	60 acres	5 0	10 0	
...	...	..	...	...	15	...	15	20	...	60	8 0 0	10 0 0	A market returning 3 shillings. The Earl has a castle here.
...	...	...	...	..	..	3	...	100	...	2×1 leugas	3 0 0	6 0 0	
...	...	...	...	...	..	...	...	4	...	30 acres	1 10 0	3 0 0	
...	...	..	...	...	...	...	...	.....	...	60	1 0 0	1 10 0	
...	...	...	..	2	20	...	...	.....	...	...	10 0	10 0	
..	...	...	...	...	60	...	...	.....	...	...	15 0	1 0 0	
1	...	...	2	..	40	6	10	12	...	40	1 10 0	2 0 0	
...	...	...	2	...	30	...	10	40	...	100	1 0 0	1 10 0	
...	...	...	2	...	30	4	...	10		10	5 0	5 0	There are 6 oxen.
..	...	...	...	...	...	...	..	10	.	...	2 0	...	
...	...	...	5	...	60	3	...	...	..	5	5 0	5 0	
1	...	...	5	..	60	15	...	6	3	30	1 10 0	1 10 0	
...	...	..	...		...	...	...	10 acres	..	60	10 0	...	
...	...	...	5	...	40	...	10	.....	...	12	1 0 0	1 10 0	
...	...	...	...	...	20	5	4	5	...	100	15 0	1 0 0	
...	...	...	...	...	...	...	...	15	...	10	3 0	5 0	
...	..	...	3	...	...	2	...	6×3 fnr.	...	1	10 0	...	
...	...	.	...	...	...	...	...	2 leu. × 1 fur	.	½ leuga	1 10 0	2 0 0	
...	...	..	...	.	.	...	...	.. ...	8	30 acres	5 0	5 0	
...	...		..	..	...	...	...	... ..	...	5	3 0	10 0	
...	...	...	...	...	...	...	..	10 acres	...	5	5 0	10 0	
...	..	...	...	...	...	...	...	.....	...	...	3 0	3 0	
...	...	...	...	..	...	...	...	12	...	5	5 0	1 5 0	
...	20	..	17	...	240 (*)	13	...	60	..	5×2 leugas	2 0 0	5 0 0	(*) Wether sheep.
...	...	...	...	...	...	..	...	.....	...	40 acres	2 6	2 6	
...	..	1	3	...	35	...	8	1×½ leuga	...	3×2 leugas	1 0 0	1 10 0	

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William	Lord in the time of King Edward.	No. of Hides. h.	v.	f.	Taxed for h.	v.	f.	Land for Plough Teams.	Plough Teams.	Villeins.	Cottars.	Bordars.	Serfs.	Pack Horses.	Unbroken Horses.	Brood Mares.	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood. acres.	Meadow. acr.	Pasture. leugas.	Value T. R. W. £	s.	d.	Value T. R. E. £	s.	d.	
89	Fawintone ..	Fawitona ...	The Earl ...	Merlaswegen	2	0	0	1	0	0	30	21	30	...	29	0	...	33	..	23	...	287	7	15	200	...	7×4	16	18	4	8	0	0	A Mill returning 12s. a year
90	Liscarret ..	Liscarret ...	,, ..	,, .	12	0	0	2	0	0	60	16	35	...	37	29	...	8	..	10	...	250	...	...	300	...	4×2	25	18	4	8	0	0	A Market ,, 4s. ,,
91	Stratone ..	Stratona ...	,, ..	Bishop Osbern and Alured the Marshal	2	0	0	1	0	0	30	19	30	..	29	[illegible]	..	..	.	30	...	300	...	...	20	...	200 acres	35	18	4	30	0	0	10 salt-pans returning 10s. a year.
92	Henliston ..	Henlistona ...	,, .	Algar ...	2	0	0	1	0	0	15	12	20	...	15	48	...	18	...	10	...	150	5	12	10	...	3×2	15	18	4	15	18	4	
93	Teglaston ..	Treglastan ...	,, ..	Earl Harold ...	6	0	0	2	0	0	24	14	24	..	20	15	...	4	...	4	...	50	..	...	.....	...	300 acres	15	18	4	12 mrks slvr.			
94	Tibesten	Tibesten ...	,, .	Radulf, master of the horse	3	0	0	1	0	0	30	13	27	...	20	14	..	..	...	14	..	160	4	...	40	...	3×1 leugas	15	18	4	12	0	0	
95	Trenwit .	Trenuwit ..	,, ..	Abbot Sitric ...	6	0	0	2	0	0	40	17	30	...	29	18	...	21	...	12	...	..	...	.	240	...	1000 acres	25	18	4	12 mrks slvr			
96	Bernel ...	Bernel ..	,, ..	Brismar ...	1	2	0	1	0	0	20	9	12	...	18	10	...	20	...	2	..	150	...	...	40	...	4×2 leugas	12	18	4	Do.			
97	Moireis .	Moireis ..	,, ...	Ordulf ...	2	0	0	1	0	0	10	7	5	...	10	3	...	...	...	10	..	100	...	7	.....	...	.....	9	18	4	5	0	0	
98	Trewithgi ..	Trewithgi ...	,, ...	Merlesuen ..	2	0	0	1	0	0	16	13	15	...	17	7	...	...	4	10	...	180	...	...	60	...	800	8	0	0	5	0	0	
99	Alwaretone	Alwartona ...	,, .	Alward ..	3	0	0	2	0	0	60	15	35	...	25	11	1	17	...	9	.	101	4	...	...	3	2×1 leugas	20	0	0	8	0	0	
100	Tedintone ...	Tedentona ...	,, .	Ordulf ...	3	0	0	2	0	0	50	17	25	..	50	13	...	15	...	10	...	110	...	...	1×1 leugas	2	3×1 leugas	20	0	0	8	0	0	
101	Risleston ..	Risllestona	,, ..	Brismar ..	...			1	0	0	15	10	15	...	24	12	...	15	..	..	...	60	...	..	60 acres	...	300 acres	15 & 1 mark of slvr. & 5s.			30	0	0	
102	Landiner ..	Landiner ...	,, ...	Edith the Queen	0	1	0	0	0	1	2	...	.	...	6	...	...	...	...	...	...	...	...	.	... .	5	40	2	6		10	0		
104	Hela ..	Hela ..	,, ..	Ailmer ...	0	0	1	0	0	½	1	...	...	...	2	...	...	...	...	...	.	...	...	...	.. ..	1	30	1	0		2	6	
104	Treiswantel .	Treiswantel ...	,, ..	Abbot Sitric ..	0	1	0	0	0	1	2	...	...	...	5	...	...	...	...	2	...	..	...	...	.....	..	30	2	6		10	0		
105	Heli ..	Heli ..	,, ...	,, ...	0	2	0	0	0	1	2	...	2	...	2	...	..	..	...	...	..	...	..	...	.....	...	30	5	0		15	0	
106	Peret ...	Pedret ...	,, .	Wadel ...	0	1	0	0	0	1	2	...	2	...	2	...	...	...	...	...	...	...	...	...	.....	...	5	2	0		7	0	
107	Trewille ...	Trevilla ...	,, ...	Alestan ..	0	2	0	0	0	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	5	...	60	3	0		10	0	
108	Trebihan ..	Trebihan ...	,, ...	Osulf ...	0	2	0	0	0	1	2	...	..	...	3	...	...	...	...	...	...	...	...	..	.....	...	200	5	0		1	0	0	
109	Hesland ..	Heslant ...	,, ..	Alestan .				0	0	2	2	...	...	...	3	...	...	...	...	...	...	...	...	...	.. ...	...	30	2	0		1	0	0	
110	Dunhevet ..	Dunheuet ...	,, ...	..	1	0	0	0	1	0	10	5	1	..	13	3	...	...	...	5	.	50	...	.	.....	...	40	4	0	0	20	0	0	2 Mills which return 40s. a year
111	Trewellewith	Trewelle with	Rainald de	..																					.....	...	...	..			...			Here is a Castle of the Earl's.
112	Gargalle	Gargalla	Valletort under the Earl	Brismar ...	...			0	1	0	5	4	6	4	6	4	...	...	...	...	...	...	...	...	3×1 leugas	...	..	1	5	0	3	0	0	
113	Trewellogen	Trevelloien	,, .	Alwin ..	0	2	0	0	0	3	6	3	4	...	4	5	...	...	...	6	5	40	...	12	60 acres	...	60	1	0	0	1	0	0	
114	Lanher ...	Lanner ...	,, ..	Edmer ..	0	1	0	0	0	1	1	1	...	...	2	6	...	...	...	.	..	20	...	10	30	...	10	8	0		8	0	
116	Languer .	Languer ...	,, ...	Grim ..	0	1	0	0	0	1	1	...	.	...	2	...	...	...	...	...	..	...	...	...	10	...	..	2	0		4	0	
116	Brodehoe ...	Brodehoe	,, ..	Aluric ..	0	2	0	0	1	0	4	2	3	...	4	6	..	..	..	..	.	30	.	70	20	...	100	10	0		12	0	
117	Raswale ...	Raswala ...	,, .	Alveva ...	0	2	0	0	1	0	3	2	2	...	2	1	...	...	...	3	...	40	5	...	.. ..	...	30	7	0		10	0	
118	Chilorgoret ...	Chilorgoret .	,, ...	Ustret ...	1 acre			0	0	½	1	...	...	...	...	1	...	...	...	...	...	10	3	10	10	...	...	3	0		3	0	
119	Telbrig ...	Telbrieg ...	,, .	Aluric ...	1 acre			0	0	½	1	...	...	...	1	...	...	...	...	..	...	...	...	...	.. ..	...	30	1	3		...		
120	Lantien ..	Lantien ...	,, .	Alric ...	0	1	0	0	0	1	2	..	...	..	3	...	...	...	...	...	..	.	...	.	3	...	...	2	0		10	0	
121	Lanlaron ...	Lanlaron ...	,, ...	Osbern ...	0	1	0	0	0	1	3	1			4	2	..	...	...			20	...		5	...	60 acres	5	0		10	0	
122	Tremetone ...	Tremetona ...	,, ...	Brismar	5	0	0	2	0	0	24	10	20	..	30	6	...	...	..	...	...	15	...	15	20	...	60	8	0	0	10	0	0	A market returning 3
123	Calestoch ...	Kalestoc ..	,, ..	Asgar ...	2	2	0	1	0	0	12	8	30	...	30	12	...	.	...	...	..	.	3	...	100	...	2×1 leugas	3	0	0	6	0	0	shillings. The Earl
124	Pennhalgar ...	Pennahalgar	,, ...	Elmer ..	1	0	0	0	1	0	16	8	14	..	30	4	...	..	..	..	.	.	...	...	4	...	30 acres	1	10	0	3	0	0	has a castle here.
125	Macretone ...	Macretona ...	,, ..	King Edward	1	0	0	0	1	0	8	3	6	...	8	1	...	.	..	...	...	...	...	...	.....	...	60	1	0	0	1	10	0	
126	Trehinoch ...	Trehynoc ..	,, ...	Algar ...	0	1	0	1 acre			1	1	2	...	2	1	...	...	...	.	2	20	...	...	.....	...	...	10	0		10	0	
127	Argentel ...	Argentel ...	,, ...	Brismar				0	1	0	3	2	3	...	6	7	..	...	...	...	...	60	...	...	.....	...	...	15	0		1	0	0	
128	Haltone ...	Haltona ...	,, ...	Earl Harold	1	0	0	0	1	0	10	4	10	...	10	1	...	...	...	2	.	40	6	10	12	.	40	1	10	0	2	0	0	
129	Filetone ...	Filatona ...	,, ...	Merlatona ..	0	2	0	0	1	0	6	3	7	...	7	6	.	...	...	2	..	30	...	10	40	..	100	1	0	0	1	10	0	
130	Tremor ...	Tremor ...	,, ...	Brismar ..	0	1	0	0	0	1	2	...	1	..	3	...	...	...	...	2	...	30	4	...	10		10	5	0		5	0	There are 6 oxen.
131	Langver ...	Langver ...	,, ...	Grim ..	0	1	0	0	0	1	1	...	...	...	2	1	..	...	...	...	...	...	...	...	10	...	10	2	0		...		
132	Trehavoc ...	Trehavoc ...	,, ...	Brismar ..	0	1	0	0	0	1	2	1	...	...	2	...	...	...	...	5	...	60	3	...	..	..	5	5	0		5	0	
133	Penpav ...	Penpau ...	,, ...	Aluric ..	1 acre			1 acre			3	3	6	...	6	1	...	...	...	5	...	60	15	...	6	3	30	1	10	0	1	10	0	
134	Treverim ...	Treverim ...	,, ...	Leveron ...	0	1	0	0	0	1	3	2½	5	...	5	...	..	...	...	...	...	...	...	...	10 acres	..	60	10	0		...		
135	Niweton ...	Niwetona ..	,, ...	Aluric ..	0	2	0	0	1	0	6	2	3	...	12	2	...	...	..	5	...	40	...	10	.....	...	12	1	0	0	1	10	0	
136	Pedeleford ...	Pedeleforda ...	,, ..	Chinestan ..	...			0	1	0	6	2	3	...	1	1	...	...	..	...	...	20	5	4	5	...	100	15	0		1	0	0	
137	Bichetone ...	Bichetona ..	,, ..	,,	0	1	0	0	0	1	2	...	...	...	2	...	...	.	...	...	...	...	..	.	15	..	10	3	0		5	0	
138	Aissctone ...	Aissctona ...	,, ...	Aluric	0	2	0	0	1	0	2	..	...	...	3	...	...	...	...	3	..	...	2	...	6 = 3 fnr.	..	1	10	0		...		
139	Niwetone ...	Niwetona ...	,, ...	,, ..	1	0	0	0	1	0	8	1	10	..	1	...	.	.	..	..	.	.	...	...	2 leu. ∠ 1 fur	..	½ leuga	1	10	0	2	0	0	
140	Lander ..	Landrei ...	,, ...	Saulf ...	0	1	0	0	0	1	1	1	1	..	2	...	...	...	...	...	...	...	...	...	.. ..	8	30 acres	5	0		5	0	
141	Riehan ..	Ricann ...	,, ...	Wallo ...	0	1	0	0	0	1	2	...	...	...	2	...	...	...	...	...	...	...	...	...	.. ..	.	5	3	0		10	0	
142	Langenewit ...	Langunuit ...	,, ..	Britric ..	0	1	0	0	0	1	2	...	...	...	2	...	...	...	...	.	..	..	...	..	10 acres	.	5	5	0		10	0	
143	Trewillen ...	Trewillien ...	,, ...	Alric ..	0	0	1	0	0	½	1	.	...	...	2	...	...	...	...	...	...	...	...	...	.....	...	...	3	0		3	0	
144	Caer ...	Caer ...	,, ...	Brismar .	0	1	0	0	0	1	2				9	12									12	..	6	5	0		5	0	
145	Cudawoit ...	Cudawoit ...	Richard, son of Turold under the Earl	Alwin ..	...			1	0	0	12	9	18	...	29			29	.	17	..	240 (*)	13	...	60		5×2 leugas	2	0	0	5	0	0	(*) Wether sheep.
146	Poleseat ...	Poleschat ...	,, ...	Alnod ...	0	0	2		0	1	1	...	...	...	1	...	...	..	1	3	...	...	...	...	.....	...	40 acres	2	6		2	6	
147	Thersent ...	Thersent ..	,, ...	Alwin ...	2	0	0	1	0	0	12	7	5	...	11	2	...	...	...	...	...	35	...	8	1×½ leuga	...	3×2 leugas	1	0	0	1	10	0	

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William.	Lord in the time of King Edward.	No. of Hides. h.	v.	f.	Taxed for h	v.	f.	Land for Plough Teams	Plough Teams.	Villeins.	Colberts.
148	Buchent ...	Bocent ...	Richard, son of Turold, under the Earl.	Bristwald ...	0	1	0	0	0	1	2	½	...	...
149	Croftededor ...	Croutededor ...	,, ...	Colo ...	1	2	0	0	2	0	10	4	6	...
150	Lavredoch ...	Lanredock ...	,, ...	Aluric or Allric	1	0	0	0	3	0	8	3	4	...
151	Lansalhus ...	Lansaluus ...	,, ...	Almar ...	1	0	0	0	1	0	5	2	2	...
152	Tywardrai ...	Tiwardrai ...	,, ...	Colo ...	2	0	0	1	0	0	12	7	8	...
153	Bodewitghi ...	Bodewitghi ...	,, ...	Aluric ...	1	0	0	0	2	0	7	7	10	...
154	Bodeworgoin	Bodewrgoin ...	,, ...	Alwin ...	1	0	0	0	3	0	10	3	4	...
155	Ticoith ...	Ticoit ...	,, ...	Godric ...		...		0	1	0	5	3	4	...
156	Ghivaile ...	Ghivaili ...	,, ...	Do. ...	1	0	0	0	2	0	6	5	5	...
157	Polduh ..	Poldu ...	,, ...	Alwin ...		...		1	0	0	10	5	8	...
158	Woderon ...	Uderon ...	.....	,, ...	0	2	0	0	1	0	3	1	2	...
159	Treverbin ...	Treverbin ...	.....	,, ...	0	1	0	0	0	2	3	1½	2	...
160	Brethei ...	Brethei ...	.....	Ailbricht ...		..		0	0	2	4	1	...	...
161	Lisnestoch ...	Lisnestoch ...	.....	Ailbric ...		...		0	0	1	5	1	...	...
162	Wich ...	Wihc ...	,, ...	Colo ...	1	0	0	0	2	0	8	3	3	...
163	Penhalun ..	Pennaluna ...	,, ...	Erneis ...	1	2	0	0	2	0	10	6	8	...
164	Doncheniu ...	Domnechenif	,, ...	Merleswain ...	2	0	0	1	0	0	12	10	10	...
165	Otrham ...	Ottram ...	,, ...	Edwi ...	1	0	0	0	2	0	6	4	6	...
166	Hamotedi ...	Hamotedi ...	,, ...	Alric ...	1	0	0	0	2	0	6	4	4	...
167	Chilcoit ...	Chilcoit ...	,, ...	Colo ...		...		1	2	0	10	3	6	...
168	Trawiscoit ...	Traviscoit ...	,, ...	Merleswain ...	2	0	0	1	0	0	12	6	8	...
169	Tewardevi ..	Tewardier ...	,, ...	Britnod ...	0	1	0	0	0	0½	1	...	1	...
170	Landelech ...	Landelech ...	,, ...	Alnod ...	0	2	0	0	1	0	5	½	2	...
171	Ludvha ...	Luduam ...	,, ...	Awin ...	3	0	0	1	0	0	15	12	14	...
172	Chelenoch ...	Chelenoc ...	,, ...	Godric ...	1	0	0	0	2	0	8	5	6	...
173	Treland ...	Trelant ...	Turstin, the Sheriff.	Tirswald ...	1	0	0	0	1	0	5	3	2	...
174	Penguare ...	Penquaro ...	,, ...	Brismar ...	1 acre			0	0	0½	1	...	2	...
175	Chenowen ...	Chenowen ...	,, ...	Ulnod ...	0	1	0	0	0	1	2	½	...	...
176	Nantuat ...	Namtuiat ...	Turstin, the Sheriff, under the Earl.	Brismar ...	0	1	0	0	0	0½	2	...	...	...
177	Trewinedoi ...	Treuiunadoi...	,, ...	Merlesuain ...	0	1	0	0	0	1	2	1	1	...
178	Sanguiland ...	Sainguilant ...	,, ...	Edwi ...	0	1	0	0	0	1	3	...	2	...
179	Wilewrde ...	Wileurda ...	,, ...	Chiuisi als. Chiuse	0	1	0	0	0	0½	2	1	2	...
180	Treverbet ...	Treverbet ...	,, ...	Edwin ...	1	0	0	0	0	3	3	2	...	...
181	Talgar ...	Talcar ...	,, ...	,, ...	0	2	0	0	0	1	3	1	2	...
182	Amal ...	Amal ...	,, ...	Grim ...	0	2	0	0	0	2	3	1	...	...
183	Carnetone ...	Carnatona ...	,, ...	Brihferd ...	0	1	0	0	0	1	2	...	...	...
184	Arganlis ...	Arganlis ...	,, ...	Brismar ...	0	2	0	0	0	1	3	...	...	...
185	Botharder ..	Botharder ...	,, ...	Grim ...	1	0	0	0	1	0	8	4	10	...
186	Trelwi ...	Treluwi ...	,, ...	Alward ...	0	2	0	0	1	0	4	2	3	...
187	Trethac ...	Trethac ...	,, ...	Alric ...	1	0	0	0	1	0	7	2	4	...
188	Treworoc ...	Treworoc ...	,, ...	,, ...	1	0	0	0	0	2	5	1	2	...
189	Egleshos ...	Eglossos ...	,, ...	Earl Harold ...	0	1	0	0	0	1	2	½	...	...
190	Woreslyn ...	Woreslin ...	,, ...	Dodo ...	1	0	0	0	1	0	5	1	...	...
191	Cariorgel ...	Cariorgel ...	Hamelin, under the Earl.	Edwi ...		...		0	0	1	3	2	...	...
192	Mideltone ...	Middeltona ...	,, ...	Alwin ...	5	0	0	2	2	0	20	8	13	...
193	Lege ...	Lega ...	,, ...	,, ...	3	0	0	1	2	0	15	6	8	...
194	Boietone ..	Boiatona ...	,, ...	Alnod ...	0	2	0	0	1	0	4	2	2	...
195	Maronecirche	Maronacirca...	,, ...	Bredre or Brotdra	0	1	0	0	0	1½	2	1	1	...
196	Orcert ...	Orcert ...	,, ...	Sawin ...	0	2	0	0	0	2½	3	2	1	...
197	Wadefeste ...	Wadafeste ...	,, ...	Siward ...	1	0	0	0	1	2	6	3	1	...
198	Torne ...	Torna ...	,, ...	Ulwric ...	0	1	0	0	0	2	1	...	...	...
199	Recharedoc ...	Rekaradoc ...	,, ...	Godwin ...	2	0	0	1	0	0	15	4	7	...
200	Trewallen ...	Trewallem ...	,, ...	Brictric ...		...		1 acre			2		1	...
201	Treloen ...	Treloen ...	,, ...	Edwi ...		...		1 acre			2	...½	...	...
202	Tregemelin ...	Treghemelin...	,, ...	,, ...		...		1 acre			2	1	...	...
203	Tredhac ...	Trethac ...	,, ...	Alwin ...	0	2	0	0	1	0	2	1	1	...
204	Dovenot ...	Dovenot ...	,, ...	Brictric ...	0	1	0	0	0	1	1	...	...	...
205	Penpel ...	Penpel ...	,, ...	,, ...	0	2	0	0	1	0	3	1	...	...
206	Tremodret ...	Tremodret ...	,, ...	Godwin ...	1	2	0	1	0	0	15	5	8	...
207	Tregoin ...	Tregoin ...	,, ...	Brismar ...	0	2	0	0	1	0	4	1½	...	...
208	Clunewic ...	Gluinawit ...	Turstin, under the Earl.	Wine ...	2 acres			0	0	0½	2	...	...	...

Pack Horses	Unbroken Horses.	Brood Mares.	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood.	Meadow.	Pasture.	Value. T.R.W.	Value. T.R.E.	
								acres			£ s. d.	£ s. d.	
...	...	...	...	...	16	...	...	20	...	20 acres	3 0	0 3 0	
...	...	...	2	...	60	...	...	12	..	20	1 5 0	2 0 0	
...	...	...	3	...	60	...	...	60	...	30	1 5 0	1 10 0	
...	...	...	3	...	34	3	5	.....	...	30	10 0	10 0	
...	...	...	11	..	200	12	...	6	...	100	2 0 0	4 0 0	
...	...	...	11	...	80	3	...	.....	...	1 leuga	1 10 0	2 0 0	
1	...	...	...	...	40	6	20	4	...	100 acres	1 10 0	2 0 0	
...	...	...	2	...	40	...	20	8	...	40	1 0 0	1 0 0	
...	...	...	9	...	232	8	...	5	...	100	1 10 0	2 0 0	
...	...	...	...	...	100	10	10	15	...	3×1 leugas	1 10 0	2 0 0	
...	...	...	5	...	20	...	10	60	...	5×1	10 0	1 0 0	2 oxen for the Plough.
...	...	...	...	...	...	...	...	2	...	20 acres	5 0	10 0	
...	...	...	6	...	60	4	...	.....	...	20	10 0	1 0 0	4 oxen for the Plough.
...	...	...	4	...	40	2	12	1	...	20	10 0	15 0	6 oxen for the Plough.
...	...	...	2	...	40	8	15	2	...	1×1 leugas	1 10 0	1 0 0	
...	...	...	9	...	80	2	20	6	...	1×1	1 10 0	2 0 0	
...	4	...	12	...	80	5	...	.....	..	1×1	2 0 0	2 0 0	
...	...	...	5	...	40	...	...	.....	...	1×1	1 0 0	1 10 0	
...	6	...	6	...	40	...	6	2	...	5×2	1 10 0	2 0 0	
...	...	...	4	...	60	8	...	20	...	40 acres	1 0 0	2 0 0	
...	...	...	5	...	100	5	...	20	...	50	1 5 0	1 10 0	One Mill returning 2/- a year.
...	...	...	...	...	...	...	...	.....	...	30	2 0	5 0	
...	...	...	...	...	15	...	...	.....	...	10	10 0	15 0	6 oxen for the Plough also.
...	27	...	22	...	140	17	...	.....	...	300	3 0 0	5 0 0	
...	2	...	6	...	25	1	...	.....	...	100	1 0 0	1 10 0	
...	...	...	2	...	40	...	...	.....	...	3×2 leugas	1 5 0	1 10 0	
...	...	...	...	...	...	...	...	10	...	7 acres	3 0	10 0	3 oxen also.
...	..	...	...	...	...	...	...	12	...	20	5 0	5 0	
...	...	...	...	...	...	...	...	.....	...	6	1 0	2 0	
...	...	...	...	...	15	2	...	15	...	.....	3 0	5 0	
...	...	...	...	2	...	...	...	.....	...	30	5 0	7 0	
...	...	...	...	...	10	...	...	4	...	100	5 0	7 0	
...	...	...	...	1	...	3	...	.....	...	40	1 0 0	1 0 0	
...	...	...	...	...	...	..	...	.....	...	20	5 0	5 0	
...	...	...	...	...	...	...	...	.....	...	20	6 0	10 0	
...	...	...	...	...	9	...	5	10	...	100	5 0	10 0	3 oxen for the Plough, also.
...	...	...	...	1	12	6	6	10	..	1 leuga	2 0	1 0 0	
2	...	...	...	...	17	...	...	20	...	30 acres	1 0 0	1 15 0	One Bull.
...	...	...	...	2	20	2	10	20	...	300	15 0	1 5 0	
...	...	...	..	1	30	...	2	.....	...	40	15 0	1 0 0	
...	...	...	...	1	30	...	3	20	...	60	5 0	10 0	
...	...	...	...	...	...	...	...	.....	...	20	10 0	10 0	
2	4	...	...	1	20	...	..	2	...	100	15 0	1 5 0	
...	...	...	...	...	...	...	...	6	...	100	10 0	15 0	6 oxen for the Plough.
...	...	...	10	...	60	6	12	6	...	100	2 10 0	3 0 0	
...	...	...	6	...	40	4	...	10	...	30	1 10 0	2 0 0	
...	...	...	6	...	20	...	...	5	...	60	15 0	1 0 0	
...	...	...	...	...	20	...	...	.....	...	20	0 6 0	10 0	
...	...	...	5	...	10	...	...	2	...	20	15 0	1 0 0	
...	...	...	8	...	30	6	15	15	...	100	1 0 0	1 0 0	
...	...	...	...	...	20	...	4	.....	...	20	2 0	2 0	2 oxen for the Plough.
...	4	...	7	...	20	...	10	6	...	3×2 leugas	2 0 0	2 0 0	
...	...	...	2	...	37	2	...	.....	...	10 acres	3 0	5 0	2 do. do.
...	...	...	...	...	...	...	10	10	...	10	3 0	5 0	4 do. do.
...	...	...	2	...	20	6	...	.....	...	10	5 0	5 0	
...	...	...	...	...	...	...	...	.....	...	20	10 0	15 0	3 do. do.
...	...	...	...	...	...	...	...	5	...	40	5 0	10 0	4 do. do.
...	...	...	...	...	20	...	...	2	...	60	5 0	10 0	
...	...	...	10	...	80	12	...	1	...	4×2 leugas	2 0 0	2 0 0	
...	...	...	5	...	15	4	10	.....	...	1×½ leuga	7 0	10 0	
...	...	...	...	...	...	...	...	4	...	15 acres	3 0	5 0	

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William.	Lord in the time of King Edward.	No. of Hides. h.	v.	f.	Taxed for h.	v.	f.	Land for Plough Teams.	Plough Teams.	Villeins.	Cottiers.	Bordarers.	Serfs.	Pack Horses	Unbroken Horses.	Brood Mares.	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood. acres	Meadow.	Pasture.	Value. T.R.W. £	s.	d.	Value. T.R.E. £	s.	d.	
148	Buchent	Bocent	Richard, son of Turold, under the Earl.	Bristwald	0	1	0	0	0	1	2	½	...	...	4	...	...	...	...	...	...	16	...	...	20	...	20 acres	3	0		0	3	0	
149	Croftededor	Croutededor	,,	Colo	1	2	0	0	2	0	10	4	6		7	2				2		60			12		20	1	5	0	2	0	0	
150	Lawredoch	Lawredock	,,	Aluric or Allric	1	0	0	0	3	0	8	3	4		10	4				3		60			60		30	1	5	0	1	10	0	
151	Lansalhus	Lansaluus	,,	Almar	1	0	0	0	1	0	5	2	2		2	3				3		34	3	5	.....		30	1	0	0	1	0	0	
152	Tywardrai	Tiwardrai	,,	Colo	2	0	0	1	0	0	12	7	8		18	7				11		200	12		6		100	2	0	0	4	0	0	
153	Bodewitghi	Bodewitghi	,,	Aluric	1	0	0	0	2	0	7	7	10		22	9				11		80	3		.....		1 leuga	1	10	0	2	0	0	
154	Bodeworgoin	Bodewrgoin	,,	Alwin	1	0	0	0	3	0	10	3	4		12	4	1					40	6	20	4		100 acres	1	10	0	2	0	0	
155	Ticoith	Ticoit	,,	Godric		...		0	1	0	5	3	4		8	5				2		40		20	8		40	1	0	0	2	0	0	
156	Ghivaile	Ghivaili	,,	Do.	1	0	0	0	2	0	6	5	5		14	8				9		232	8		5		100	1	10	0	2	0	0	
157	Polduh	Poldu	,,	Alwin		...		1	0	0	10	5	8		11	8						100	10	10	15		3×1 leugas	1	10	0	2	0	0	
158	Woderon	Uderon	,,	,,	0	2	0	0	1	0	3	1	2		4	2				5		20		10	60		5×1		10	0	1	0	0	
159	Treverbin	Treverbin	.....	,,	0	1	0	0	0	2	3	1½	2		5	2									2		20 acres		5	0		10	0	2 oxen for the Plough.
160	Brethei	Brethei	.....	Ailbricht		...		0	0	2	4	1			5	6				6		60	4		.....		20		10	0	1	0	0	
161	Lisnestoch	Lisnestoch	.....	Ailbric		...		0	0	1	5	1			4	2				4		40	2	12	1		20		10	0	1	0	0	4 oxen for the Plough.
162	Wich	Wihc	,,	Colo	1	0	0	0	2	0	8	3	3		10	4				2		40	8	15	2		1×1 leugas	1	10	0	1	0	0	6 oxen for the Plough.
163	Penhaluna	Pennaluna	,,	Erneis	1	2	0	0	2	0	10	6	8		22	6				9		80	2	10	6		1×1	1	10	0	2	0	0	
164	Doncheniu	Domnechenif	,,	Merleswain	2	0	0	1	0	0	12	10	10		20	10		4		12		80	5		.....		1×1	2	0	0	2	0	0	
165	Otrham	Ottram	,,	Edwi	1	0	0	0	2	0	6	4	6		8	8				5		40			.....		1×1	1	0	0	1	10	0	
166	Hamotedi	Hamotedi	,,	Alric	1	0	0	0	2	0	6	4	4		8	3		6		6		40		6	2		5×2	1	10	0	2	0	0	
167	Chilcoit	Chilcoit	,,	Colo		..		1	2	0	10	3	6		8	3				4		60	8		20		40 acres	1	0	0	2	0	0	
168	Trawiscoit	Traviscoit	,,	Merleswain	2	0	0	1	0	0	12	6	8		9	8				5		100	5		20		60	1	5	0	1	10	0	
169	Tewardevi	Tewardiler	,,	Britnod	0	1	0	0	0	0½	1	1			2										.....		30		2	0		5	0	One Mill returning 2 - a year.
170	Landelech	Landelech	,,	Alnod	0	2	0	0	1	0	5	½	2		5	2						15			.....		10		10	0		15	0	6 oxen for the Plough also.
171	Ludycha	Ludham	,,	Awin	3	0	0	1	0	0	15	12	14		40	9		27		22		140	17		.....		300	3	0	0	5	0	0	
172	Chelenoch	Chelenoc	,,	Godric	1	0	0	0	2	0	8	5	6		10	5		2		6		25	1		.....		100	1	0	0	1	10	0	
173	Treland	Trelant	Turstin, the Sheriff.	Tirswald	1	0	0	0	1	0	5	3	2		6	4				2		40			.....		3×2 leugas	1	5	0	1	10	0	
174	Penguare	Penquaro	,,	Brismar	1	acre		0	0	0½	1	...	2			2									10		7 acres	3	0		10	0	3 oxen also.
175	Chenowen	Chenowen	,,	Ulnod	0	1	0	0	0	1	2	½			2	1									12		20	5	0		5	0	
176	Nantuat	Nantuiat	Turstin, the Sheriff, under the Earl.	Brismar	0	1	0	0	0	0½	2				1	2									.....		6	1	0		2	0	
177	Trewinedoi	Treniunadoi	,,	Merlesuain	0	1	0	0	0	1	2	1	1		2	2						15	2		15		.....		3	0		5	0	
178	Sainguiland	Sainguilant	,,	Edwi	0	1	0	0	0	1	3		2			2					2				.....		30		5	0		7	0	
179	Wilewrde	Wileurda	,,	Chinisi als. Chiuse	0	1	0	0	0	0½	2	1	2		6	1						10			4		100		5	0		7	0	
180	Treverbet	Treverbet	,,	Edwin	1	0	0	0	0	3	3	2			6	7					1		3		.....		40	1	0	0	1	0	0	
181	Talgar	Talcar	,,	,,	0	2	0	0	0	1	3	1	2		6										.....		20		5	0		5	0	
182	Amal	Amal	,,	Grim	0	2	0	0	0	2	3	1			1	5									.....		20		6	0		10	0	
183	Carnetone	Carnatona	,,	Brihferd	0	1	0	0	0	1	2				6	4						9		5	10		100		5	0		10	0	3 oxen for the Plough, also.
184	Arganlis	Arganlis	,,	Brismar	0	2	0	0	0	1	3				7	1					1	12	6	6	10		1 leuga		2	0	1	0	0	
185	Botharder	Botharder	,,	Grim	1	0	0	0	1	0	8	4	10		24	7	2					17			20		30 acres	1	0	0	1	15	0	One Bull.
186	Trelwi	Treluwi	,,	Alward	0	2	0	0	1	0	4	2	3		6	3					2	30	2	10	20		300	1	15	0	1	5	0	
187	Trethac	Trethac	,,	Alric	1	0	0	0	1	0	7	2	4		8	8					1	30		2	.....		40		15	0	1	0	0	
188	Treworoc	Treworoc	,,	,,	1	0	0	0	0	2	5	1	2		8	2					1	30		3	20		60		5	0		10	0	
189	Egleshos	Eglossos	,,	Earl Harold	0	1	0	0	0	1	2	½			3	3									.....		20		10	0		10	0	
190	Woreslyn	Woreslin	,,	Dodo	1	0	0	0	1	0	5	1			16	7	2	4			1	50			2		100		5	0	1	5	0	
191	Cariorgel	Cariorgel	Hamelin, under the Earl.	Edwi		...		0	0	1	3	2			4										6		100	10	0		15	0	6 oxen for the Plough.
192	Mideltone	Middeltona	,,	Alwin	5	0	0	2	2	0	20	8	13		20	7				10		60	6	12	6		100	2	10	0	3	0	0	
193	Lege	Lega	,,	,,	3	0	0	1	2	0	15	6	8		12	6				6		40	4		10		30	1	10	0	2	0	0	
194	Boictone	Boiatona	,,	Alnod	0	2	0	0	1	0	4	2	2		2	4				6		20			5		60	1	5	0	1	0	0	
195	Marsnecirche	Marsnacirca	,,	Bredre or Brotdra	0	1	0	0	0	1½	2	1	1		2	1						20			..		20	0	6	0		10	0	
196	Orcert	Orcert	,,	Sawin	0	2	0	0	0	2½	3	2	1		5	1				5		10			2		20	15	0	1	0	0	0	
197	Wadafeste	Wadafeste	,,	Siward	1	0	0	0	1	2	6	3	1		5	3				8		30	6	15	15		100	1	0	0	1	0	0	
198	Torne	Torna	,,	Ulwric	0	1	0	0	0	2	1				3	1						20		4	.....		20	2	0		2	0	2 oxen for the Plough.
199	Rechatedoc	Rekaradoc	,,	Godwin	2	0	0	1	0	0	15	4	7		16	6		4		7		20		10	6		3×2 leugas	2	0	0	2	0	0	
200	Trewallen	Trewallem	,,	Brictric		..		1	acre		2		1		2	2				2		37	2				10 acres		3	0		5	0	2 do. do.
201	Tricloen	Tricloen	,,	Edwi		.		1	acre		2	1				1								10	10		10		5	0	1	do.	do.
202	Tregemelin	Tregheinelin	,,	,,		..		1	acre		2	1			2	1				2		20	6				10		10	0		20	0	
203	Tredhac	Trethac	,,	Alwin	0	2	0	0	1	0	2	1	1		2	1									5		40		5	0		10	0	2 do. do.
204	Dovenot	Dovenot	,,	Brictric	0	1	0	0	0	1	1				2	2						20			2		60	20	10	0	15	0	1 do. do.
205	Peupel	Peupel	,,	,,	0	2	0	0	1	0	3	1			4	7																		
206	Tremodret	Tremodret	,,	Godwin	1	2	0	1	0	0	15	5	8		17	7				10		20	12		1		4×2 leugas	2	0	0	2	0	0	
207	Tregoin	Tregoin	,,	Brismar	0	2	0	0	1	0	4	1½			5	1				5		15	4	10	.....		1×½ leuga	7	0		10	0	
208	Chunewic	Ghuinawit	Turstin, under the Earl.	Wine	2	acres		0	0	0½	2	...	...	...	2										4		15 acres	3	0		5	0	

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William.	Lord in the time of King Edward.	No. of Hides. h.	v.	f.	Taxed for h.	v.	f.	Land for Plough Teams	Plough Teams.	Villeins.	Colberts.	Bordars.
209	Treganmedan	Treganmedan	Hamelin under the Earl	Brictric ...	0	2	0	0	0	2	2	1	...	...	4
210	Penfontenio ...	Penfontenio ...	,, ...	Alsi ...	1	0	0	0	1	0	4	2	...	...	6
211	Trenant ...	Trenant ...	,, ...	Brismar ...	1	0	0	0	1	0	5	3	1	...	6
212	Tregavran ...	Tregavran ...	,, ...	Bishop Leuric		...		1 acre			1	...	...	...	1
213	Betnecote ...	Betnecota ...	,, ...	Almer ...		...		0	0	½	1	...	...	...	1
214	Tribertha ...	Tributan ...	Turstin, under the Earl	Ulnod ...	0	2	0	0	0	1	4	3½	2	...	6
215	Ulnodestone...	Ulnotestona ...	Nigel, under the Earl	Elric ...	1	0	0	0	2	0	6	4½	4	...	12
216	Guerdevalan	Gurdalan ..	,, ...	Brismer ...		...		0	2	0	8	6½	10	...	21
217	Trevoet ...	Trevoet ...	,, ...	Alric ..	1	0	0	0	1	0	4	3	4	...	6
218	Rosminvet ...	Rosminvet ...	,, ...	Ednod ...	0	2	0	0	1	0	3	1½	...	...	6
219	Roscaret ...	Roscaret ...	,, ...	Alwin ...	0	3	0	0	1	0	4	2	2	...	5
220	Lancharet ...	Lancharet ...	,, ...	Alwold ...	0	1	0	never gelded			2	1	...	...	10
221	Trevagan ...	Trevagan ...	,, ...	Alwin ...	0	2	0	0	1	0	6	4½	8	...	18
222	Polefand ...	Polofant ...	,, ...	Uluric ...	0	2	0	0	1	0	3	2	3	...	6
223	Gloeret ...	Gloeret ...	,, ...	Saulf ...	0	1	0	0	0	1	2	1	...	...	2
224	Roscarnan ...	Roscarnan ...	Iovin, under the Earl	Grifin ...		...		0	0	1	2	½	...	...	...
225	Lantmatin ...	Lantmatin ...	,, ...	Alfeg ...	1 acre			0	0	½	1	1	...	...	2
226	Nortone ...	Nortona ...	,, ...	Almer ...	0	2	0	0	1	0	5	3½	3	...	5
227	Mortune ...	Mortuna ...	,, ...	Brismer ...	0	1	0	0	0	1	3	2	...	...	6
228	Bellesdone ...	Bellesdona ...	,, ...	Chitel ...	0	0	1	0	0	½	1	½	1	...	2
229	Pondestoch ...	Pendestoca ...	,, ...	Ghida ...	1	0	0	0	1	0	6	2	1	...	5
230	Rospervet ...	Rospervet ..	,, ...	Brisci ...	0	2	0	0	0	2	6	1	1	...	4
231	Trebleri ...	Trebleri ...	,, ...	,, ...	0	1	0	0	0	1	2	1	1	...	4
232	Sanwinas ..	Sangwinas ...	,, ...	Cudda ...	0	2	0	0	1	0	10	3	2	...	8
233	Lisart ...	Lisart ...	,, ...	Brixi ...	0	1	0	0	0	1	2	1	...	...	4
234	Treuret ...	Treuret ...	,, ...	Iovin ...	0	1	0	0	0	1	2	1½	1	...	2
235	Treurgen ...	Treurghen ...	,, ...	Guilf ...		...		0	0	1	2	1	...	...	2
236	Chori ...	Chori ...	,, ..	Godwin ...		...		0	0	½	½	...	...	...	...
237	Tredaval ...	Tredaval ...	Nigel	Awold ...	1	0	0	0	2	0	8	6	7	...	20
238	Horniecote ...	Horniecota ...	Berners	Edzi ...	0	1	0	0	0	2	4	1½	2	...	3
239	Alvevacote ...	Aluencota ...	,, ...	Alviet ...	0	1	0	0	0	2	3	1½	1	...	3
240	Wescote ...	Wescota ...	,, ...	Ulnod ...	0	0	1	0	0	½	½	...	2	...	1
241	Roschel ...	Roschel ...	,, ...	Edwi ...	0	1	0	0	0	1	2	1	...	...	2
242	Trerihoc ...	Trerihoc ...	,, ...	Waso ..	0	1	0	0	0	1	1	...	...	...	3
243	Crachenwe ...	Crachemua ...	,, ...	Edwi ...	0	2	0	0	0	1	3	1	...	...	6
244	Roslech ...	Roslet ...	,, ...	,, ...	1 acre			½ acre			1	½	...	...	3
245	Trewin ...	Treguin ...	,, ...	,, ...	0	1	0	1 acre			1	...	...	...	2
246	Landmanvel...	Lantmanuel ...	,, ...	,, ...	0	2	0	0	1	0	4	1½	...	..	5
247	Tregrebri ..	Tregrebri ..	,, ...	,, ...	1	0	0	never gelded			3	1½	...	...	4
248	Witemot ...	Witemot ...	Briend ...	Ulviel ...	0	2	0	0	1	0	4	2½	3	...	3
249	Walesbrau ...	Walesbran ...	,, ...	Sawin ...	0	1	0	0	0	2	3	2	2	...	3
250	Penfou ...	Penfou ...	,, ...	Edith ...	0	1	0	0	0	2	2	1	...	...	2
251	Trenant ...	Trenant ...	,, ...	Ailmer ...	0	2	0	0	0	1	3	1	...	...	7
252	Pochehelle ..	Poccahetilla ...	William ...	Alward ...	1	0	0	0	2	0	16	5	8	...	18
253	Hiltone ...	Hiltona ...	Alured ...	Osbern ...	2	0	0	0	3	0	10	5	7	...	11
254	Tirlebere ...	Tirlebera ...	,, ..	Sawin ...	0	3	0	0	1	0	7	2	3	...	7
255	Brecelesbeorge	Bretelesbeorge	,, ...	Alwi ...	0	0	2	0	0	½	1	1	...	...	...
256	Landseu ...	Landsen ...	,, ...	Aluric ...	2	0	0	0	1	2	9	3½	3	...	11
257	Orset ...	Orcet ...	,, ...	,, ...	0	1	0	0	0	1	2	2	1	...	4
258	Borge ...	Borge ...	,, ...	Algar ...	0	1	0	0	0	½	3	2	2	...	2
259	Roscaret ...	Roscaret ...	,, ...	Alwin ...	0	3	0	0	1	0	4	2	2	...	5
260	Bodbran ...	Bodbran ...	Erchenbald ...	Alnod ...	0	1	0	0	0	1	2	½	2	...	...
261	Avalde ..	Avalda ...	,, ...	Dodo ...	0	1	0	0	0	1	3	1	2	...	1
262	Bret ...	Bret ...	,, ...	,, ...	0	2	0	0	0	1	3	1½	1	...	5
263	Mingeli ...	Mingeli ...	Offers ...	Alric ...	2	0	0	0	2	0	12	3	5	...	16
264	Bochenod ...	Botchonod ...	,, ...	Offers ...	0	2	0	0	1	0	8	1	2	...	0
265	Tremeteret ...	Tremethreht	,, ...	Edwi ..	0	2	0	0	1	0	6	2½	3	..	9
266	Trenand ...	Trenant ...	,, ...	Offers ...	0	2	0	0	1	0	8	2	4	...	12
267	Glin ...	Glin ...	,, ...	,, ...		...		0	1	0	2	1	2	...	0
268	Bowidoc ..	Bowidoc ...	,, ...	,, ...		...		0	0	1	2	...	1	...	2
269	Pennalt ...	Pennalt ...	,, ...	,, ...	0	1	0	0	0	2	1	...	...	...	0
270	Penponte ...	Penponta ...	,, ...	,, ...	1	0	0	0	2	0	16	2½	4	...	18
271	Lanthien ...	Lantien ...	,, ...	,, ...	1	0	0	0	1	0	8	1½	2	...	6
272	Trevelien ...	Truelien ...	,, ...	Bretel ...	0	0	2	0	0	1	2	...	1	...	3
273	Trelosch ...	Trelosca ...	Offels ...	Offels ... All under the Earl.	0	2	0	0	1	0	8	2½	3	...	12

Serfs.	Pack Horses.	Unbroken Horses.	Brood Mares.	Head of Cattle.	Cows.	Sheep.	Swine	Goats.	Wood.	Meadow.	Pasture.	Value T.R.W. £ s. d.	Value. T.R.E. £ s. d.	
										acre				
1	...	...	...	..	...	20	...	4	.....	...	1×½ leugas	7 6	10 0	
2	...	...	...	...	...	...	...	...	5 acres	...	10 acres	10 0	1 0 0	
3	...	...	...	6	...	30	...	...	... .	...	10	15 0	1 0 0	
1	...	...	...	...	...	...	...	...	... ..	...	40	1 0	1 0	
..	...	...	...	...	...	...	...	...	.....	...	40	3 0	5 0	
..	...	...	...	...	...	...	...	...	.....	...	.....	15 0	15 0	
5	...	...	...	5	...	50	6	...	1	...	10	1 0 0	1 0 0	
2	...	6	...	16	...	180	2	12	(coppice) 1	1	20	2 0 0	4 0 0	
5	...	1	...	4	...	73	8	...	.....	1	30	1 5 0	2 0 0	
3	...	1	...	8	..	100	...	...	.....	...	20	10 0	1 0 0	
4	...	1	..	4	...	30	4	...	.....	1	10	15 0	15 0	7 oxen for the Plough
2	...	...	..	6	...	67	4	...	30	...	10	10 0	1 0 0	This manor is of th
6	...	6	...	7	...	50	12	...	(coppice) 1	...	2×1 leugas	1 10 0	2 0 0	honour of S. Petroc
3	...	...	...	7	...	30	...	...	1	2	10 acres	15 0	15 0	
2	...	...	...	...	...	30	2	...	4	...	10	7 0	7 0	
2	...	...	...	...	...	...	...	...	.....	...	60	5 0	10 0	
1	...	...	...	3	...	20	...	...	3	...	.....	4 0	3 0	
3	...	...	...	10	...	30	. .	...	7	...	60	1 5 0	1 0 0	
2	...	...	...	8	...	6	6	...	.....	...	20	10 0	10 0	
.	...	...	...	...	...	...	...	...	.....	...	20	5 0	5 0	
1	...	...	...	10	...	50	...	...	10	...	40	1 0 0	1 0 0	
1	...	..	...	10	...	30	...	...	.....	...	30	12 0	12 0	3 oxen for the Plough.
1	...	...	...	3	...	30	...	...	.....	...	40	10 0	5 0	
3	...	...	...	7	...	40	...	6	.....	...	40	1 0 0	1 0 0	
.	...	...	...	2	...	12	...	...	.....	...	60	5 0	10 0	
4	...	...	...	...	2	40	...	...	.....	...	20	1 0 0	1 0 0	
1	...	...	...	3	...	20	...	...	.....	...	40	8 0	4 0	
1	...	...	...	...	...	...	...	...	.. ...	...	100	2 0	4 0	
8	...	3	...	10	...	100	12	...	1	1	2×2 leugas	3 0 0	3 0 0	
1	...	...	...	10	...	40	7	10	(coppice) 0	...	30 acres	12 0	1 0 0	3 oxen for the plough.
1	...	...	...	8	...	40	2	8	3	...	30	12 0	1 0 0	Ditto
.	...	...	...	10	...	40	...	...	.....	...	30	5 0	10 0	2 oxen for the plough.
1	...	...	...	5	...	30	...	...	.....	...	5	7 6	7 6	
.	...	...	...	...	...	...	...	...	.....	...	100	3 0	5 0	
2	...	...	...	4	...	25	3	...	(coppice) 4	...	20	10 0	1 0 0	
.	...	...	...	...	...	...	...	...	.....	...	30	5 0	5 0	3 oxen for the plough.
.	...	...	...	...	...	...	...	...	.....	...	30	3 4	5 0	3 oxen for the plough
2	...	...	...	8	...	60	..	...	.....	...	20	15 0	15 0	of the honour of St
.	...	...	...	...	...	30	...	...	.....	...	30	10 0	1 0 0	Peran.
2	...	...	...	4	...	50	...	...	.....	1	10	15 0	1 0 0	
.	...	...	...	...	2	15	...	...	.....	2	10	15 0	15 0	
.	...	...	...	...	...	..	...	...	.....	2	1	1 0 0	1 0 0	
.	...	...	...	3	...	40	...	...	.....	...	300	1 5 0	1 5 0	7 oxen for the plough.
.	...	...	...	3	...	60	...	10	(coppice) 40	...	100	2 0 0	2 0 0	
.	...	...	...	6	...	70	2	11	10	...	50	2 10 0	5 0 0	
..	...	...	...	10	...	60	7	40	(coppice) 8	...	30	1 10 0	2 0 0	
...	...	...	...	...	...	18	...	8	4	...	10	7 6	10 0	
...	...	...	...	10	...	50	12	50	(coppice) 30	...	50	2 0 0	1 0 0	
...	...	...	...	...	...	30	...	20	2	...	10	12 0	15 0	
...	...	...	15	...	45	8	20	(coppice) 5	...	...	15	15 0	10 0	
...	1	...	4	...	30	4	...	.....	1	1	10	15 0	15 0	
...	...	...	...	1	24	2	12	12 acres	...	...	10	7 6	10 0	2 oxen.
...	...	...	...	1	12	1	...	3×1 furlngs	...	...	60	10 0	1 0 0	6 oxen for the plough,
...	...	...	4	...	25	4	...	.....	...	...	40	12 6	1 0 0	and in demesne.
...	...	...	...	...	...	...	...	8 acres	...	...	1×½ leuga	1 10 0	4 0 0	
...	2	...	2	...	20	...	7	100	...	...	40 acres	10 0	2 0 0	
...	...	...	...	...	...	...	15	10	...	...	40	15 0	3 0 0	
...	...	...	...	2	...	2	8	6	...	...	40	15 0	3 0 0	
...	4	...	...	2	24	...	7	100	...	...	40	10 0	2 0 0	
...	...	...	...	...	...	...	...	.....	...	...	.....	2 0	5 0	
...	...	...	...	...	...	...	...	.....	...	..	10	3 0	1 0 0	
...	...	...	...	...	30	...	...	.....	...	...	60	1 5 0	5 0 0	
...	...	...	5	...	30	1	...	8	...	...	20	1 0 0	3 0 0	4 oxen for the plough.
...	...	...	...	...	...	..	...	.....	...	...	5	2 0	10 0	2 oxen for the plough.
...	...	...	5	...	60	4	...	10	...	...	50	1 0 0	2 0 0	

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William.	Lord in the time of King Edward.	No. of Hides. h. v. f.	Taxed for h. v. f.	Land for Plough Teams.	Plough Teams.	Villeins.	Cotterls.	Bordars.	Serfs.	Pack Horses.	Unbroken Horses.	Brood Mares.	Head of Cattle.	Cows.	Sheep.	Swine	Goats.	Wood.	Meadow. acre	Pasture.	Value T.R.W. £ s. d.	Value T.R.E. £ s. d.	
209	Treganmedan	Treganmedan	Hamelin under the Earl	Brictric	0 2 0	0 0 2	2	1	...	...	4	1	...	...	...	...	...	20	...	4	.....	...	1×½ leugas	7 6	10 0	
210	Penfontenio	Penfontenio	,,	Alsi	1 0 0	0 1 0	4	2	...	...	6	2	...	...	...	...	...	...	...	...	5 acres	...	10 acres	10 0	1 0 0	
211	Trenant	Trenant	,,	Brismar	1 0 0	0 1 0	5	3	1	2	6	3	...	...	...	6	...	30	...	...	.....	...	10	15 0	1 0 0	
212	Tregavran	Tregavran	,,	Bishop Leuric	...	1 acre	1	...	...	...	1	1	...	...	...	...	...	...	...	...	.....	...	40	1 0	1 0	
213	Betnecote	Betnecota	,,	Almer	...	0 0 ½	1	...	...	...	1	...	...	...	...	...	...	...	...	...	.....	...	40	3 0	5 0	
214	Tribertha	Tributan	Turstin, under the Earl	Ulnod	0 2 0	0 0 1	4	3½	2	...	6	...	...	...	...	...	...	...	...	...	.....	...	.....	15 0	15 0	
215	Ulnodestone	Ulnotestona	Nigel, under the Earl	Elric	1 0 0	0 2 0	6	4½	4	...	12	5	...	...	...	5	...	50	6	...	1	...	10	1 0 0	1 0 0	
216	Guerdevalan	Gurdalan	,,	Brismer	...	0 2 0	8	6½	10	...	21	12	...	6	...	16	...	180	2	12	(coppice) 1	1	20	2 0 0	4 0 0	
217	Trevoet	Trevoet	,,	Alric	1 0 0	0 1 0	4	3	4	...	6	5	...	1	...	4	...	73	8	...	.....	1	30	1 5 0	2 0 0	
218	Rosminvet	Rosminvet	,,	Ednod	0 2 0	0 1 0	3	1½	...	...	6	3	...	1	...	8	...	100	...	...	.....	...	20	10 0	1 0 0	
219	Roscaret	Roscaret	,,	Alwin	0 3 0	0 1 0	4	2	2	...	5	4	...	1	...	4	...	30	4	...	.....	1	10	15 0	15 0	7 oxen for the Plough.
220	Lancharet	Laucharet	,,	Alwold	0 1 0	never gelded	2	1	...	...	10	2	...	...	...	6	...	67	4	...	30	...	10	10 0	1 0 0	This manor is of the
221	Trevagan	Trevagan	,,	Alwin	0 2 0	0 1 0	6	4½	8	...	18	6	...	6	...	7	...	50	12	...	(coppice) 1	..	2×1 leugas	1 10 0	2 0 0	honour of S. Petrock
222	Polefand	Polofant	,,	Uluric	0 2 0	0 1 0	3	2	3	...	6	3	...	...	...	7	...	30	...	...	1	2	10 acres	15 0	15 0	
223	Gloeret	Gloeret	,,	Saulf	0 1 0	0 0 1	2	1	...	...	2	2	...	...	...	...	...	30	2	...	4	..	10	7 0	7 0	
224	Roscarnan	Roscarnan	Iovin, under the Earl	Grifin	...	0 0 1	2	½	...	...	...	2	...	...	...	...	...	...	...	...	.....	...	60	5 0	10 0	
225	Lantmatin	Lantmatin	,,	Alfeg	1 acre	0 0 ½	1	1	...	...	3	1	...	...	...	3	...	20	...	...	3	...	.....	4 0	3 0	
226	Nortone	Nortona	,,	Almer	0 2 0	0 1 0	5	3½	3	...	5	3	...	...	...	10	...	30	...	...	7	...	60	1 5 0	1 0 0	
227	Mortune	Mortuna	,,	Brismer	0 1 0	0 0 1	3	2	...	...	5	2	...	...	...	8	...	6	6	...	.....	...	20	10 0	10 0	
228	Bellesdone	Bellesdona	,,	Chitel	0 0 1	0 0 ½	1	½	1	...	2	...	...	...	...	...	...	...	...	...	.....	...	20	5 0	5 0	
229	Pondestoch	Pendestoca	,,	Ghida	1 0 0	0 1 0	6	2	1	...	5	1	...	...	...	10	...	50	...	...	10	...	40	1 0 0	1 0 0	
230	Rospervet	Rospervet	,,	Brisci	0 2 0	0 0 2	6	1	1	...	4	1	...	...	...	10	...	30	...	...	.....	...	30	12 0	12 0	3 oxen for the Plough.
231	Trebleri	Trebleri	,,	,,	0 1 0	0 0 1	2	1	1	...	4	1	...	...	...	3	...	30	...	...	.....	..	40	10 0	5 0	
232	Sanwinas	Sangwinas	,,	Cudda	0 2 0	0 1 0	10	3	2	...	8	3	...	...	...	7	...	40	...	6	.....	...	40	1 0 0	1 0 0	
233	Lisart	Lisart	,,	Brixi	0 1 0	0 0 1	2	1	...	...	4	...	...	...	...	2	...	12	...	...	.....	...	60	5 0	10 0	
234	Treuret	Treuret	,,	Iovin	0 1 0	0 0 1	2	1½	1	...	2	4	...	...	...	...	2	40	...	...	.....	...	20	1 0 0	1 0 0	
235	Treurgen	Treurghen	,,	Guilf	...	0 0 1	2	1	...	...	2	1	...	...	...	3	...	20	...	...	.....	...	40	8 0	4 0	
236	Chori	Chori	,,	Godwin	...	0 0 ½	½	6	...	...	...	1	...	...	...	3	...	20	...	...	.....	...	100	2 0	4 0	
237	Tredaval	Tredaval	Nigel	Awold	1 0 0	0 2 0	8	6	7	...	20	8	...	3	...	10	...	100	12	...	1	1	2×2 leugas	3 0 0	3 0 0	
238	Horniecote	Hornicota	Berners	Edzi	0 1 0	0 0 2	4	1½	2	...	3	1	...	...	...	10	...	40	7	10	(coppice) 0	...	30 acres	12 0	1 0 0	3 oxen for the plough.
239	Alvevacote	Aluencota	,,	Alviet	0 1 0	0 0 2	3	1½	1	...	3	1	...	...	...	8	...	40	2	8	3	..	30	12 0	1 0 0	Ditto
240	Wescote	Wescota	,,	Ulnod	0 0 1	0 0 ½	½	...	2	...	1	...	...	...	...	10	...	40	...	...	.....	...	30	5 0	10 0	2 oxen for the plough.
241	Roschel	Roschel	,,	Edwi	0 1 0	0 0 1	2	1	...	...	2	1	...	...	...	5	...	30	...	...	.....	...	5	7 6	7 6	
242	Trerihoc	Trerihoc	,,	Waso	0 1 0	0 0 1	1	...	...	...	3	...	...	...	...	...	...	...	...	...	.....	...	100	3 0	5 0	
243	Crachenwe	Crachemua	,,	Edwi	0 2 0	0 0 1	3	1	...	...	6	2	...	...	...	4	...	25	3	...	(coppice) 4	...	20	10 0	1 0 0	
244	Roslech	Roslet	,,	,,	1 acre	½ acre	1	½	...	...	3	...	...	...	...	...	...	...	...	...	.....	...	30	5 0	5 0	3 oxen for the plough.
245	Trewin	Treguin	,,	,,	0 1 0	1 acre	1	1	...	...	2	...	...	...	...	...	...	...	...	...	.....	...	30	3 4	5 0	3 oxen for the plough,
246	Landmanvel	Lantmenuel	,,	,,	0 2 0	0 1 0	4	1½	...	...	5	2	...	...	...	8	...	60	...	...	.....	...	20	15 0	15 0	of the honour of St.
247	Tregrebri	Tregrebri	,,	,,	1 0 0	never gelded	3	1½	...	...	4	1	...	...	...	...	...	30	...	...	.....	...	30	10 0	1 0 0	Peran.
248	Witemot	Witemot	Briend	Ulviel	0 2 0	0 1 0	4	2½	3	...	3	2	...	...	...	4	...	50	...	...	.....	1	10	15 0	1 0 0	
249	Walesbrau	Walesbran	,,	Sawin	0 1 0	0 0 2	3	2	2	...	3	1	...	...	...	...	2	15	...	...	.....	2	10	15 0	15 0	
250	Penfou	Penfou	,,	Edith	0 1 0	0 0 2	2	1	...	...	2	1	...	...	...	...	...	...	...	...	.....	2	1	1 0 0	1 0 0	
251	Trenant	Trenant	,,	Ailmer	0 2 0	0 0 1	3	1	...	...	7	2	...	...	...	3	...	40	...	...	.....	...	300	1 5 0	1 5 0	7 oxen for the plough.
252	Pochehelle	Poccahetilla	William	Alward	1 0 0	0 2 0	16	5	8	...	13	2	...	...	...	3	...	60	...	10	(coppice) 40	...	100	2 0 0	2 0 0	
253	Hiltone	Hiltona	Alured	Osbern	2 0 0	0 3 0	10	5	7	...	11	3	...	...	...	6	...	70	2	11	10	...	50	2 10 0	5 0 0	
254	Tirlebere	Tirlebera	,,	Sawin	0 3 0	0 1 0	7	7	...	...	7	3	...	...	...	10	...	60	7	40	(coppice) 8	...	30	1 10 0	2 0 0	
255	Breceleseborge	Bretelesborge	,,	Alwi	0 0 2	0 0 ½	1	1	...	...	...	1	...	...	...	...	...	18	...	8	4	...	10	7 6	10 0	
256	Landseu	Landsen	,,	Aluric	2 0 0	0 1 2	9	3½	3	...	11	2	...	...	...	10	...	50	12	50	(coppice) 30	...	50	2 0 0	1 0 0	
257	Orset	Orcet	,,	,,	0 1 0	0 0 1	2	2	1	...	4	2	...	...	...	...	...	30	...	20	2	...	10	12 0	15 0	
258	Borge	Borge	,,	Algar	0 1 0	0 0 ½	3	2	2	...	2	1	...	...	...	15	...	45	8	20	(coppice) 5	...	15	15 0	10 0	
259	Roscaret	Roscaret	,,	Alwin	0 3 0	0 1 0	4	2	2	...	5	4	...	1	...	4	..	30	4	..	.....	1	10	15 0	15 0	
260	Bodbran	Bodbran	Erchenbald	Alnod	0 1 0	0 0 1	2	½	2	...	...	2	...	...	...	...	1	24	2	12	12 acres	...	0	7 6	10 0	2 oxen.
261	Avalde	Avalda	,,	Dodo	0 1 0	0 0 1	3	1	2	...	1	3	...	...	...	...	1	12	1	..	3×1 furlings	..	60	10 0	1 0 0	6 oxen for the plough,
262	Bret	Bret	,,	,,	0 2 0	0 0 1	3	1½	1	...	5	3	...	...	...	4	...	25	4	...	.....	...	40	12 6	1 0 0	and in demesne.
263	Mingeli	Mingeli	Offers	Alric	2 0 0	0 2 0	12	3	5	...	16	4	...	...	...	...	...	...	...	...	8 acres	...	1×½ leuga	1 10 0	4 0 0	
264	Bochenod	Botchonod	,,	Offers	0 2 0	0 1 0	8	1	2	...	6	1	...	2	...	2	...	20	...	7	100	...	40 acres	10 0	2 0 0	
265	Tremeteret	Tremethreht	,,	Edwi	0 2 0	0 1 0	6	2½	3	...	9	2	...	...	...	...	...	...	...	15	10	...	40	15 0	3 0 0	
266	Trenand	Trenant	,,	Offers	0 2 0	0 1 0	8	2	4	...	12	2	...	...	...	...	2	...	2	8	6	...	40	15 0	3 0 0	
267	Glin	Glin	,,	,,	...	0 1 0	2	1	2	...	6	1	...	4	...	...	2	24	...	7	100	...	40	10 0	2 0 0	
268	Bowidoc	Bowidoc	,,	,,	...	0 0 1	2	...	1	...	2	...	...	...	...	...	...	...	...	...	.....	...	.....	2 0	5 0	
269	Pennalt	Pennalt	,,	,,	0 1 0	0 0 2	1	...	...	...	6	...	...	...	...	...	...	...	...	...	.....	..	10	3 0	1 0 0	
270	Penponte	Penponta	,,	,,	1 0 0	0 2 0	16	2½	4	...	18	...	...	...	...	...	...	30	...	...	.....	...	60	1 5 0	5 0 0	
271	Lanthien	Lantien	,,	,,	1 0 0	0 1 0	8	1½	2	...	3	4	...	...	...	5	...	30	1	...	8	...	20	1 0 0	3 0 0	4 oxen for the plough.
272	Trevelien	Truelien	,,	Bretel	0 0 2	0 0 0	2	...	1	...	3	...	...	...	...	...	...	...	...	...	.....	...	5	2 0	10 0	2 oxen for the plough.
273	Trelosch	Trelosca	Offels	Offels	0 2 0	0 1 0	8	2½	3	...	12	2	...	...	...	5	...	60	4	...	10	...	50	1 0 0	2 0 0	
				All under the Earl.																						

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William.	Lord in the time of King Edward.	No. of Hides. h.	v.	f.	Taxed for h.	v.	f.	Land for Plough Teams	Plough Teams.	Villeins.	Colberts.
			all under the Earl.											
274	Tregril ...	Tregril ...	Offels ...	Alric ...	1	0	0	0	1	0	7	2	4	...
275	Botiled ...	Botiled ...	Odo ...	Osulf ...	2	0	0	0	1	0	8	2½	4	...
276	Nietestou ...	Nietstow ...	,, ...	Godric, the priest	1	0	0	never gelded			5	1	3	...
277	Treluge ...	Treluga ...	,, ...	Brismar ...	1	0	0	0	0	1	2	1	1	..
278	Treviniel ...	Treviniel ...	,, ...	,, ...	0	2	0	0	0	1	2	1	2	...
279	Trewale ...	Trevalla ...	,, ...	Osulf ...	0	2	0	0	0	1	2	...	2	...
280	Portatlant ...	Portatlant ...	,, ...	Levron ...		...		0	0	1	2	...	...	...
281	Trenant ...	Trenant ...	Algar ...	Osulf ...	1	0	0	0	0	1	6	2	2	...
282	Trewent ...	Trewent ...	,, ...	,, ...	1	0	0	0	0	2	6	2	3	...
283	Plunent ...	Plunent ...	,, ...	,, ..	0	2	0	0	1	0	8	3½	4	...
284	Bentewoin ...	Bentewoin ...	,, ...	,, ...	0	2	0	0	0	2	3	2	3	...
285	Trefitent ...	Trefitent ...	,, ...	,, ...	0	2	0	0	0	2	4	2	3	...
286	Edelet ...	Edelet ...	,, ...	,, ...	1	0	0	0	1	0	6	3	4	...
287	Tragaraduc ...	Tragaraduc ...	Alward ...	Alward ...	0	2	0	0	0	3	3	2½	4	...
388	Chenmerch ...	Chienmerc ...	Alward ...	,, ...	0	1	0	0	0	2	1	1	...	...
289	Talgolle ...	Talgollo ...	Alnod ...	Alnod ...		...		0	0	2	3	1½	...	...
290	Trescau ...	Trescau ...	,, ...	,, ...		...		0	0	1	3	1	...	...
291	Disart ...	Disart ...	,, ...	Aluric ...	0	1	0	1 acre			1	½	...	...
292	Trewderet ...	Trenidered ...	,, ...	Merleswain ...	0	1	0	0	0	1	2	1	2	...
293	Pengelle ...	Pengelli ...	Ednod ...	Ednod ...	1 acre			0	0	½	1	...	...	...
294	Ullavestone ...	Ullovastona ...	Alnod ...	Saulf ...	0	1	0	0	0	1	1	1	1	..
295	Lanlawernec	Lanawernec ...	Alric ...	Alric ...	0	1	0	0	0	1	2	½	2	...
296	Drainos ...	Drainos ...	,, ...	,, ...	0	1	0	0	0	2	1	½	2	...
297	Trelamar ...	Trelamar ...	Alsi ...	Alsi ...	1 acre			0	0	½	1	...	...	...
298	Cabulian ...	Cabulian ...	Almar ...	Almar ...	0	3	0	0	0	2	6	1	3	...
299	Lisniwen ...	Lisniven ..	Brietric ...	Brietric ...	0	1	0	½ acre			2	1	...	...
300	Tregal ...	Tregal ...	,, ...	Burgered ...		...		1 acre			2	½	...	...
301	Tregingale ...	Treghingala...	,, ...	Brictric ...	0	2	0	0	0	1	3	1	1	...
302	Tretweret ...	Tretweret ...	,, ...	Leurie ...	0	1	0	0	0	1	2	...	...	...
303	Odenol ...	Odinol ...	,, ...	Haemar ...	1	0	0	0	1	0	4	1½	7	...
304	Drainos ...	Drainos ...	Ulsi ...	Ulsi ...	0	0	2	0	0	½	2	1	2	...
305	Trevilliud ...	Trevilired ...	,, ...	,, ...	0	2	0	0	0	1	3	1	2	...
306	Hela ...	Hela ...	Colo ...	Colo ...	0	1	0	1 acre			2	½	4	...
307	Elerchi ...	Elerchi ...	Levenot ...	Merlesuen ...	4	0	0	1	0	0	20	5	17	...
308	Ermenheu ...	Hirmeneu ...	,, ...	Levenot ...	0	1	0	0	0	2	6	½	...	...
309	Rentin ...	.....	Ulward ...	Alwin ...	0	1	0	...			...	...	1	...
310	Polhal ...	Polhal ..	Ulsi ...	Ulwin ...	0	1	0	0	0	1	2	...	...	...
311	Beveshoc ...	Bevesehoc ...	Uluric ...	Bishop Leuric	0	1	0	0	0	1	2	...	...	...
312	Karsalan ...	Karsalam ...	Dodo ...	Dodo ...	1 acre			0	0	½	1	...	...	...
313	Widewot ...	Widewot ...	Sirewold ...	Sirewold ...	2 acres			0	0	1	1	...	1	...
314	Dimelihoc ...	Dimelihoc ...	Gunhar ...	Almer ...	1 acre			0	0	½	1	..	...	...
315	Landighe ...	Landighe ...	Godwin ...	Alsi ...	1	0	0	0	1	0	5	1½	2	...
216	Tucowit ...	Tucowit ...	Wihumarc	Edmer ...		...		0	0	1	4	...	2	...
317	Tremarustal	Tremarutel ...	Wilhumar ...	,, ...	2 acres			...			1	...	...	...
318	Botival ...	Botival ...	Hueche als. Hueta	Hueche als. Hueta	0	0	1	0	0	½	1	½	2	...
319	Trevocarwinoc	Trevocarwinnoc	Rabel ..	Alfig ...	0	1	0	0	0	2	3	..	...	...
320	Panguol ...	Panguol ...	,, ...	Alsi ..	0	1	0	0	0	1	2	1	...	...
321	Tacabere ...	Tacabera ...	Bernard, the priest	Aluric ...	0	0	2	0	0	½	1	1	...	...
322	Trefilies ...	Trefilies ...	Hunfrid ...	Alstan ...	0	2	0	0	1	0	4	...	1	...
323	Henland ...	Henlant ...	Seibert ...	Ailmer ...	0	1	0	0	0	1	4	1	2	...
324	Trelingan ...	Treligani ...	Frawin ...	Aluric ...	1	0	0	0	0	2	5	2	3	...
225	Polscat ...	Polscat ...	Andreas ...	,, ...	0	1	0	0	0	1	1	½	2	...
326	Carbihan ...	Carbihan ...	,, ...	Merken ...	4 acres			0	0	1	4	2	2	..
327	Witestan ...	Witestan ...	Radulf ...	Alwold ...	0	0	1	0	0	½	...	½	...	...
328	Rigven ...	Rigven ...	Heldric ...	Brismer ...	0	1	0	0	0	1	3	2	6	...
329	Deliau ...	Delioan ...	Blohin ...	Jaul ...	0	2	0	0	1	0	2	2	2	...
330	Trefrioc ...	Trefrioc ...	,, ...	Jaulf ...	0	2	0	0	1	0	2	1	2	...
331	Duvenant ...	Duvenant ...	,, ...	Alward ...	0	2	0	0	1	0	3	1½	1	...
332	Treveheret ...	Treweheret ...	,, ...	Aluric ...	0	0	1	0	0	½	2	...	1	...
333	Treuthal ...	Treuthal ...	,, ...	Brismar ...	1	0	0	...			8	4	7	...
334	Trawint ...	Trawint ...	Rogerius ...	Dorgered ...	0	1	0	0	0	2	1	1	...	...
335	Deliou ...	Delion ...	,, ...	Lewin ...	1	0	0	0	0	2	4	1	1	...
336	Legea ...	Legea ...	,, ...	Aluod ...	0	2	0	0	0	2	4	2	...	...
337	Hamet ...	Hamet ...	,, ...	,, ...	3 acres			0	0	1	2	1	...	...
												LAND OF JUDHEL		
338	Forchetestane	Forchetestana	Judhel ...	Alward ...	0	0	3	0	1	0	3	½	...	...
												LAND OF		
339	Pigesdone ...	Pighesdona	Goscelm ...	Wadel ...		...		0	1	0	1	1	...	...

Pack Horses.	Unbroken Horses.	Brood Mares.	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood.	Meadow.	Pasture.	Value T.R.W. £ s. d.	Value T.R.E. £ s. d.	
									acre	acres			
...	...	...	...	...	...	...	...	1 acre	...	60	1 0 0	2 0 0	
...	...	...	4	...	30	6	12	60	..	50	1 0 0	2 0 0	
...	...	...	2	...	30	2	...	.....	...	60	5 0	1 0 0	
...	...	...	...	...	...	...	...	.....	...	6	5 0	1 0 0	3 oxen
...	3	...	2	...	30	...	...	(coppice) 2	...	20	10 0	1 0 0	8 oxen for the plough..
...	...	...	...	...	...	...	...	.....	...	10	5 0	15 0	2 oxen.
...	...	...	...	...	...	...	...	.....	...	4	2 0	7 0	
...	...	...	2	...	37	...	...	.....	...	100	15 0	2 0 0	
...	...	...	3	...	25	...	...	.....	...	500	15 0	1 10 0	2 oxen for the plough..
...	...	...	2	...	57	14	...	30	...	40	1 0 0	2 10 0	
...	...	...	2	...	18	6	...	4	...	10	10 0	1 0 0	2 oxen for the plough.
...	...	...	3	...	15	6	...	20	...	20	10 0	1 0 0	
...	...	...	...	...	23	...	7	40	...	2×1 leugas	15 0	2 0 0	
...	...	...	...	...	50	...	...	.....	...	10 acres	10 0	1 0 0	
...	...	...	...	...	40	...	...	.....	...	10	7 0	10 0	
...	...	...	...	2	15	...	...	2	...	60	4 0	1 0 0	
...	...	...	...	...	...	...	...	3	...	100	5 0	1 5 0	One ox.
...	...	...	3	...	30	...	10	.....	1	10	5 0	10 0	One ox for the plo ugh..
...	...	...	...	2	15	...	..	.....	...	100	10 0	15 0	
...	...	...	...	...	...	...	...	.....	...	20	2 0	5 0	Two oxen.
...	...	...	...	...	20	...	5	.....	...	100	5 0	5 0	Four oxen.
...	...	...	...	...	15	5	15	10	...	60	8 0	1 0 0	Do.
...	...	...	1	...	10	...	10	(coppice) 3	...	30	3 0	1 0 0	Five oxen.
...	...	...	...	..	8	...	...	.. ..	...	½ lg.×½ lg.	1 0	...	One ox.
...	3	...	3	...	20	...	10	40	...	50	10 0	2 0 0	3 oxen for the plough..
...	...	...	...	...	...	...	...	.....	2	15	10 0	1 5 0	
...	...	...	4	..	30	...	...	1	2	10	8 0	1 0 0	
...	...	...	1	...	15	...	5	8	..	20	5 0	15 0	
...	...	...	...	...	...	...	...	4	...	40	3 0	1 0 0	
...	...	...	3	...	30	6	...	.. ...	...	30	10 0	1 10 0	5 oxen.
...	...	...	2	...	...	...	...	3	...	30	5 0	10 0	
...	...	...	2	...	...	...	...	20	...	5	5 0	1 0 0	
...	...	...	3	...	5	...	6	2	1	5	5 0	10 0	
...	...	...	2	...	30	...	...	30	...	100	2 10 0	5 0 0	
...	...	...	...	...	...	...	...	15	...	20	5 0	15 0	
...	...	...	...	...	...	...	...	.....	...	10	5 0	...	
...	...	...	...	...	...	...	...	.....	3	60	1 3	10 0	
...	...	...	...	1	15	...	...	12	...	½×½ leugas	5 0	1 0 0	2 oxen.
...	...	...	...	1	15	...	...	.....	...	30	1 0	10 0	
...	...	...	2	...	9	...	...	.....	...	½×½ leugas	3 0	10 0	
...	...	...	...	...	...	...	...	.....	...	½×½ leugas	1 0	10 0	
...	...	...	2	..	40	...	15	3	2	1×1 leugas	10 0	1 10 0	
...	...	...	...	...	...	...	...	2	...	1 acre	5 0	3 0 0	
...	...	...	...	.	...	...	...	1	1	.....	2 6	10 0	
...	...	...	...	...	15	5	15	10	...	10	8 0	1 0 0	4 oxen.
...	...	...	...	...	...	...	...	20	...	10	1 0	5 0	
...	...	...	...	...	...	...	...	(coppice) 3	...	20	5 0	5 0	
...	...	...	14	...	11	...	...	(Do.) 5	...	40	7 0	4 0	
...	...	...	...	...	...	...	...	20	...	30	2 0	10 0	
...	...	...	...	...	...	..	...	4	...	20	10 0	10 0	
...	...	...	3	...	40	...	20	12	...	100	15 0	1 5 0	
...	...	...	3	...	...	..	...	3	...	5	3 0	3 0	
...	...	...	6	...	20	6	7	5	...	20	10 0	10 0	
...	...	...	8	...	40	8	40	12	...	.....	15 0	1 0 0	
...	...	...	2	...	10	...	...	.....	...	40	10 0	15 0	
...	6	...	2	...	15	5	...	.....	1	20	1 0 0	1 10 0	
...	...	...	3	...	40	...	...	.....	...	20	10 0	1 0 0	2 oxen
...	...	...	3	...	50	3	20	.....	...	40	15 0	1 5 0	
...	...	...	...	...	...	...	...	.....	...	.....	2 0	2 0	
...	...	...	...	4	0	2	...	.....	2	60	1 0 0	2 0 0	
...	...	...	...	...	10	...	...	.....	...	2	5 0	10 0	
...	...	...	5	...	25	...	...	.....	1	40	1 0 0	1 10 0	
...	...	...	5	...	30	...	...	1	2	5	10 0	1 0 0	
...	...	...	5	...	30	...	...	1	...	30	5 0	10 0	
OF TOTNES.													
...	...	...	8	...	...	12	...	40	...	50	11 0	15 0	
GOSCELM.													
...	...	...	3	...	7	...	...	... ..	10	...	5 0	5 0	

	MANOR. Exchequer Domesday.	MANOR. Exeter Domesday.	Lord in the time of King William.	Lord in the time of King Edward.	No. of Hides. h.	v.	f.	Taxed for h	v.	f.	Land for Plough Teams.	Plough Teams.	Villeins.	Cottars.	Bordars.	Serfs.	Pack Horses.	Unbroken Horses.	Wood Mares.	Head of Cattle.	Cows.	Sheep.	Swine.	Goats.	Wood.	Meadow.	Pasture.	Value T.R.W. £	s.	d.	Value T.R.E. £	s.	d.	
			all under the Earl.																							acre	acres							
274	Tregril ..	Tregril ..	Offels ...	Alric ...	1	0	0	0	1	0	7	2	4		13	2	..	..	..	4	..	30	6	12	1 acre	...	60	1	0	0	2	0	0	
275	Botiled	Botiled .	Odo ...	Osulf ...	2	0	0	0	1	0	8	2½	4	.	12	4	..	..	..	4	..	30	6	12	60	..	50	1	0	0	2	0	0	
276	Nietestou ..	Nietstow ...	,, ..	Godric, the priest	1	0	0	never gelded			5	1	3	.	6	3	..	..	..	2	..	30	2	.	.....	...	60	5	0	1	1	0	0	
277	Treluge ..	Treluga ...	,, ..	Brismar ..	1	0	0	0	0	1	2	1	1	.	2	2	..	..	..	..	..	..	..	..	.....	...	6	5	0	1	0	0	3 oxen	
278	Treviniel ..	Treviniel ..	,, ..	,, ..	0	2	0	0	0	1	2	1	2	.	4	2	..	3	..	2	..	30	..	..	(coppice) 2	...	20	10	0	1	0	0	8 oxen for the plough	
279	Trewale ..	Trevalla ...	,, ..	Osulf ..	0	2	0	0	0	1	2	..	2	.	4	1	..	..	..	..	..	..	..	..	.....	...	10	5	0	1	5	0	2 oxen.	
280	Portatlant ...	Portatlant ..	,, ..	Levron ...				0	0	1	2			.	2	1	..	..	..	..	..	..	..	..	.....	...	4	2	0	7	0			
281	Trenant ..	Trenant ...	Algar ...	Osulf ...	1	0	0	0	0	1	6	2	2	.	9	3	..	..	..	37	..	..	..	..	.....	...	100	15	0	2	0	0		
282	Trewent ..	Trewent ..	,, ..	,, ..	1	0	0	0	0	2	6	2	3	.	7	3	..	..	..	25	..	..	..	..	.....	...	500	15	0	1	10	0	2 oxen for the plough.	
283	Plument ..	Plument ..	,, ..	,, ..	0	2	0	0	1	0	8	3½	4	.	12	6	..	..	..	57	14	..	..	..	30	...	40	1	0	0	2	10	0	
284	Bentewoin ..	Bentewoin ..	,, ..	,, ..	0	2	0	0	0	2	3	2	3	.	7	2	..	..	..	18	6	..	..	..	4	...	10	10	0	1	0	0	2 oxen for the plough.	
285	Trefitent ..	Trefitent ..	,, ..	,, ..	0	2	0	0	0	2	4	2	3	.	4	3	..	..	..	15	6	..	..	..	20	...	20	10	0	1	0	0		
286	Edelet ..	Edelet ..	,, ..	,, ..	1	0	0	0	1	0	6	3	1	...	7	2	..	..	..	25	..	..	7	..	40	...	2 × 1 leugas	15	0	2	0	0		
287	Tragaradue ...	Tragaraduc ...	Alward ...	Alward ...	0	2	0	0	0	3	3	2½	4	.	6	2	..	..	..	50	..	..	..	..	.....	...	10 acres	10	0	1	0	0		
288	Chenmerch ...	Chienmerc ...	Alward ...	,, ..	0	1	0	0	0	1	1	1	.	.	3	1	..	..	..	40	..	..	..	..	.....	...	10	7	0	10	0			
289	Talgolle ..	Talgolle ..	Alnod ...	Alnod ...				0	0	2	3	1½		.	4	3	..	..	..	2	15	..	..	..	2	...	60	4	0	1	0	0		
290	Treseau ..	Trescau ...	,, ..	,, ..				0	0	1	3	1		.	3	1	..	..	..	3	..	..	..	..	3	...	100	5	0	1	5	0	One ox.	
291	Disart ..	Disart ..	,, ..	Aluric ..	0	1	0	1 acre			1	½	.	.	2	1	..	..	3	..	..	30	..	10	.	1	10	5	0	10	0	One ox for the plough.	
292	Trewderet .	Trenidered ...	,, ..	Merleswain ...	0	1	0	0	0	1	2	1	2	.	3		..	..	..	2	15	..	..	..	..	...	100	10	0	15	0			
293	Pengelle ..	Pengelli ...	Ednod ...	Ednod ...	1 acre			0	0	½	1			.	2		..	..	..	..	..	..	..	..	.....	...	20	2	0	5	0	Two oxen.	
294	Ullavestone ...	Ullovastona ...	Alnod ...	Saulf ...	0	1	0	0	0	1	1	1	1	.	3		..	..	..	..	20	..	5	..	..	...	100	5	0	5	0	Four oxen.	
295	Lanlawernec	Lanawernec ...	Alric ...	Alric ...	0	1	0	0	0	1	2	½	2	.			..	..	..	..	15	5	15	..	10	...	60	8	0	1	0	0	Do.	
296	Drainos ...	Drainos ...	,, ...	,, ...	0	1	0	0	0	2	1	½	2	.	2		..	..	1	..	10	..	..	10	(coppice) 4	...	30	3	0	1	0	0	Five oxen.	
297	Trelamar ...	Trelamar ...	Alsi ...	Alsi ...	1 acre			0	0	½	1	..		.		1	..	..	..	..	8	..	..	..	..	..	½ lg. × ½ lg.	1	0	.			One ox.	
298	Cabulian ..	Cabulian ...	Almar ...	Almar ...	0	3	0	0	0	2	6	1	3	.	7	3	..	3	..	3	20	..	10	..	40	..	50	10	0	2	0	0	3 oxen for the plough	
299	Lisuiven ..	Lisuiven ..	Brietric ...	Brietric ...	0	1	0	½ acre			2	1	..	.	3	1	..	..	..	..	..	..	..	..	.....	...	15	10	0	1	5	0		
300	Tregal ..	Tregal ...	,, ..	Burgered ...				1 acre			2	½		.	2		..	..	4	..	30	..	..	..	1	2	10	8	0	1	0	0		
301	Tregingale .	Treghingala ..	,, ..	Brictric ...	0	2	0	0	0	1	3	1	1	.	1	1	..	..	1	..	15	..	5	..	8	..	20	5	0	15	0			
302	Tretweret ..	Tretweret ...	,, ..	Leurie ...	0	1	0	0	0	1	2	.	.	.	1	1	..	..	..	..	..	..	..	..	4	..	10	3	0	1	0	0		
303	Odenol ...	Odinol ...	,, ..	Haemar ...	1	0	0	0	1	0	4	1½	7	.	8	3	..	..	..	3	30	6	..	..	.....	...	30	10	0	1	10	0	5 oxen.	
304	Drainos ...	Drainos ...	Ulsi ...	Ulsi ...	0	0	2	0	0	½	2	1	2	.	3	1	..	..	..	2	..	..	..	..	3	...	30	5	0	10	0			
305	Trevilliud .	Trevilired ..	,, ...	,, ...	0	2	0	0	0	1	3	1	2	.	2	1	..	..	..	2	..	..	..	..	20	...	5	5	0	1	0	0		
306	Hela ...	Hela ..	Colo ..	Colo ...	0	1	0	1 acre			2	½	4	.			..	..	..	..	5	.	6	.	2	1	5	5	0	5	0			
307	Elerchi .	Elerchi ...	Levenot ...	Merlesuen ...	4	0	0	1	0	0	20	5	17	.	18	11	..	..	..	..	30	.	..	.	30	...	100	2	10	0	5	0	0	
308	Ermenhen ..	Hirmeneu .	,, .	Levenot ...	0	1	0	0	0	2	6	½	.	.	5	2	..	..	..	..	..	.	..	.	15	...	20	5	0	15	0			
309	Reutin ...	...	Ulward ...	Alwin ...				0	1	0			1	.			..	..	..	..	..	.	..	.	.	...	10	5	0	.				
310	Polhal ..	Polhal ..	Ulsi ...	Ulwin ...	0	1	0	0	0	1	2	..	.	.	1		..	..	..	..	..	..	..	.	..	3	60	1	0	10	0			
311	Beveschoc ..	Beveschoc ..	Uluric ..	Bishop Leuric	0	1	0	0	0	1	2	.	.	.	2	1	..	..	1	15	..	.	.	.	12	...	½ × ½ leugas	5	0	1	0	0	2 oxen.	
312	Karsalan ..	Karsalam ..	Dodo ..	Dodo ...	1 acre			0	0	½	1	..		.		3	..	..	1	15	..	.	.	.	.	...	30	1	0	10	0			
313	Widewot .	Widewot ...	Sirewold ..	Sirewold ...	2 acres			0	0	1	1		1	.		1	..	..	2	..	9	.	.	.	.	...	½ × ½ leugas	5	0	10	0			
314	Dimelihoc ..	Dimelihoc ..	Gunhar ..	Almer ...	1 acre			0	0	½	1		.	.	2		..	..	..	..	..	.	.	.	.	...	½ × ½ leugas	1	0	10	0			
315	Landighe ..	Landighe ...	Godwin ..	Alsi ...	1	0	0	0	1	0	5	1½	2	.	4		..	..	2	..	10	.	15	.	3	2	1 × ½ leugas	10	0	1	10	0			
316	Tucowit ..	Tucowit ...	Wilumare ...	Edmer ...				0	0	1	4	.	2	.	3		..	..	..	..	.	.	.	.	2	.	1 acre	5	0	3	0	0		
317	Tremarustal .	Tremarutel ..	Willumar ..	,, .	2 acres				...		1	.		.	1	2	..	..	..	..	..	.	.	.	1	1		2	6	10	0			
318	Bolival ...	Bolival ..	Hucche als. Hueta	Hucche als. Hueta	0	0	1	0	0	½	1	½	2	.	2	1	..	..	..	..	15	5	15	.	10	..	10	8	0	1	0	0	1 oxen.	
319	Trevocarwinoc	Trevocarwinoc	Rabel ..	Alfig ...	0	1	0	0	0	2	3	..	.	.	1										20	.	10	1	0	5	0			
320	Panguol ...	Panguol ...	,, ..	Alsi ...	0	1	0	0	0	1	2	1		.	4										(coppice) 3	.	20	5	0	5	0			
321	Tacabere ..	Tacabera ...	Bernard, the priest	Aluric ...	0	0	2	0	0	½	1	1		.	3		..	..	14	..	11				(Do.) 5		10	7	0	4	0			
322	Trefilies .	Trefilies .	Hunfrid ..	Alstan .	0	2	0	0	1	0	4		1												20		30	2	0	10	0			
323	Henland .	Henlant ..	Seibert .	Ailmer ...	0	1	0	0	0	1	4	1	2		3										4		20	10	0	10	0			
324	Treligan .	Treligani .	Frawin .	Aluric ...	1	0	0	0	0	2	5	2	3		6				3		10		20		12	..	100	15	0	1	5	0		
325	Polseat ..	Polseat ..	Andreas ..	,, ..	0	1	0	0	0	1	1	½	2		5										3		5	3	0	3	0			
326	Carbihan .	Carbihan .	,, .	Merken ...	4 acres			0	0	1	4	2	2		3	4			6		20	6	7		5		20	10	0	10	0			
327	Witestan .	Witestan .	Radulf .	Alwold ..	0	0	1	0	0	½	2	½				1			8		40	8	40		12			15	0	1	0	0		
328	Rigven ..	Rigven ..	Heldric .	Brismer ...	0	1	0	0	0	1	3	½	6						2		30						40	10	0	15	0			
329	Delian ..	Delioan ..	Blohin .	Jaul ...	0	2	0	0	1	0	2	2	2		4			6			15	5					30	1	0	1	10	0		
330	Trefrioc .	Trefrioc .	,, .	Jaulf ..	0	2	0	0	1	0	2	1	2		3				3		15					1	20	10	0	1	0	0		
331	Duvenant ..	Duvenant .	,, .	Alward .	0	2	0	0	1	0	3	1½	1						3		10	3	20				20	10	0	1	0	0	2 oxen	
332	Trevcheret .	Trewcheret .	,, .	Aluric ...	0	0	1	0	0	½	2	.	1														10	15	0	1	5	0		
333	Treuthal .	Treuthal ..	,, ..	Brismar ...	1	0	0				8	4	7		7					1	10	2				2		7	0	2	0			
334	Trawint .	Trawint .	Rogerius .	Dorgered ...	0	1	0	0	0	2	1	1			4						15					2	10	1	5	0	2	0	0	
335	Delion .	Delion .	,, .	Lewin ...	1	0	0	0	0	2	4	1	1		6						20						2	5	0		10	0		
336	Legea .	Legea .	,, .	Alnod ...	0	2	0	0	0	2	4	2			11						30					1	10	1	0	1	10	0		
337	Hamet .	Hamet ..	,, ..	,, ...	3 acres			0	0	1	2	1			4						20				1	2	5	10	0	1	0	0		
																									1		30	5	0	10	0			
				LAND OF JUDHEL OF TOTNES.																														
338	Forchetestane	Forchetestana	Judhel ...	Alward ...	0	0	3	0	1	0	3	½	...	...	2	4	...	...	...	8	...	...	12	...	40	...	50	11	0	15	0			
				LAND OF GOSCELM.																														
339	Pigesdone	Pighesdona	Goscelm	Wadel ...	...			0	1	0	1	1	...	...	1	...	...	...	...	3	...	7	...	...	.....	10	...	5	0	5	0			

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BOTANY,
ORNITHOLOGY,
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CONCHOLOGY, OR
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(but on no other subject whatsoever) published in any Journal, Proceedings or Transactions of the said Institution during the three years next preceding the date of such award.

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