Proceedings

of the

Dorset Natural History

and

Antiquarian Field Club.

Edited by

W. Miles Barnes.

Volume XXII.

Dorchester:

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1901
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RULES
OF
THE DORSET NATURAL HISTORY
AND
ANTIQIUARIAN FIELD CLUB.

OBJECT AND CONSTITUTION.

1.—The Club shall be called The Dorset Natural History and Antiquarian Field Club, and shall have for a short title The Dorset Field Club.

The object of the Club is to promote and encourage an interest in the study of the Physical Sciences and Archaeology generally, especially the Natural History of the County of Dorset and its Antiquities, Prehistoric records, and Ethnology. It shall use its influence to prevent, as far as possible, the extirpation of rare plants and animals, and to promote the preservation of the Antiquities of the County.

2.—The Club shall consist of (i.) three Officers, President, Honorary Secretary, and Honorary Treasurer, who shall be elected annually and shall form the Executive body for its management; (ii.) Vice-Presidents, of whom the Honorary Secretary and Treasurer shall be two, ex-officio; (iii.) The Honorary Editor of the Annual Volume of Proceedings; (iv.) Ordinary Members; (v.) Honorary Members. The President, Vice-Presidents, and Editor shall form a Council to decide questions referred to them by the Executive and to elect Honorary Members. The Editor shall be nominated by one of the incoming Executive and elected at the Annual Meeting.

There may also be one or more Honorary Assistant Secretaries, who shall be nominated by the Honorary Secretary, seconded by the President or Treasurer, and elected by the Members at the Annual Meeting.

Members may be appointed by the remaining Officers to fill interim vacancies in the Executive Body until the following Annual Meeting.

PRESIDENT AND VICE-PRESIDENTS.

3.—The President shall take the chair at all Meetings, and have an original and a casting vote on all questions before the Meeting. In addition to the two ex-officio Vice-Presidents, at least three others shall be nominated by the President, and elected at the Annual Meeting.

HON. SECRETARY.

4.—The Secretary shall perform all the usual secretarial work; cause a programme of each Meeting to be sent to every Member seven days at least before such Meeting; make all preparations for carrying out Meetings and, with
or without the help of the Assistant Secretary or others, conduct all Field Meetings. On any question arising between the Secretary (or Acting Secretary) and a Member at a Field Meeting, the decision of the Secretary shall be final.

The Secretary shall receive from each Member his or her share of the day’s expenses, and thereout defray all incidental costs and charges of the Meeting, rendering an account of the same before the Annual Meeting to the Treasurer; any surplus of such collection shall form part of the General Fund, and any deficit be defrayed out of that Fund.

HON. TREASURER.

5.—The Treasurer shall keep an account of Subscriptions and all other moneys of the Club received and of all Disbursements, rendering at the Annual General Meeting a balance sheet of the same, as well as a general statement of the Club’s finances. He shall send copies of the Annual Volume of Proceedings for each year to Ordinary Members who have paid their subscriptions for that year (as nearly as may be possible, in the order of such payment), to Honorary Members, and to such Societies and individuals as the Club may, from time to time, appoint to receive them. He shall also furnish a list at each Annual Meeting, containing the names of all Members in arrear, with the amount of their indebtedness to the Club. He shall also give notice of their election to all New Members.

ORDINARY MEMBERS.

6.—Ordinary Members are entitled to be present and take part in the Club’s proceedings at all Meetings, and to receive the published “Proceedings” of the Club, when issued, for the year for which their subscription has been paid.

7.—Every candidate for admission shall be nominated in writing by one member and seconded by another, to one of whom at least he must be personally known. He may be proposed at any Meeting, and shall receive programmes of Meetings and exercise all the functions of a Member except voting and bringing friends to Meetings. His name shall appear in the programme of the first following Meeting at which a Ballot is held, when he shall be elected by ballot, one black ball in six to exclude. Twelve members shall form a quorum for the purpose of election. A Ballot shall be held at the Annual and Winter Meetings, and may be held at any other Meeting, should the Executive so decide, notice being given in the Programme.

8.—The Annual Subscription shall be 10s., which shall become due and payable in advance on the first of January in each year. Subscriptions paid on election after September in each year shall be considered as subscriptions for the following year, unless otherwise agreed upon by such Member and the Treasurer. Every Member shall pay immediately after his election the sum of ten shillings as entrance fee, in addition to his first Annual Subscription.

9.—No person elected a Member shall be entitled to exercise any privilege as such until he has paid his entrance fee and first subscription, and no Member shall be entitled to receive a copy of the “Proceedings” for any year until his subscription for that year has been paid.
10.—A registered letter shall be sent by the Hon. Treasurer to any Member whose subscription is one year in arrear at the date of any Annual Meeting, demanding payment within 28 days, failing which he shall cease to be a Member of the Club, but shall, nevertheless, be liable for the arrears then due.

11.—Members desiring to leave the Club shall give notice of the same in writing to the Treasurer (or Secretary), but unless such notice is given before the end of January in any year, they shall be liable to pay the Annual Subscription due to the Club on and after January 1st in that year.

HONORARY MEMBERS.

12.—Honorary Members shall consist of persons eminent for scientific or natural history attainments, and shall be elected by the Council. They pay no Subscription, and have all the privileges of Ordinary Members except voting.

MEETINGS.

13.—The Annual General Meeting shall be held as near the first week in May as may be convenient; to receive the outgoing President's Address (if any) and the Treasurer's financial report; to elect the Officers and Editor for the ensuing year; to determine the number (which shall usually be three or four), dates and places of Field Meetings during the ensuing summer, and for general purposes.

14.—Two Winter Meetings shall usually be held in or about the months of December and February for the exhibition of Objects of Interest (to which not more than one hour of the time before the reading of the Papers shall be devoted), for the reading and discussion of Papers, and for general purposes.

The Dates and Places of the Winter and Annual Meetings shall be decided by the Executive.

15.—A Member may bring Friends to the Meetings subject to the following restrictions:—No person (except the husband, wife, or child of a Member), may attend a Meeting unaccompanied by the Member introducing him, unless such Member be prevented from attending by illness, and no Member may take with him to a Field Meeting more than one Friend, whose name and address must be submitted to the Hon. Secretary and approved by him or the Executive.

The above restrictions do not apply to the Executive or to the Acting Secretary at the Meeting.

16.—Members must give due notice (with prepayment of expenses) to the Hon. Secretary of their intention to be present, with or without a Friend, at any Field Meeting, in return for which the Secretary shall send to the Member a card of admission to the Meeting, to be produced when required. Any Member who, having given such notice, fails to attend will be liable only for any expenses actually incurred on his account, and any balance will be returned to him on application. The sum of 1s., or such other amount as the Hon. Secretary may consider necessary, shall be charged to each person attending a Field Meeting for Incidental Expenses.

17.—The Executive may at any time call a Special General Meeting of the Members upon a written requisition (signed by Eight Members) being sent to the
Honorary Secretary. Any proposition to be submitted shall be stated in the Notice, which shall be sent to each Member of the Club not later than seven days before the Meeting.

PAPERS.

18.—Notice shall be given to the Secretary, a convenient time before each Meeting, of any motion to be made or any Paper or communication desired to be read, with its title and a short sketch of its scope or contents. The insertion of these in the Programme is subject to the consent of the Officers of the Club, or any two of them.

19.—The Publications of the Club shall be in the hands of the Executive, who shall appoint annually Three or more Ordinary Members to form with them and the Editor a Publication Committee for the purpose of deciding upon the contents of the Annual Volume. These contents shall consist of original papers and communications written for the Club, and either read, or accepted as read, at a General Meeting; also of the Secretary's Reports of Meetings, the Treasurer's Financial Statement and Balance Sheet, a list to date of all Members of the Club, and of those elected in the current or previous year, with the names of their proposers and seconders. The Annual Volume shall be edited by the Editor subject to the direction of the Publication Committee.

20.—Twenty-five copies of his paper shall be presented to each author whose communication shall appear in the volume as a separate article, on notice being given by him to the Publisher to that effect.

NEW RULES.

21.—No alteration in or addition to these Rules shall be made except with the consent of a majority of three-fourths of the Members present at the Annual General Meeting, full notice of the proposed alteration or addition having been given both in the current Programme and in that of the previous Meeting.
NOTICES.

THE PLATE FUND.

The Executive desire to call the attention of liberal and public-spirited Members of the D.F.C. to the existence of a "Plate Fund" for defraying the very heavy expense of the Illustrations in the volumes of Proceedings. In some cases the writer generously presents the engravings; but, in order to maintain the high standard of excellence attained by recent volumes, without again incurring so deep an obligation to an individual Member, a special contribution would be extremely valuable.

NOTICE BY HON. TREASURER.

VOLS. OF PROCEEDINGS.

There are found to be a few complete sets of back numbers of Field Club Proceedings in the Treasurer's hands for disposal at the following rates, to Members only:—

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<th></th>
<th>£</th>
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<td>A. Complete set of 20 vols. at 7s.</td>
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<tr>
<td>B. Half set of 10 later vols. at 8s.</td>
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<td>C. Quarter set of 5 later vols. at 9s.</td>
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Separate Vols. 10s. each, except copies of the scarce early Vols. I.—IV. inclusive, which are 12s. each. All applications must be prepaid, and will be dealt with in order of priority; of two or more simultaneous applications the larger order will take precedence.

Copies of the General Index to the first 16 volumes of Proceedings can be obtained at 6d. each.

Copies of the Rules can be obtained at 3d. each, post free.
The Dorset Natural History and Antiquarian Field Club.

INAUGURATED MARCH 26th, 1875.

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J. C. MANSEL-PLEYDELL, Esq., D.L., F.G.S., F.L.S.

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REV. O. PICKARD-CAMBRIDGE, M.A., F.R.S.
NELSON M. RICHARDSON, Esq., B.A., F.E.S. (Hon. Secretary).
Hon. Morton G. Stuart, F.G.S.

Hon. Editor:
W. MILES BARNES, Monkton Rectory, Dorchester.

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CAPTAIN G. R. ELWES (Hon. Treasurer), Bossington, Bournemouth.

Honorary Members:
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CLEMENT REID, Esq., F.R.S., 28, Jermyn Street, London, S.W.

Mr. A. M. WALLIS, 29, Mallams, Portland.
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OF THE

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Batten, H. B., Esq.

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West Parley Rectory, Wimborne
West Parley Rectory, Wimborne
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Blandford
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Lindisfarne, Weymouth
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Ollantigh Towers, Wye, Kent
St. Alphege, Parkstone, Dorset
Peveril Tower, Swanage
Peveril Tower, Swanage
The College, Weymouth
Moyles Court, Fordingbridge
Lytchett Minster, Poole
Binnegar Hall, Wareham
2, Longhill Terrace, Weymouth
All Saints’ Rectory, Dorchester
Wareham
Wareham
Steeple, Wareham
Whitecroft, Buxton, Weymouth
Fairlawn, Worthing, Sussex
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Hansford, Charles, Esq.
Hardwick, Stewart, Esq.
Harston, Comdr. F. A. (late R.N.)
Hart-Dyke, Rev. Canon P.
Hasluck, Rev. Ernest
Hawkins, W., Esq.
Hayne, R., Esq.
Head, J. Merrick, Esq.
Henning, Mrs.
Hibbs, Geo., Esq.
Highton, Rev. E.
Hill, R. E., Esq.
Hogg, B.A., Esq.
Honeywell, F., Esq.

House, Edward, Esq.
Howard, Sir R. N.
Hudleston, W. H., Esq., F.R.S.
Huntley, H. E., Esq.
Hurdle, H. A., Esq.
Hussey, Rev. J.

172, Edmund Street, Birmingham
Sturminster Newton
Hethfelton, Wareham
Rodwell, Weymouth
Clarendon Court, Clarendon Road, Bournemouth
Fleet House, near Weymouth
Fleet House, near Weymouth
Langton Herring Rectory, Weymouth
Woodleaaze, Wimborne
Uddens, Wimborne
Gannats House, Wimborne
South Lodge, Lower Beeding, Horsham
Manston Rectory, Blandford
Rodney House, Bournemouth
Royal Terrace, Weymouth
Broadley, Westerhall, Weymouth
Dorchester
18, Royal Terrace, Weymouth
Thornford, Sherborne
Osmington Lodge, Osmington, Weymouth
Sedgehill House, Shaftesbury
Maiden Newton Rectory, Dorchester
Dorchester
21, Commercial Road, Bournemouth
Milton Abbas School, Blandford
Newlands, Glendenning Avenue, Weymouth
Lullingstone, Wimborne
Handley Vicarage, Salisbury
Broadway, Dorchester
Fordington House, Dorchester
Pennsylvania Castle, Portland
Frome, Dorchester
Bere Regis, Wareham
Tarrant Keynesdon Rectory, Blandford
Long Lynch, Shillingstone
Dorchester
The Elms, Surbiton Road, Kingston-on-Thames
Tomson, Blandford
Weymouth
West Holme, Wareham.
Charlton House, Blandford
2, Frederick Place, Weymouth
Pimperne Rectory, Blandford
Kerr, E. W., Esq., M.D.
Kettlewell, Geo. Douglas, Esq.
Lafontaine, Alfred C. de, Esq.
Lange, Mrs. R. M. de
Langford, Rev. Canon
Leach, J. Comyns, Esq., M.D.

Leeds, Oglander, Esq.
Lee, W. H. Markham, Esq., I.S.M.
Legge, Miss Jane
Le Jeune, H., Esq.
Leslie, Rev. E. C.
Linklater, Rev. Robert

Lister, Arthur, Esq.
Lister, Miss Guilelma
Lock, Mrs. A. H.
Lock, B. F., Esq.
Lock, Miss Mary C.
Lonsdale, Rev. E. C.

Lush, Wm. Vaudrey, Esq., M.D., F.R.C.P.
Lush, Mrs.
Lynes, Rev. John
Lys, F. D., Esq.
Macdonald, P. W., Esq., M.D.
Manger, A. T., Esq.
Mansel-Pleydell, J. C., Esq. (President)

Mansel-Pleydell, Mrs.
Mansel-Pleydell, Rev. J. C.
Mansel, Miss Louisa
March, H. Colley, Esq., M.D.
Marriott, Sir W. Smith, Bart.
Martin, Miss Eileen
Mate, William, Esq.
Maude, W., Esq., B.C.L.
Maunsell, Rev. F. W.
Mayo, Rev. Canon C. H.
Mead, Miss
Medlycott, Sir Edwd. B., Bart.
Middleton, H. B., Esq.
Middleton, Miss L. M.
Miller, Rev. J. A., B.D.
Milne, Rev. Percy H.

South Street, Dorchester
Eagle House, Blandford
Athelhampton, Dorchester
Winterfold, Broadstone
Belle Vue, Higher Hove, Plymouth
The Lindens, Sturminster Newton, Blandford

The Cottage, Bridport
Wyke Regis, Weymouth
Alington Villa, Bridport
St. Ives, Upper Parkstone, Dorset
Came Rectory, Dorchester
Holy Trinity Rectory, Stroud Green, London, N.

High Cliffe, Lyme Regis
High Cliffe, Lyme Regis
53, High West Street, Dorchester
11, New Square, Lincoln's Inn, London
53, High West Street, Dorchester
Fontmell Magna, Shaftesbury

12, Frederick Place, Weymouth
12, Frederick Place, Weymouth
Percy House, Wimborne
2, Lorne Villas, Rodwell, Weymouth
County Asylum, Dorchester
Stock Hill, Gillingham

Whatcombe, Blandford
Whatcombe, Blandford
Sturminster Newton Vicarage, Blandford
Sulhy Hall, Rugby
Portisham, Dorchester
The Down House, Blandford
2, Greenhill, Weymouth
62, Commercial Road, Bournemouth
Brackenwood, Bournemouth
Symondsbury Rectory, Bridport
Longburton Vicarage, Sherborne
5, Brunswick Buildings, Weymouth
Ven, Milborne Port, Sherborne
Bradford Peverell, Dorchester
Lulworth
The College, Weymouth
Evershot Rectory, Dorchester
Moorhead, J., Esq., M.D.
Morrice, G. G., Esq., M.D.
Morton, Mrs.
Moule, H. J., Esq.
Mouillon, Arthur D., Esq.
Murray, Rev. R. P., F.L.S.
Odeden, Colonel Parry
Palmer, Colonel R. H.

Pass, Alfred C., Esq.
Patey, Miss
Payne, Miss Eleanor
Payne, Miss Florence
Pearson, W. E., Esq.
Peck, Gerald R., Esq.
Penny, Rev. J.
Perkins, Rev. T.
Peto, Sir Henry, Bart.
Phillips, James Henry, Esq.
Phillips, Mrs.
Philpot, J. E. D., Esq.
Philpots, John R., Esq., L.R.C.P. and S. Ed., J.P.
Pickard-Cambridge, A. W., Esq.
Pickard-Cambridge, Mrs.
Pickard-Cambridge, Rev. O., M.A., F.R.S.
Pike, T. M., Esq.
Pond, S., Esq.
Ponting, Chas. E., Esq., F.S.A.
Pope, A., Esq.
Pope, George, Esq.
Prideaux, C. S., Esq.
Prideaux, W. de C., Esq.
Pye, William, Esq.
Radellyffe, Eustace, Esq.
Ratcliff, Mrs. M. E.
Ravenhill, Rev. Canon H., R.D.
Reeve, Mrs. Henry
Rendell, W. F., Esq.
Reynolds, Mrs. Arthur
Richardson, N. M., Esq. (*Vice-President and Hon. Secretary*)

1, Royal Terrace, Weymouth
Holy Trinity Vicarage, Weymouth
14, Victoria Terrace, Weymouth
The County Museum, Dorchester
Fermain, Parkstone
Shapwick Rectory, Blandford
Turnworth, Blandford
8, Clydesdale Mansions, Clydesdale Road, London, W.
Hawthornden, Clifton Down, near Bristol
Saxilby Vicarage, Lincoln
13, Greenhill, Weymouth
Rydal, Wimborne
4, Westerhall Villas, Weymouth
Sandacres, Parkstone
Tarrant Rushton Rectory, Blandford
Milton Abbas Vicarage, Blandford
Turnworth Rectory, Blandford
Chedington Court, Misterton, Crewkerne
Poole
Okeford Fitzpaine, Blandford
Holme Cleve, Lyme Regis
Moorcroft, Parkstone
Balliol College, Oxford
10, Gloucester Row, Weymouth,

Bloxworth Rectory, Wareham
c/o Miss Pike, Elim, Shortlands, Kent
Blandford
Wye House, Marlborough
South Court, Dorchester
Bourne Hall, Bournemouth
32, High West Street, Dorchester
32, High West Street, Dorchester
Dunmore, Rodwell, Weymouth
Hyde, Wareham
Alberta, Weymouth
Buckland Newton Vicarage, Dorchester
Rutland Gate, London, W.
Hallow Dene, Parkstone
Westland, Bridport

Montevideo, Chickereill, near Weymouth
Rickards, Captain Arthur
Ridley, Rev. O. M.
Ridley, Rev. J.
Rixon, W. A., Esq.
Robinson, Sir Charles, F.S.A.
Robinson, Vincent, Esq.
Rodd, Edward Stanhope, Esq.
Rooper, T. G., Esq.
Ruegg, L. H., Esq.
Schuster, Rev. W. P.
Schofield, F., Esq., M.D.
Searle, Allan, Esq.
Shearman, John, Esq.
Shephard, Colonel C. S.
Shepeard, T., Esq.
Sherren, J. A., Esq.
Simpson, Jas., Esq.
Simpson, Miss
Slater, Robert, Esq., F.G.S.
Smith, Howard Lyon, Esq., L.R.C.P.
Solly, Rev. H. S.
Sotheby, Rev. W. E. H.
Sowter, Rev. F. B., the Ven.
Archdeacon of Dorset
Sparks, W., Esq.
Stephens, R. Darrell, Esq., F.G.S. F.L.S., F.Z.S.
Stephens, W. L., Esq.
Stone, Walter Boswell, Esq.
Storer, Lieut.-Colonel, late R.E.
Stopford, Admiral
Stroud, Rev. J.
Stuart, Hon. Morton G.
Sturdy, Leonard, Esq.
Sturdy, Philip, Esq.
Sturt, W. Neville, Esq.
Suttill, H. S., Esq.
Swift, B. R., Esq.
Sydenham, David, Esq.
Sykes, Ernest R., Esq.

Wellington Lodge, Weymouth
East Hill, Charminster, Dorchester
The Rectory, Pulham, Dorchester
Alfoxton Park, Holford, Bridgwater
Newton Manor, Swanage
Parnham, Beaminster
Chardstock House, Chard
Pen Selwood, Bournemouth
Westbury, Sherborne
Vicarage, West Lulworth
Windermere, Spa Road, Weymouth
Wilt and Dorset Banking Company, Southampton
Peveril House, Swanage
Southcot, Charminster, Dorchester
Kingsley, Bournemouth
Weymouth
Minterne Grange, Parkstone
12, Greenhill, Weymouth
Waverley, Swanage
Buckland House, Buckland Newton, Dorchester

20, Trinity Road, Weymouth
Bridport
Bere Regis Vicarage, Wareham

Clevedon Lodge, Wimborne
Crewkerne

Treworman, Wadebridge
Westbury, Bridport
Bardwell Road, Oxford
Keavil, Bournemouth
Shroton House, Blandford
South Perrott, Crewkerne
2, Belford Park, Edinburgh
Trigon, Wareham
Branksome, near Bournemouth
India Office, London, S.W.
Pymore, Bridport
45, South Street, Dorchester
Bournemouth

3, Gray’s Inn Place, Gray’s Inn, London, W.C.
Symes, G. P., Esq.
Taylor, J. Herbert, Esq.
Telford-Smith, Telford, Esq., M.D.
Tennant, Major-General
Thomson, Rev. G.
Thomson, J. Roberts, Esq., M.D.
Thurlow, Rev. Alfred R.
Tomson, Arthur, Esq.
Troyte-Bullock, Mrs.
Tucker, Mrs.
Turner, W., Esq.
Udal, The Hon. Chief Justice
Usher, Rev. R., F.L.S.
Usherwood, Rev. Canon T. E.
Vawdrey, Mrs.
Vosper-Thomas, Rev. A. F. C.
Vosper-Thomas, Rev. S.
Walker, Rev. S. A.
Ward, Rev. J. H.
Warre, Rev. Canon F.
Watson, Rev. C. O.
Watts, Rev. Canon R. R., R.D.
Waugh, Rev. W. R., F.R.A.S.
Weaver, Rev. F. W., F.S.A.
Webb, E. Doran, Esq., F.S.A.
Whitby, Joseph, Esq.
Wilcox, B. A., Esq.
Wilkinson, Rev. J. H.
Williams, E. W., Esq.
Williams, Miss
Williams, Robert, Esq., M.P.
Williams, Mrs.
Wilton, Dr. John Pleydell
Woodhouse, Miss
Workman, J. Reece, Esq., C.E.
Wright, H. E., Esq.
Yeatman, Mrs.
Yeatman, Miss E. F.
Young, E. W., Esq.

11, Victoria Terrace, Weymouth
Grayrigg, Parkstone
Romansleigh, Wimborne
8, Belvedere, Weymouth
Highbury, Bodorgan Road, Bournemouth
Monkchester, Bournemouth
Weymouth
Sydling St. Nicholas, Dorchester
North Coker, Yeovil
Treverbyn, Weymouth
High Street, Poole
Antigua, W. Indies
East Lulworth Vicarage, Wareham
Rossmore, Parkstone
Dorchester Road, Weymouth
St. Luke's, Bilton, Staffordshire
Moxley, Wednesbury, Staffordshire
Spetisbury Rectory, Blandford
Silverton Rectory, near Exeter, Devon
Bemerton Rectory, Salisbury
The Vicarage, Bothenhampton, near Bridport
Stourpaine Rectory, Blandford
The Observatory, Portland
Milton Vicarage, Evercreech, Somerset
Mitre House, Salisbury
Frome St. Quintin House, Cattistock, Dorset
28, Portman Square, London, W.
Maiden Castle House, Dorchester
Melcombe Bingham Rectory, Dorchester
Herrington, Dorchester
Osmington House, Weymouth
Bridehead, Dorchester
Bridehead, Dorchester
Pulteney Buildings, Weymouth
Chilmore, Ansty, Dorchester
Catherington, Millbrook, Southampton
c/o J. and R. Tennant, Wall Park, Glasgow
Treverbyn, Warminster
King’s Stagg, Sturminster Newton
Dorchester

The above list includes the New Members elected up to October 1st, 1901.
New Members Elected since the Publication of Vol. xxi.

The names of the Proposer and Seconder are given in brackets opposite to the name of the new Member. The addresses may be seen in the general list of Members.

PROPOSED FEBRUARY 28TH, 1901; ELECTED AT DORCHESTER APRIL 29TH, 1901.

John Brennand Esq., Belmont, Parkstone
Telford Telford-Smith, Esq., M.A., M.D., Romandleigh, Wimborne
Miss Winifred M. Chudleigh, West Parley Rectory, Wimborne
W. Maude, Esq., B.C.L., Brackenwood, Bournemouth

PROPOSED APRIL 29TH, 1901; ELECTED AT CERNE JUNE 17TH, 1901.

F. E. Lys, Esq., 2, Lorne Villas, Rodwell, Weymouth
Rev. W. E. H. Sotheby, Bere Regis Vicarage, Wareham
G. E. J. Crallan, Esq., M.B., Bodorgan Manor, Bodorgan Road, Bournemouth

PROPOSED JUNE 17TH, 1901; ELECTED AT EXETER JULY 16TH, 1901.


PROPOSED JULY 16TH, 1901; ELECTED AT WEST PURBECK AUGUST 21ST, 1901.

Mrs. Fisher, Whitecroft, Buxton, Weymouth

{President.
{Rev. Canon Usherwood.
{Dr. Crespi.
{Rev. John Lynes.
{Rev. R. A. Chudleigh.
{Mrs. Chudleigh.
{Hon. Treasurer.
{Hon. Secretary.

{Hon. Secretary.
{W. V. Lush, Esq., M.D.
{President.
{G. Hibbs, Esq.
{E. R. Bankes, Esq.
{J. R. Philpots, Esq.

{Rev. Dr. Miller.
{Chas. Faulkner, Esq.

{Miss Martin.
{Mrs. Tucker.
PROPOSED AUGUST 21ST, 1901; ELECTED AT SALISBURY SEPTEMBER 18TH, 1901.

Miss Emily F. Yeatman, King's Stagg, Sturminster Newton
Ralph Edward Hill, Esq., Long Lynch, Shillingstone, Dorset

H. S. Bower, Esq.  
Rev. P. R. Gorringe.
### Dorset Natural History and Antiquarian Field Club.

**STATEMENT of ACCOUNTS from May 3rd, 1900, to April 26th, 1901.**

<table>
<thead>
<tr>
<th>Dr.</th>
<th>RECEIPTS.</th>
<th>£ s. d.</th>
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</thead>
<tbody>
<tr>
<td>1900.</td>
<td>Jan. 4th—Balance from Rev. O. P. Cambridge per Cheque</td>
<td>11 14 1</td>
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<tr>
<td></td>
<td>Subscriptions at various dates— £ s. d.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>44 at 10s. for 1899 and before</td>
<td>22 0 0</td>
</tr>
<tr>
<td></td>
<td>185 ditto (and 3s. 6d. additional) for 1900</td>
<td>91 13 6</td>
</tr>
<tr>
<td></td>
<td>71 ditto for 1901-2</td>
<td>35 10 0</td>
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<tr>
<td></td>
<td>By Sale of 12 Vols. of Proceedings, various dates</td>
<td>5 0 0</td>
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<tr>
<td>1901.</td>
<td>April 26th—Interest on Deposit Account, Wilts and Dorset Bank</td>
<td>0 17 6</td>
</tr>
<tr>
<td></td>
<td><strong>£166 15 1</strong></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Cr.</th>
<th>EXPENDITURE.</th>
<th>£ s. d.</th>
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<tbody>
<tr>
<td>1900.</td>
<td>July 9th and various dates—By purchase of 11 Vols. Proceedings and Postage</td>
<td>2 12 9</td>
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<tr>
<td></td>
<td>Meisenbach for Plates, 4 payments, various dates</td>
<td>8 19 2</td>
</tr>
<tr>
<td></td>
<td><strong>£166 14 1</strong></td>
<td></td>
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<tr>
<td>1901.</td>
<td>April 12th—Macfarlane and Erskine, for Plates</td>
<td>4 10 6</td>
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<td></td>
<td>Treasurer’s Stamps</td>
<td>2 15 9</td>
</tr>
<tr>
<td></td>
<td>Cheque Bock, Wilts and Dorset Bank</td>
<td>2 2 6</td>
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<tr>
<td></td>
<td>Cheque to National Trust</td>
<td>1 1 0</td>
</tr>
<tr>
<td></td>
<td>By Balance</td>
<td>146 12 5</td>
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</tbody>
</table>

### GENERAL STATEMENT, April 26th, 1901.

<table>
<thead>
<tr>
<th>Dr.</th>
<th>PAYMENTS DUE.</th>
<th>£ s. d.</th>
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</thead>
<tbody>
<tr>
<td>From 5 Members for 4 years</td>
<td>10 0 0</td>
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</tr>
<tr>
<td>&quot; 5 ditto for 3 years</td>
<td>7 10 0</td>
<td></td>
</tr>
<tr>
<td>&quot; 11 ditto for 2 years</td>
<td>11 0 0</td>
<td></td>
</tr>
<tr>
<td>&quot; 15 ditto for 1 year</td>
<td>7 10 0</td>
<td></td>
</tr>
<tr>
<td>&quot; 298 ditto for current year</td>
<td>149 0 0</td>
<td></td>
</tr>
<tr>
<td><strong>£185 0 0</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cr.</th>
<th>LIABILITIES.</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance in favour of Club from Payments in arrear</td>
<td>185 0 0</td>
<td></td>
</tr>
</tbody>
</table>

**Nil.**

G. R. ELWES,  
*Hon. Treasurer.*  
**£185 0 0**
### Dorset Natural History and Antiquarian Field Club.

**HON. SECRETARY’S ACCOUNT from May 1st, 1900, to May 1st, 1901.**

<table>
<thead>
<tr>
<th></th>
<th><strong>Dr.</strong></th>
<th><strong>Cr.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RECEIPTS.</strong></td>
<td>£ s. d.</td>
<td><strong>£ s. d.</strong></td>
</tr>
<tr>
<td>Balance from last Account</td>
<td>1 4 1</td>
<td></td>
</tr>
<tr>
<td>By Balance on Incidental Expenses at Meetings at Glanvilles Wootton, Winchester, and Poxwell</td>
<td>5 2 3</td>
<td></td>
</tr>
<tr>
<td><strong>£6 6 4</strong></td>
<td></td>
<td><strong>£6 6 4</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th><strong>£ s. d.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>H. Voss, for 4 Meetings, on May 8th and Dec. 13th, 1900, and Feb. 28th and April 29th, 1901</td>
<td>1 0 0</td>
</tr>
<tr>
<td>Hon. Secretary, Postages, &amp;c.</td>
<td>3 16 4</td>
</tr>
<tr>
<td>Balance in hand, May 1st, 1901</td>
<td>1 10 0</td>
</tr>
</tbody>
</table>

**NELSON M. RICHARDSON,**  
*Hon. Secretary.*
The Proceedings
OF THE
Dorset Natural History & Antiquarian
Field Club
DURING THE SEASON 1900-01.

Three indoor meetings, including the General Annual Meeting, which was held on Monday, April 29th, 1901, and four outdoor meetings, two held in Dorset, one in Devonshire, and one in Wiltshire, comprise the work of the society for the year 1900-1901. A detailed account of the proceedings at these meetings will be found in the following pages.

The First Winter Meeting was held in the Reading Room of the Dorset County Museum on Thursday, December 13th, 1900, at noon, the President being in the chair, and about 30 members and friends being present.

New Members.—Seventeen were balloted for and elected, and five were proposed.

New Honorary Members.—The President proposed and the Hon. Secretary seconded the following distinguished scientists as Honorary Members of the Club:—A. J. Jukes-Browne, Esq., F.G.S., R. Lydekker, Esq., F.R.S., Clement Reid, Esq., F.R.S., and A. Smith-Woodward, Esq., F.G.S.

The President said that, as the Honorary Members of the Club had become reduced to four, it was desirable to add to their number, and that these gentlemen had all been associated with the Club in one way or another and helped forward its work.

General Business.—The Secretary announced the following gifts of books, which it was decided to present to the Museum:—

(i.) Hampshire Field Club Proceedings, Vol. IV., Part 2 (received in exchange).
THE FIRST WINTER MEETING.

(ii.) Annales del Museo Nacional de Montevideo Tomo III., Fascicul. 13, 14.

EXHIBITS.

BY THE PRESIDENT:

1. Some interesting fossils.

BY CAPTAIN A. RICKARDS:

2. A quartz crystal from Siberia, containing beautiful needle-shaped dark coloured crystals of rutile.

BY THE HON. SECRETARY:

3. Specimens from Derbyshire of Periplaneta americana, a large and handsome cockroach, which is fast establishing itself in various parts of England.

BY T. B. GROVES, ESQ.:

4. A fossil sponge.
5. A letter from Mr. Groves on the subject of Eggardon was read by the Hon. Secretary, in which Mr. Groves deplored the destruction which is going on in all directions of works of prehistoric antiquity, and urged the members of the Club to use their influence to stop it. He wrote:—"Many years ago, when spending a holiday at Magiston, I and my cousins rode over to Eggardon Hill, and, it being evening time and the sun, of course, low, and the shadows pronounced, I observed very distinctly on the level ground immediately behind the top vallum a treble row of hemispherical depressions, some sixty in number, very exactly arranged in order, and evidently the sites of ancient dwellings of the inhabitants of the settlement.

"Some years after I again found myself on the spot, but, alas! all traces of these pits had disappeared, and a workman was then engaged in 'drawing gravel' from the earthwork for the parish authorities.

"Again, the splendid group of barrows at the top of the range of hills between Upwey and Martinstown are every year diminished in volume by being ploughed round and even over, and whose condition I have more than once referred to at the Club meetings."

PAPERS.—The following papers were then read:—

1. "Dorchester Antiquities" by H. J. Moule, Esq. This paper forms part of a small work dealing with the whole subject of antiquities which have been discovered at Dorchester, which will be published independently by Mr. Moule. A discussion took place on the nature of the tesserae of the Roman pavement then being laid in the Museum, when various suggestions as to their origin were made, the balance of opinion being that they belonged to local rocks.

3. "A recent landslip on Jordan Cliff with a suggestion as to one of the causes of Hill Terraces" by the Hon. Secretary, illustrated by a plan and photographs. This will be found in full in the present volume.

Mr. Hudleston mentioned that some terraces were caused by cultivation, and the President considered that the Dorset hill terraces in the chalk were produced by the effect of denudation on the hard and soft strata which alternated in that formation.

4. "A critical and material examination of the hill fortress called Eggardun" by H. Colley March, Esq., M.D., illustrated by various objects, found in the course of excavation. This will be found in full in the present volume.

A short paper on stone worship in connection with the same subject was added by Rev. H. S. Solly.

5. "Notes on some of the markings of the planet Jupiter" by Rev. W. R. M. Waugh, F.R.A.S., illustrated by drawings. This will be found in full in the present volume.

The Meeting ended at about 4.30 p.m.
THE SECOND WINTER MEETING.

Certain alterations in the Rules were proposed by the Hon. Secretary, the details of which will be given under the Annual Meeting.

At the President's request the Rev. W. R. M. Waugh read a note on the new star, Nova Persei, which will be found in this volume as a separate article under the title—“Note on the new star in the Constellation Perseus.”

EXHIBITS.

BY H. COLLEY MARCH, ESQ., M.D.:
1. A series of scratched flints from the Portisham neighbourhood, which Dr. March considered evidence of a glaciation of that part of Dorset.

BY THE HON. SECRETARY:
2. A fine and perfect specimen of the Oleander Hawk Moth (Chaerocampa nesitt) caught at Chickerell September 24th, 1900. Mr. Dale said that one specimen had been recorded from Dorset at Cranbourne.
3. A small Wedgwood plaque, blue ground, representing Hope addressing Labour, Art, and Plenty. The special interest of this medallion lies in the fact that it is made from a trial consignment of clay from Australia sent to Wedgwood by Sir Joseph Banks, whose journal in his Dorset tour was published in the last volume of our Proceedings. The medallion is dated “Etruria, 1789,” and is figured in Meteyard’s “Life of Wedgwood” and Jewitt’s “Ceramic Art of Great Britain,” a full account of it being given in the former work.

BY THE PRESIDENT:
4. The rattle of a rattlesnake.

BY H. A. WILKINSON, ESQ.:
5. A fine Palæolithic and other worked flints from Jordan Hill.

PAPERS.—The following papers were then read. The first two will be found in full in the present volume:—
1. “Eponymous families of Dorset” by the Hon. Treasurer. This was illustrated by coloured representations of various coats of arms.
2. “Some notes on Major Coates' discovery of the ancient water supply of Dorchester” by Rev. W. Miles Barnes (printed in this volume).
4. “Borrowed Plumes,” by Captain A. Rickards. With respect to the title of his paper, Captain Rickards explained
that it referred to the decoration of ladies' hats with the gay plumage of birds, and asked his audience to consider what it meant to the winged creation. With effective marshalling of facts and figures, Captain Rickards dealt with his subject in such a way as to hold the close attention of his hearers. In the course of his remarks, Captain Rickards said that—

"Shop window after shop window in the fashionable streets of London and other towns and cities was arrayed with most captivating temptations of ladies' hats nearly all decorated with gaudy birds' feathers. There was, he believed, no cruelty involved in the ingathering of the harvest of ostrich plumes any more than there was in the shearing of the sheep; but, if the mistress wore feathers, then Mary Jane, the housemaid, and Polly, the cook, must wear feathers too, and they could not afford such expensive ones. Captain Rickards gave some startling statistics about the multitudes of birds of all kinds which are immolated yearly to gratify feminine caprice and vanity. At one sale alone were seen 116,470 bundles of humming birds. The use of the aigrette in the full dress busbies of the Hussars threatened the early extinction of the heron tribe until her late Majesty the Queen, who was ever first to set a good example to her subjects, forbade the further use of natural aigrettes. It was the enormous demand of English ladies' hats that led to the swallow harvest, reaped chiefly in France. Captain Rickards pointed out that the fruit harvest suffered seriously from the wholesale destruction of birds, who were the natural enemies of insect pests. He appealed to the ladies of Dorset not by thoughtless following of the fashion to aid and abet in the destruction of the sweet songsters and birds of plumage, but rather to follow the example of the society which had been formed, and to which many of the best dressed women of the land belonged, with the object of discountenancing the wearing of feathers."

The meeting ended at four o'clock.

**The Annual Business Meeting** was held on Monday, April 29th, 1901, in the Reading Room of the County Museum, the President being in the chair and about 35 members and friends present.

**New Members.**—The four candidates proposed at the last meeting were balloted for and elected, and three were proposed.

**President's Address.**—The President delivered a learned and interesting address on amphibia and reptiles, chiefly those of the Palæozoic period. At the close a vote of thanks was
proposed by Mr. Vaughan Cornish, seconded by Mr. W. H. Hudleston, and carried. The address will be found in full in the present volume.

The New Honorary Members.—The President read letters which he had received from the four Honorary Members elected at the last meeting in acknowledgment of their election. The letters tended to show the high estimation in which the Club was held by the outside scientific world.

An Address was then given by Dr. Gerald Leighton on "Colour variation in adders," which will be found in the present volume, together with an appendix showing the results of a week spent in the neighbourhood of Buckland Newton in hunting reptiles. Dr. Leighton (of Grosmont, Pontrilas, Hereford), is bringing out a book on this subject, and acknowledged the information he had received from members of the Club. The most interesting specimen he had found in Dorset was a male of the small red viper, which was perhaps distinct from the common viper. The male had not, he thought, been taken before, and this capture tended to support his view that it was a distinct sub-species.

The Hon. Treasurer presented his report and the balance sheet, showing the financial position of the society.

Report of the Curator of the Dorset County Museum on the Additions during the Past Year:—

It is almost a matter of course that this report begins with the great Dorset acquisition of the twelvemonth, the Olga-road Roman floor. This is not the place for a history of the long and fruitless dealings with the owners by the Museum Council with a view to buy the floor. At length, after this effort had been given up, Mr. A. Pope bought it and most generously gave it to the Council. They soon collected donations to meet the heavy cost of raising, removing, and re-laying the floor. The work was done admirably by three Italians employed by Messrs. Ward and Co., Westminster. The Museum cases, which were moved aside to allow of the re-laying being done, have now been re-placed so as to leave all the best parts of the pavement in good view. Two groups of heavy fossils and one of querns and other heavy ancient relics had also to be taken out of the way. The re-planning and re-arranging of these cost the Curator a great deal of contriving and heavy labour. However, it is now done, and done without intruding on the ornamental part of the floor in the least. If the floor turns out to be liable to damage by being used, mats of some kind will be laid on the
exposed parts. It is hoped, however, that this will not be needed. It is here called a floor. The tessellation, however, really represents the floors of three rooms communicating by two wide doorways. Mr. Pope has also given a fine coloured plan of the tessellation, measured and drawn by Messrs. Jennings and Goater, architects, of Bournemouth, before the floor was disturbed. Other Dorset gifts, in the antiquarian department, are soon told. Some few flint implements have been given by Mr. Barrow, the Rev. J. Cross, and Dr. Colley March. Those from the latter are from pit-dwellings at Eggardon excavated by him. Two specimens of Roman pottery have been given by Mr. Bull and another friend unknown. A very important change has been made in the antiquarian department. The valuable Hogg collection of Dorset-found ancient pottery, bronze relics, worked flints, and many other things, long on loan in the Museum, has been bought. Of mediaeval and post-mediaeval Dorset specimens we have acquired a few. In order of arrival, they are:—A stoneware plump, or upright churn, and a very small upright wooden one with rotary action, both from Mr. Yerbury; from Mr. Hogg, an iron kettle tipper, or "lazy back," and an old-fashioned toasting-fork; a Solingen sword-stick sword found at Dorchester and a curious bone model made by a French prisoner, both from Mr. C. Voss; a small mediaeval scale beam found in an old house at Marnhull, from Dr. Leach; two curious needle-work pictures, lent by Miss Ashley; and an old-fashioned harvest bottle, from Mrs. Astell. The Dorset acquisitions in the natural science department are as follows, taken roughly in order of date:—Specimen of fossil wood, Lower Lias, from the Rev. W. R. Waugh; a viper and four young ones, from Mr. Old; also another viper and the bones of an otter, from Mr. Tudor; a number of fossils, some being extremely good specimens, found at Portland and Preston, from Mrs. McLean; some excellent Dorset fossils, from Messrs. Maggs; a rolled block of Purbeck marble, perforated by Saxicava arctica, from the President; a collection of land and fresh water shells, mostly Dorset-found, from Mrs. Druitt; and two corresponding slabs of ironstone, with many fine impressions of Cardita, from Mr. Cunningham. In the library department some gifts relating to Dorset have been received. Turning to non-Dorset things the report must be short. On the antiquarian side may be noted the following:—A large old iron "crock," from Captain Elwes; a pretty bronze clasp found in 16th century masonry, and given by Mr. S. Wills; and an ancient mortar and two kettle tippers, from Mr. Hogg. In the natural science department a fine gift has come from the Messrs. Maggs. It consists of a great part of their late father's collection, well-known to geologists. It contains minerals and fossils from various localities, including Dorset. Until new cases are obtained and new space to put them in, this valuable collection cannot be displayed or even properly unpacked. As yet a cabinet forming part of the gift, and standing in the hall, contains all of the Maggs collection that is on view. Having recorded the gift by our ever-kind friend, the Rev. W. R. Waugh, of a fine Ananchyltes ovatus, we pass on to gifts of books. The Field Club have continued their annual gifts. On the whole, the past twelve months
THE ANNUAL BUSINESS MEETING.

have seen valuable additions to the library, both in number and quality. This report ends with a longing wish that by some means it could be brought home to the minds of all Dorset men that the Dorset Museum is an important county institution, and that it deserves to be enriched by gifts of Dorset-found antiquities and Dorset-found natural science specimens.

SUMMER FIELD MEETINGS.—A meeting which it had been proposed to hold at Rempstone in order to examine an interesting stone circle which exists there was given up on account of the illness and subsequent death of Mr. W. M. Calcraft, who had kindly invited the Club to see the circle. After discussion the following sites were decided on;—(1) Cerne, (2) Exeter and Torquay (a two days' meeting), (3) West Purbeck, including the acceptance of an invitation to tea at Creech Grange from Mr. and Mrs. W. Dalglish Bellasis, and (4) Breamore.* No other places were proposed.

ELECTION OF OFFICERS.—The officers were unanimously re-elected—the President, proposed by Mr. Vaughan Cornish and seconded by Mr. Hudleston; the Hon. Secretary, proposed by the President and seconded by Mr. Stephens; the Hon. Treasurer, proposed by the President and seconded by Captain Acland.

The Secretary, in acknowledging his thanks, said that he was now entering on the tenth year of his office, and that he feared that he should be compelled, through the pressure of other calls upon his time, to relinquish it before long. As a preliminary step, he had proposed the severance of the post of Editor from that of Secretary proper. He also thought it desirable, on behalf of the Club, that a new Secretary, with new methods and new ideas, should occasionally be appointed, and he hoped that by the next Annual Meeting a suitable one might be found to succeed him.

The Hon. Secretary proposed and Mr. Moule seconded Rev. W. Miles Barnes for the post of Editor of the annual volume of

* It was eventually found inconvenient to include Breamore in the meeting, which was confined to Britford, Longford Castle, and Downton.
THE ANNUAL BUSINESS MEETING.  

Proceedings, the duties of which have hitherto been performed by the Hon. Secretary.

The President nominated as Vice-Presidents the three who had held office last year—namely, the Lord Eustace Cecil, Mr. W. H. Hudleston, and Mr. Vaughan Cornish, and, in addition, the Hon. Morton J. Stuart. These were duly elected.

It was afterwards brought to the notice of the Executive that Rev. O. P. Cambridge and Hon. Morton J. Stuart had both been duly elected Vice-Presidents before the passing of the new rules on May 10th, 1899. The former was elected in 1881, before he became Hon. Treasurer of the Club, the latter on July 20th, 1892, after he had retired from the office of Hon. Secretary. It was considered by the Executive that both these gentlemen remained Vice-Presidents of the Club, as they were both elected, as had been the custom before the new rules were passed, for life, and not for a year only, as under the rules now in force. Their names are, therefore, added to the list of Vice-Presidents, from which they had been omitted through inadvertence in Vol. XXI. of the Proceedings.

ALTERATIONS IN RULES.—Certain alterations in the rules were passed, and a copy of the rules as amended will be found in this volume.

GENERAL BUSINESS.—The following books received by the Club were duly acknowledged, and were presented to the County Museum:—

1. The British Association Report, 1900 (Bradford).

EXHIBITS.

BY THE HON. SECRETARY:

1. The original coloured plan of the Olga Road Roman pavement in situ made by Messrs. Jennings and Goater, architects, of Bournemouth. This plan was
presented to the Museum by Mr. Alfred Pope, together with the pavement, and is especially valuable as having been made before the removal of the latter to its present position on the floor of the Museum.

BY CAPTAIN ACLAND:

2. Dent's Meridian instrument or dipleidoscope, on which he made the following remarks:—"This instrument has been recently handed to the Dorset County Museum as a loan from the Dorchester Town Council. It was fixed at the south-west window of the Town Hall, probably about the year 1848, by the late Mr. Arthur Acland, of Wollaston House, Dorchester. It had been practically forgotten and lost sight of, and was also rendered useless for making observations by alterations to the Town Hall buildings.

"With the many facilities which we now enjoy for obtaining correct time, this instrument has very little practical use. It is, however, an interesting scientific 'toy.'"

"When properly fixed, it gives the time (exact to a few seconds) of the sun crossing the Meridian.

"The sun is reflected into two mirrors placed at an angle to one another; a few minutes before noon two images of the sun may be seen, which gradually approach each other, and at 12 noon, exactly coincide, after which they slowly separate again.

"The Council of the Museum has consented to this interesting little instrument being fixed in the Library in such a position that observations can be taken of the sun crossing the Meridian."

3. A specimen of a mass of sand tubes formed by Annelid worms on rocks near low water mark. From Bude, Cornwall.

BY REV. JAMES CROSS.

4. A note on rainfall was read from Rev. James Cross calling attention to a statement that the weather from August 1st-10th was usually stormy, windy, and wet, and asking for information on the subject.

BY REV. W. R. WAUGH.


6. Photographs of the new star, Nova Persei, taken on February 25th and March 10th, 1901, at Potter's Bar, near London, by Mr. H. Ellis, F.R.A.S.

The latter, with Mr. H. Ellis' permission, has been reproduced as an illustration to Mr. Waugh's paper on the star in this volume.

BY E. CUNNINGTON, ESQ.

7. A specimen of the wild tulip (Tulipa sylvestris), a rare British and Dorset species.

The meeting ended at about 4.45 p.m.
CERNE AND MINTERNE MEETING.

The First Outdoor Meeting of the season was held at Minterne and Cerne on Monday, June 17th. It was a perfect day for the expedition, and a considerable number of members and their friends availed themselves of the fineness of the weather to attend the meeting, no less than seventy starting in brakes from Dorchester for Minterne, the first place visited. It had been proposed to stop at Bradford Peverell on the way, to inspect the section, which had been cut, of a supposed aqueduct for the supply of water to Dorchester in Roman times; but, as the course of it was then being surveyed, it was thought advisable to delay the visit of the club until this had been done, and the result made known.

At Minterne Church the party were met and welcomed by the Rector, the Rev. W. G. Barclay, and by Canon Ravenhill, the Rural Dean, and Vicar of Buckland Newton, who had undertaken to act as guide at Minterne.

Before entering the church the Hon. Secretary, speaking from the steps, said he was sorry that the President could not be with them; and, as there was no Vice-President among the party but himself, and he would be busy with his secretarial duties, he asked their distinguished meteorologist, Mr. H. S. Eaton, to act as President. Mr. Eaton had been President of the Royal Meteorological Society for some years, and was thus well acquainted with the duties.

The Rev. Herbert Pentin, F.R.Hist.S., of Milton Abbas Vicarage, Blandford, was proposed as a member of the Club.

The Hon. Secretary announced the arrangements made provisionally for the remaining summer meetings.

The Club then proceeded to vote for the following candidates for election, who were duly proposed and seconded on April 29th:—Mr. F. D. Lys, Lorne Villas, Rodwell, Weymouth; the Rev. W. E. H. Sotheby, Bere Regis Vicarage, Wareham; and Mr. G. E. J. Crallan, M.B., Bodorgan Manor, Bodorgan Road, Bournemouth. To save the trouble of bringing the balloting
box, the election was conducted by paper, with the result that all three were elected.

**Minterne Church.**

On the conclusion of the business, the members entered the church, where Canon Ravenhill, addressing them, gave a short description of the building from the pages of Hutchins (IV., p. 482), showing the church as it was in the middle of the eighteenth century. He said that since then there had been two great alterations; the tower was quite new, being built by Admiral the Hon. Robert Digby in 1800, according to his diary. The roof of the nave was also entirely new. It was, he believed, designed by the late Lady Digby only a few years ago. The Canon said that the historical monuments formed a very interesting feature of the church. In the nave is a flat stone with an inscription over the grave of the grandfather of the first Duke of Marlborough, John Churchill, who died April 6th, 1652.

On the north side of the nave is a monument to the Hon. Charles Churchill, fourth son of Sir Winston Churchill, who at the age of 13 was page to Prince George of Denmark. William III. made him Governor of Kinsale, in Ireland. He was one of the best commanders of foot in Europe. Queen Anne made him Governor of the Tower of London and General of the Army. He was at the Battle of Blenheim. For his many great services he was made Governor of Brussels, Colonel of the Coldstream Guards, and Governor of Guernsey.

In 1702 he married Mary, daughter and sole heiress of James Gould, of Dorchester. He died December 29th, 1714, at the early age of 55.

(The tapestry in Minterne House was placed there by him.)

In the north aisle, or Napier Chapel, are monuments to

Humphrey Sturt, son of Humphrey Sturt, of Heckfield, Hants, and Diana, daughter of Sir Nathanael Napier. He was an only son. He died November, 1786, aged 63.
Also to

Sir Nathanael Napier, who died in 1708, aged 72. His second wife died 1724. \textit{Mærens posuit Charissimus Conjux, Desunt verba dolenti.}

On the north wall to

Mary, Countess Dowager of Edward, Earl of Gainsborough. Her life was exemplary for piety, prudence, charity, and other divine and moral virtues. Departing hence, she left the fragrancy of them behind her to embalm her memory. She died 9 April, 1693, in the 45th year of her age.

On the south of this Napier aisle is a tablet with the inscription:—

Here reposeth the most virtuous, most obliging, and charitable good lady, Blanche Napier, married to Sir Nathanael Napier, Knight and Baronet, and by him had thirteen children. She was one of the daughters and coheirs of Sir Hugh Wyndham, Knight, Judge of the Common Pleas. She was 53 years old, who, languishing under a tedious sickness of half a year, with great joy and willingness received the fatal stroke from the cold hand of death 1 April, 1695, who carried her from all her sickness, pains, and miseries here below; to joy, ease, and happiness unspeakable, there to live in the blest habitation of angels to all eternity. Erected by her dear husband, Sir N. Napier, 1695.

On a brass in this chapel is also an inscription:—

In memory of Humphrey Sturt, of Horton, Critchell. Brownsea Castle, Grange, and Cliffe, each in this Shire, of which he was one of the Knights from 1759 to 1784. His mother was Diana, daughter of Nathanael Napier, Bart.

Of Charles Sturt, second son of Humphry Sturt. He married Mary Anna, only daughter of Anthony, 5th Earl of Shaftesbury. He died May 12, 1812.
CERNE AND MINTERNE MEETING.

On the south wall of the nave is a large and interesting brass


Also of his wife, Jane Elizabeth, eldest daughter of Thomas William Coke, Earl of Leicester, and relict of Charles Nevison, Viscount Andover, born Dec. 22, 1777; died April 29, 1863.

In testimony of their sincere and dutiful affection, their sons, Edward St. Vincent, Lord Digby, and the Hon. and Rev. Kenelm Henry Digby, M.A., have caused this monument to be erected.

The Rector, the Rev. W. G. Barclay, said the church had been re-seated by the present Lord Digby in remembrance of his sister, and the carved oak front to the gallery had been given by his Lordship in remembrance of his father. There were eight tubular bells in the tower put in because the tower was not strong enough to carry a chime of bells.

The Club, after inspecting the consecration crosses outside the church, then proceeded to

MINTERNE HOUSE.

On the south lawn Canon Ravenhill read part of a revised copy of his paper (which will be found in Vol. X. of the Proceedings), which was read on the same spot when the Club visited Minterne in 1888. He said since then there had been great changes. The old Lord Digby passed away the following year, and his youngest daughter, the Hon. Theresa Digby, in 1896. The present Lord had married, and is now in occupation with his little family.

They were very much indebted to his Lordship for his kindness in allowing the Club to visit the house, gardens, and park to-day.
THE TAPESTRY

AT

MINTERNE HOUSE.
THE TAPESTRY AT MINTERNE HOUSE.

The tapestry at Minterne House was placed there by General Charles Churchill, who died in 1714.

Canon Ravenhill wrote of it in Vol. X of the "Transactions," p. 92-3, as follows:

"The living rooms consisted, according to the inventory, taken in 1768 (when Admiral Digby purchased the place), of common parlour, &c., the tapestry parlour (the latter, perhaps, the same as now, for the tapestry fits the walls very well), and the blue damask parlour. . . . . . General Churchill is said to have enlarged and improved the house very much. The tapestry in the drawing-room and two bedrooms was a present to him (General Charles Churchill) from the States of Holland, when he was Governor of Brussels, as an acknowledgment for services he had rendered there. The tapestry in the bedroom (called the Orange Room) has the Churchill Coat-of-Arms on it."

Very little more information is procurable, for the MS. book in the handwriting of the late Lady Digby, from which Canon Ravenhill obtained these particulars, cannot be found.

Of the subjects illustrated in the following pages, No. 1, "The Fishing Boats," and No. 2, "The Village Féte," are after Teniers, and the probability is that this is old Flemish tapestry. The subjects of the other three are classical, or idyllic, and the treatment after the French school of painting; and it has been suggested that these tapestries were produced at the Gobelin factories, under the direction of the famous French artist Lebrun. Those who are skilled in ancient needlework must decide the point.

The dimensions of the tapestries are:

No. 1 "Fishing Boats" . . . . . 9ft. 6in. x 8ft. 6in.
No. 2 "Village Féte" (dancing) . . . 16ft. 6in. x 8ft. 6in.
No. 3 "Blind Man's Buff" . . . . . 13ft. 6in. x 6ft. 6in.
No. 4 "Cupid, Figures, and Fountain" . . . . 15ft. 3in. x 6ft. 6in.
No. 5 "Figures, with Flowers & Rainbow" 11ft. 6in. x 6ft. 6in.

The first two, with two more, are in the tapestry room, the three latter in the Nursery.

No. 6. The tapestry which covers the chairs in the large drawing-room, is, also, of great interest. An expert in art work, to whom the original photograph of No. 6 was shown, considers the work to be of very high artistic value. It is generally believed to be Gobelin tapestry. The chairs were given by Lady Caroline Kerrison to the late Lord Digby, and were brought to Minterne from her old home in Suffolk.

The photographs for the blocks, from which the plates are printed, were made under great difficulties by the hon. secretary (Mr. N. M. Richardson); they are admirable representations of very difficult subjects.
THE TAPESTRY AT MINTERNE HOUSE, NO. 1.
Canon Ravenhill read some interesting extracts from the diary of Admiral the Hon. Robert Digby, who resided on the estate towards the close of the 18th century:

1769, Jan. 6.—Marked a plan for the plantation of firs on Dogbury.

1785, July 7.—Arrived at Minterne about 6 o'clock with Mrs. Eleanor Digby, "my little brown wife." (She was a daughter of the Hon. W. Elliott, Governor of New York.)

1787, Nov. 1.—The north-east side of Dogbury, or Mount Silver, planted with Scotch firs and larches. A remarkably wet autumn.

1790, March 15.—Lane, the carter, died, who over-turned "my pipe of port wine."

1794.—An earthquake.

1800, July 13.—Wheat £1 is. a bushel. Barley not to be had.

Nov. 12.—The church tower quite finished.

1799, Oct. 3rd.—Received a letter from Harry Digby at Plymouth with good news, no less than his having brought in a Spanish frigate with a million and a half of dollars, in company with the Naiad, Capt. Pierpoint; the Triton, Capt. Gower; and the Ethelim, Capt. James Young, who was left in chase of another Spanish frigate, her companion, with a like cargo. The three millions of dollars were carried in 50 military waggons from Plymouth Dock and lodged in the citadel. (In connection with this treasure capture, Canon Ravenhill gave an account of Admiral Sir Henry Digby's remarkable dream.)

1804, Oct. 4.—Mrs. Digby had a note from Lord Ilchester that His Majesty (George III.) would like some buns as heretofore.

Oct. 6.—Sent buns to the King.

1805, July 13.—Squirrels (which the Admiral had encouraged on the estate), which never did any damage before, had damaged a great part of the Scotch firs; from
want of food probably, they barked the Scotch firs, and in one week did 100£ worth of damage. They had to be destroyed. 39 shot.

1807, Sept. 9.—84 squirrels shot.
1811, Oct. 1.—154 squirrels killed.
1813, April 16.—189 squirrels killed.

Mr. Eaton, as acting President, returned thanks to Canon Ravenhill for his paper.

Canon Ravenhill, responding, said that he had received a letter from Lord Digby, expressing his regret at not being able to be with the Club that day; but he was on a committee of the House of Lords which was sitting daily from eleven o'clock till four. He allowed the Club the use of the largest room at Minterne for their luncheon, and wished them a fine day and a pleasant meeting.

The Hon. Secretary read a letter which he had received from Col. J. Mount Batten, to whom Up-Cerne belonged, and who said

"It may be interesting to some of the party to trace the ancient aqueduct from a spring at Minterne to a leaden-lined reservoir in the grounds of Cerne Abbey, and which formerly supplied the Abbey and its occupants with water. It runs by gravitation from the foot of Giant's Hill, and is a fair specimen of what might have been done by the Romans in early times."

This the Club, on account of the length of the programme, were unable to do.

The Club then entered the house, and, having eaten their luncheon, walked through the apartments to see the pictures, tapestry, and various other works of art. The tapestry is a fine specimen of work. That downstairs represents scenes of rustic life, village sports, and a fishing scene by the seashore. That upstairs depicts idyllic pastoral scenes. Leaving the house, the party were shown over the hothouses, vinery, and gardens by Mr. Peacock, the head gardener. He afterwards led them down through the shrubbery walk garden, which has been much extended and beautified by Lord and Lady Digby. This "wild garden" is about a mile long, the path winding amid noble firs
and cedars, oaks and elms and beeches, and following the meanderings of a stream that falls over a succession of cascades and flows under a series of pretty rustic bridges.

The peculiar charm of the garden is due to the plants being bedded out not in the usual formal manner, but in situations which they might have occupied naturally, and where they grow in luxuriant and unrestricted wildness.

**Cerne Church.**

Driving back to Cerne, the party entered the fine old Abbey Church, where they were received by the Vicar (the Rev. H. D. Gundry).

The greater part of the church, the Vicar stated from the pulpit, is Perpendicular and debased Perpendicular. The tower is of three lofty stages, with octagonal buttresses. Mr. Gundry quoted the remark of Hutchins that "The entire west front of the church, from the wealth of ornament, has an unusually handsome appearance." The openwork screen, of Hamhill stone, is of the time of Henry VIII. A noticeable feature, is the Carolean wooden pulpit, richly carved, with canopy or sounding board, and date 1640. At the preacher's back is carved the rose, shamrock, and thistle, with the thistle in the place of prominence. The chancel is much earlier than the rest of the church. This is apparent from the masonry and also from the fact that two windows of the Early English style of architecture one in the north and the other in the south wall, though now closed, can be plainly seen from the outside. The large east window is a puzzle to all who see it; it is so out of proportion to the rest of the building. The arms in stained glass in the windows are those of Winchester College and of families living in the neighbourhood. Near the west door is a good specimen of a stone coffin found in the churchyard 60 or 70 years ago. Among the monuments is one to a man named Randall, who died in 1785, and who had a kind of mint at Cerne and coined tokens. The registers date back to 1653. The church accounts are very well kept, and some have interesting entries. Marlborough's victories are duly recorded. They naturally would have had a greater interest from his being connected with the neighbourhood. At last they gave up trying to spell the names of the battles, and said "Another victory has been won." And so they rang the bells and drank their beer. The churchwardens at the end of one year found that they were in debt, and they said with some surprise "So we hae disbursed more than we hae received." Nowadays churchwardens never expressed surprise at their account having a balance on the wrong side. Indeed, they were surprised if it was to the contrary. The Vicar next called attention to a book containing a supposed likeness of Cardinal Morton, who, born at Bere Regis, where he put the carved oak roof upon the church, was educated at Cerne,
He was a man of many parts. He was Master of the Rolls, Archbishop, Chancellor, and Cardinal, and, besides being a clergyman and a lawyer, he was also a bit of a soldier, and was present at the battle of Barnet. It was from there that he hurried down to Weymouth and brought Queen Margaret of Anjou to Cerne for a short time. In these days, when income tax was 1s. 4d. in the £, it was hard to work up enthusiasm about Cardinal Morton, since he appears to have been the originator of that tax.

The Rev. W. Miles Barnes called attention to a quaint oak screen between the nave and the tower. He thought the screen was Jacobean, but it was not easy to fix the date definitely, as most of the ornament which had formerly decorated the top of it, and might have enabled him to do so, had disappeared.

The various features of interest in the church were then pointed out, and the members, having examined these and admired the heraldry displayed in the tinctured shields which decorated the east window, went outside.

At the east end of the church Mr. H. Moule remarked that the breadth and tracery of the window seemed to him to be out of proportion to its length. He said there was a tradition that this window had been removed from the old Abbey, and, as evidence of a reduction from its original length, he called attention to the cill, which appeared to him to be the transom of a larger window, for there were clear indications beneath it of the continuation of the mullions.

The Rev. W. M. Barnes concurred. He thought the evidence Mr. Moule had pointed out was conclusive on the point that the window was not originally made for the position it now occupied, but that it was the upper portion of a larger window.

The Abbey.

Leaving the church, the Vicar led the way to S. Austin’s Well, the water of which is supposed to have curative properties. Thence, passing the old Manor House, formerly belonging to Lord Holles, the party visited the remains of the Abbey, of which very little is now standing. The noble entrance gateway to the Abbot’s residence—a tower in three stages—built by
CERNE ABBEY.
THE ABBOTS' GATEWAY.
[Photographed by Rev. T. Perkins.]
Abbot Thomas in 1509, the building with a quaint oriel window standing near it, reputed to be the Abbot's lodging, and the old tithe barn, comprise the whole of the buildings of the Abbey now remaining.

To the writer one difficulty, in accepting the suggestion that the building with the small oriel window was the Abbot's lodging, is its position in relation to the Abbot's entrance gateway, and he suggests that the old hypothesis, that the building in question was a guest house, is correct. It seems to him probable that it was built or restored by John Vanne, who was appointed Abbot in 1458 and died in 1470, and whose monogram is upon a mantelpiece which was removed from the upper storey of the building some years ago, and now stands in the dining-room of the farm-house; the architectural details of the mantelpiece accord with the date. He is informed by the Vicar that a somewhat similar mantelpiece with the same monogram was found recently in a cottage.

Photographs of the Gateway, the building with oriel window, and the Barn, have been reproduced for this volume.

Some members expressed doubt as to the antiquity of the tracery in the gateway windows. A close and critical examination may prove that this is modern, though, looking from the ground, it is not clearly apparent that it is so; nor is it easy to point to a time when such a work would be likely to have been undertaken. The building was restored by Lord Rivers in 1840, and, no doubt, the tracery was repaired then, but the work, viewed from the ground, does not look as if it could have been wholly executed at that date. That the tracery was perfect 33 years before we may infer from the fact that it is so represented in the illustration of it given in the earlier edition of Hutchins' History of Dorset. At what period then, before 1773, was the tracery renewed, and with what object, or was it renewed between 1773 and 1840?

Two photographs of Abbey Street, in which street the church stands, are also introduced that a pictorial record of its present
appearance may be preserved, for there are some indications that changes may be impending which may alter its appearance considerably.

No. 1 presents a view which would be recognised by any one who was resident in Cerne 200 or more years ago, for very little change has taken place in it since those days, but for the modern windows, the old timbered houses opposite the church would be very familiar to him, as well as the Manor House at the end of the street, and even the cobble stones of the pavement, where they have not been displaced, as in the foreground, by the more modern paving stones.

View No. 2 is a photograph of the same street from the further end, and shows the church tower and houses of Georgian and later date.

**The Giant.**

Time did not allow of the party climbing the hill as had been intended, to view the "Giant" at close quarters, and Dr. Colley March, who had promised to make a short statement about the "Giant," did so at the foot of the hill. Dr. March's paper on the subject will be found in this volume.

Of this figure Professor Boyd Dawkins, at the meeting of the Royal Archaæological Institute at Cerne on August 9th, 1896, observed that he was in ignorance as to its date. It was, however, in the midst of what was in the Bronze and Prehistoric Iron Age a centre of dense population. On the hills above were hut circles, early settlements, camps, and tumuli, showing that once there was a large population scattered over these downs. Nine out of ten of the tumuli which had been opened belonged to the Bronze Age. By its surrounding the figure was in a position which would make one pause before assigning it to any particular modern time. Figures of this class were not altogether unknown in sculpture belonging to the Bronze Age, and which had been found in Scandinavia ranging down to the early Iron Age. He thought it by no means improbable that this figure might really belong to that remote period.
CERNE ABBAS, NO. 2.
ABB EY STREET LOOKING SOUTH.

[Photographed by Rev. T. Perkins.]
THE ABBEY BARN.

After tea at the New Inn—new in the seventeenth century—the Club walked to the barn, where Mr. Moule read the paper upon it, which will be found, with a photograph of the building, at page 64.

The magnificent flint work of the barn was admired, and there was some discussion as to the material of the stone dressing; it was suggested that the white stone was Portland stone. Mr. Richardson said it did not show any of the characteristics of the Oolite. Mr. Cunnington thought it was hard chalk from the Chalk rock, in which the neighbourhood abounded.

In answer to an enquiry, Mr. Moule stated that Mr. Micklethwaite had given the early part of the fourteenth century as the probable date of the building, the evidence of which date might be seen in the inner arches, the roll moulding round the head of the outer arch, and the apex stone above it with its finial. (See illustration, p. 64.)

The Acting-President heartily thanked Mr. Moule, and the Hon. Secretary expressed the Club's acknowledgment to Mr. J. Sprake for allowing them to enter the barn. Re-entering their carriages, the Club then had a pleasant drive back to Dorchester.
EXETER AND TORQUAY MEETING.

The Second Outdoor Meeting of the Club was held at Exeter on Tuesday and Wednesday, July 16th and 17th. Twenty-three members attended. The party assembled at 2.45 in the quadrangle of the New London Hotel, Exeter, and, under the direction of C. J. Tait, Esq., they first visited the heights upon which the old castle of Rougemont stood. The castle was built by William the Conqueror, dismantled by Fairfax, and finally destroyed in the eighteenth century, when its materials were used in the building of the Sessions House. From these heights Mr. Tait pointed out the spots on which the four ancient gates of the city stood. These gates have all been removed since 1769, because they were an obstruction to the traffic.

The Guildhall, Exeter.

After giving an interesting account of the early history of the city, Mr. Tait led the way through old Exeter streets to the Guildhall, where the Town Clerk, on his arrival, ordered the police officers present to bring forth the regalia—chains and hat, maces and swords—and he also produced a number of ancient parchments with seals attached. The Guildhall, he said, was in its restored state very much what it was when first built, in 1330. The walls and roof were the identical walls and roof of that period. The date of the panelling was 1588—the Armada year.

After speaking of the historical interest of the portraits hanging upon the walls, Mr. Shorto turned to the regalia, which was set out on the table. He first called attention to four silver chains of handsome pattern formed of links, with the letters "X.E.," short for Exeter. The date of the chains was cir. 1537. They used to be worn by the city musicians or waits, and were now worn by the sergeants-at-mace. The pair of royal presentation swords, two-handed swords, next called for notice. The sword drawn from the black scabbard, said Mr. Shorto, was the one presented to the city by Edward IV. It was a serviceable blade. After the Restoration it was used as a mourning sword when the Mayor and Corporation went to church every year on January 30th, the anniversary of the martyrdom of Charles I. When Henry VII. visited the city at the end of the fifteenth century, he presented to it his own sword, a handsome weapon now
used as a sword of state. The cross hilt bore the Tudor rose at each end, and the initials "J.R." were added in the reign of James I. The scabbard was a fine specimen of needlework of the time of James. It was of velvet, richly embroidered in gold and silver. The summit and crown at the top of the scabbard were added in the reign of George II. Mr. Shorto next referred to the four maces. By Royal charter the Corporation of Exeter were entitled to four sergeants-at-mace instead of the more usual one or two. Thus the four maces were borne before the Mayor by four mace-bearers on occasions of state. They were silver-gilt, of the time of George II. The hat was presented by Henry VII., together with the sword. It was richly and beautifully embroidered. Inside it was the original King's hat, a plain black felt hat not of so exaggerated a shape. When King Henry gave this hat, he commanded that it should be borne before the Mayor for ever. For a hundred years the word borne was interpreted as meaning worn, and the hat was worn by the sword bearer; but then it occurred to the city dignitaries that it was improper for the King's hat to cover the head of a subordinate official, and so from that time forth the hat had been borne on a cushion before the Mayor. There had been Mayors of Exeter from the year 1200 onward, and he pointed to a corner where could be seen the Arms of the Mayor of 1217. Speaking of the exceptional remoteness of the date, he reminded the company that the title of Mayor, from the French maire, was not known in England before the end of the twelfth century. But Exeter was a walled city before the birth of Christ, and was besieged by the Emperor Vespasian, who, failing to take it, as an old document in their possession stated, afterwards proceeded to Jerusalem with better success. The records of Exeter were said to be among the oldest and best in the kingdom. They had no less than forty-eight royal charters and over 2,000 old deeds dating from the time of William the Norman. They had the records of the Mayor's Court and receiver's accounts from the reign of Edward I. Altogether they had a wonderful collection of documents, which, fortunately for them now, they were obliged to have put in order about forty years ago, when they were engaged in extensive legal proceedings, which, principally by the help given by these documents, they were successful in. The old High-street of Exeter was the border land of Celt and Saxon. For 200 years both races lived side by side within the same walls, divided from one another only by the High-street. Mr. Shorto here exhibited some of the most interesting old documents, including a deed of the reign of William the Conqueror and the seal of Osborne, the second Bishop of Exeter (the first was Leofric). He produced the corporate seal with which documents were sealed by the Corporation to-day, and side by side with this he showed a wax impression made with it 620 years ago. He also produced the Mayor's seal, which he said he had used that day, and he showed how it still fitted precisely into an impression made by it 600 years ago. Persons caring for anthropometry would be interested to observe in the back of the wax seals the impression of the creases in the fingers of the ancient men who, six centuries ago, when no handles were fixed to seals, pressed the plastic wax down upon the metal die. He read a
few sentences from a beautifully-illuminated document recording the visit of Clarendieux King at Arms, in 1564, in which reference is made to the troublous days when "Duke" Vespasian laid siege to the city.

Mr. Richardson heartily thanked Mr. Shorto, on behalf of the Club, for the pains he had taken and for exhibiting the regalia and describing it in so interesting a manner. The City of Exeter was to be congratulated on having a Town Clerk of such antiquarian attainments.

Leaving the Guildhall, the party turned off into a side street to see the Church of St. Mary Arches. They were kindly received by the Rector, the Rev. G. M. Wilson, who pointed out the chief objects of interest.

**Exeter Cathedral and Library.**

From St. Mary's Church Mr. Tait led the party to the Cathedral, visiting on the way the Vicar's Hall and the Devon and Exeter Literary Institution, which, Mr. Richardson stated, was affiliated to the Dorset County Museum, and contained a collection of 36,000 books.

At the Cathedral the members were met by Sub-Dean Bramley, who received them with much courtesy and conducted them from the west end up a flight of steps to the Library, where he asked the Sub-Librarian, the Rev. E. T. Foweraker, to speak upon the valuable MSS. which the Library contains.

The Rev. E. T. Foweraker first pointed to a magnificent seventh century MS. (Michel. Englisch. Boc.), finely written in verse in Anglo-Saxon characters, and in a perfect state of preservation. In the course of his remarks upon it Mr. Foweraker stated that this MS. is the chief treasure of the Library, and is a work of authority with philologists. Its contents are mainly theological. As evidence of the estimation in which it was formerly held, he stated that on one of the fly leaves were registered the manumissions of certain households of slaves, and no book was chosen for these registers but a very valuable book which was likely to live through the ages. In 1057 Leofric was Bishop of Devon and Cornwall. In that year the seat of the
Bishopric was removed from Crediton to Exeter, Exeter being at that time a safer place for the see. On his removal to Exeter, Leofric wrote on one of the fly leaves of this book the pathetic complaint that when he came to Exeter he found no books. It became a passion with him to collect manuscripts and to form a library. All these MSS. were given up to the Bodleian Library about the seventeenth century; but by good hap this book escaped, and about a hundred years ago was lighted upon in the muniment room. Mr. Foweraker then called attention to some runes, into which was woven the name of Cynewulf, a disciple of Caedmon.

Another interesting MS. was the well-known Exeter Domes-day Book. The Library also has the document by which Edward the Confessor transferred the see from Crediton to Exeter and appointed Leofric Bishop of Exeter.

The MSS., to the number of 6,075, have been catalogued and an index made of their contents.

When Mr. Richardson had thanked the Sub-Librarian for his vivid and interesting description of the MSS., Sub-Dean Bramley again assumed the direction of the party.

Leading the way downstairs, the Sub-Dean gave a brief preliminary sketch of the history of the Cathedral, doing justice to the important transitional work carried out by that great designer and builder, Bishop Quivil, and also by Bishop Grandisson. Then, entering the Cathedral, the Sub-Dean conducted the party in turn to the Chapels of Bishop Leofric and Bishop Oldham and St. Gabriel's Chapel, the last built by Bishop Bronescombe, the Lady Chapel, and finally through the Cathedral itself, pointing out as they passed each feature of interest, including the daring and dexterous work of Quivil in cutting out a Norman arch and putting in a pointed arch in its place, without causing a suspicion of a crack or subsidence; the Minstrels' Gallery, with its parapet decorated with carved angels playing on mediaeval musical instruments; and the marble font, interesting historically in that it was put up for the baptism of the daughter of Charles I., the Princess Henrietta, who was born in Exeter.
From the Cathedral the party were conducted to the Bishop's Palace, built 800 years ago of the red sandstone so often seen throughout Central and South Devon.

Shortly after seven o'clock the Club re-assembled at dinner at the New London Hotel. Mr. Richardson presided, and Captain Elwes took the vice-chair. As guests the Club entertained Sub-Dean Bramley, Dr. J. Raglan Thomas, and Mr. C. J. Tait. The Town Clerk (Mr. G. R. Shorto) had been unable to accept the invitation. After dinner the usual toasts were proposed and Club business transacted, in the course of which the Rev. H. Pentin, of Milton Abbas, who was proposed on June 17th, was elected a member.

After dinner the members, under Mr. Tait's guidance, walked to the Albert Memorial Museum in Queen Street. Here they were courteously received by Mr. A. W. Clayden, M.A., Principal of the Technical College, adjoining the Museum, who showed them the chief matters of interest in the collections. Amongst the more markworthy exhibits are the sledge on which Parry made his journey furthest north, and an ingenious model invented by Mr. Clayden showing the effect of the prevailing winds on the various oceans in forming the gulf stream and other currents. The Museum contains good collections of general ethnology and mineralogy, besides local and other collections of zoology, botany, and palæontology, as well as a good library, of which the reference portion consists of 14,000 volumes. The ethnological collection contains arms, weapons, costumes, and utensils, from Europe, India, China, Australia, and the adjacent islands, and many other parts of the world. The collection of local lace is interesting.

**Wednesday.—Kent's Cavern.**

The members of the Club left Exeter by the 8.40 train for Torquay, where a char-a-banc was in waiting to convey them to the Museum of the Torquay Natural History Society. The chief feature of this Museum is a complete collection of the remains of man and the extinct animals found in Kent's Cavern, about a
mile and a quarter further on over the hill. The party were received by the Hon. Secretary, Mr. A. Somervail, who first led them into one of the three fine library rooms on the ground floor and showed them an excellent portrait in oils of Mr. Wm. Pengelly, F.R.S., F.G.S., who superintended the exploration of the cave and the excavation of its animal débris, and also the subsequent arrangement of the remains in the Museum. The work was begun on March 28th, 1865, and ended on June 19th, 1880, thus extending over upwards of 15 years. It was carried out in the most systematic and thorough manner. Everything found in the various strata in each foot level was carefully recorded and preserved separately from what was found in other feet, and all the remains were arranged in the Museum wall cases, as they may now be seen, in due order of sequence. Thus, beginning at one end with modern articles found on the surface of the cave, the visitor can by pacing a few feet along the Museum floor pass, as it were, into far bygone geological and palæontological periods, for the cave in its successive deposits has revealed to us the upward progress of humanity—in the "Breccia," man, a hunter of the rudest type; in the "Cave earth," an improved hunter and fisher with an eye for a little art; in the interval between the "Granular Stalagmite" and the "Black Mould," man, a herdsman and a farmer, attended by domesticated animals; in the "Black Mould," man, a miner and metal worker, a trader, a merchant, and a soldier; and, last of all, on the surface of the "Black Mould," and by the evidence of the trenches cut down through the very deepest deposits of the cave, man, a holiday-maker and pleasure-seeker, a gentleman and scholar, a scientist and philosopher.

Mr. A. Somervail, after bearing generous witness to the value of Mr. Pengelly's work, led the party upstairs into the Museum, and gave a sketch of the strata in Kent's Cavern and the remains found in them. In Devonshire, he said, there were five geological formations that were lacking in Dorsetshire, namely, the Triassic, the Permian, the Carboniferous, the Devonian, and the Metamorphic rocks. Kent's Cavern was in the Devonian
limestone, and, no doubt, had its origin in a series of fissures or open joints, which were gradually widened by the action of water until the cave became the channel of an underground stream such as was common in the limestone region of Yorkshire and Derbyshire. The floor of the cave was of breccia, over which lay a stratum of crystalline stalagmite. With these strata were associated ursine remains. Then, proceeding upwards were three layers containing hyænine remains, namely, the cave earth, the black band, and the granular stalagmite. Finally, on the surface was the black mould, allied to ovine remains. Mr. Pengelly, in investigating the cave, passed through the whole of this series of deposits from the black mould on the surface to the breccia forming the floor of the cave. The breccia was, no doubt, introduced by the underground stream. It consisted of rubble mixed with a great amount of bones, and was turned into bone breccia. The cave at that period was almost exclusively inhabited by the bear. The only other animals that were to be found were the fox, the deer, and the lion. Man, too, was present at that period, as they had evidence in his handiwork, rough stone nodule implements. Above the breccia was the crystalline stalagmite formed by the continuous drip, where the water evaporated and left a deposit of stalagmite. Although the process of formation was very slow, the crystalline stalagmite in many places attained a thickness of 12 feet. The remains found were only those of the cave bear, so that in these two periods the cave was essentially a bear's den. But the cave earth was the great depository of animal remains. No less than twenty-six species had been found in it. Indeed, the remains of every animal found in Britain had been found in Kent's Hole, except the hippopotamus. In the cave earth, but not below it, was found the hyæna. Apparently the hyæna did not appear until the cave earth period, and many of the large bones here found, such as those of the mammoth, were doubtless dragged into the cave by the hyæna, for they must not think that the mammoth lived in the cave. Then the cave earth had a human distinction in that the flint nodules found in it were much more
perfect in workmanship than those found in the breccia. The granular stalagmite overlying the cave earth was apparently deposited under muddier conditions than the crystalline, when there was more sediment in the water. Therefore, the stalagmite was not so clear. In the stalagmite were also found the remains of extinct animals, and not the works of man, but man himself, his bones. All these deposits of which he had spoken belonged to the Palæolithic Age; but, when they passed upward to the black mould, they took a great leap. Between the granular stalagmite and the black mould there was a great gap in time, which should have been filled by the Neolithic Age. But there was no continuity, for in the black mould they were faced with the remains of old British art of pre-Roman times.

Starting at one end of the series of cases, Mr. Somervail then exhibited the collection, beginning with the recent—the cracked cup and blacked bottle of latter days—and working back to the dim twilights and faint echoes of the past. The black mould, which varied in depth from three inches to a foot, yielded bronze rings and other articles, slate spindle whorls, black pottery, worked flints, and human teeth and finger bones, found side by side in equality of mortality with the jaw of the fox. Mr. Somervail pointed to the human interest attaching to a pile of Pecten shells, placed one upon the other, as if the neat housewife of this period had used these primitive vessels as culinary utensils. They were found thus in a recess of the cave, which probably served as a cupboard. The principal products of the black band were gnawed bones, hyænine remains. The cave earth was prolific in flint implements and hyænine deposits, including the bones of the elephant, rhinoceros, Irish elk, deer, horse, all represented in large quantities. Among the specimens of man's work here found were a bone awl, a harpoon or fish spear, and a bone needle with a finely-bored eye. All the relics were assorted according to each of the five foot levels of the cave earth. Parts of human skulls were found in the granular stalagmite, and in the breccia old rough stone implements.
An independent collection of much interest consisted of remains found in the cave earth by the Rev. Father J. McEnery and Mr. E. Vivian, Mr. Pengelly's predecessors in the work of investigation.

Remounting their conveyance with Mr. Somervail, the party continued their drive to Kent's Hole, the mouth of which is to be seen in the side of a limestone rock overgrown picturesquely with trees and undergrowth. The so-called "hole" is really an extensive cavern with many considerable branch passages. From the mouth to the furthest inner recess it measures 300 feet long, but the aggregate length of the cave and all the passages is 800 feet. The passages were lavishly lighted with wax candles for the Club's visit, and each member of the party also was provided with a primitive candlestick and candle to light the way. Sections of the various strata were examined at different parts. The stalactites and stalagmites in the innermost part of the cavern are a remarkable sight. How slow has been the process of formation is shown by two inscriptions carved with a knife on the rocks—one "John Martin, 1619," and the other "Robert Hedges, Ireland, Feb. 20, 1688." The latter was cut, the guide reminded the party, six months before the Prince of Orange landed at Brixham. The letters and figures appear to be iced over with a crystalline layer, but so thin that, notwithstanding the continuation of the process throughout nearly three hundred years, the inscriptions can still be deciphered. In the bone cave can be seen the skulls and bones of animals still embedded in the rock.

Leaving the cave, the party drove by another route back to Torquay. A halt was made on the way opposite a large slate rock, which exhibited well the planes of cleavage on which Mr. Somervail said a few words. He pointed out that these were not in the plane in which the rock had been deposited, and that ordinary roofing slates were not split in the plane of deposition, but in that of cleavage.

The char-a-banc drew up outside the Queen's Hotel, where the party alighted for luncheon. Captain Elwes, acting as President
of the day, took the chair, and Mr. Richardson the vice-chair. After luncheon Captain Elwes heartily thanked Mr. Somervail for his kind assistance at the Museum and cave, and then Mr. Eaton expressed the gratitude of the Club to Mr. Richardson for the pains that he had taken to arrange the excursion. The vote of thanks was carried with acclamation.

It was announced that Mrs. Fisher, of Whitecroft, Buxton, Weymouth, had been proposed as a member of the Club, and would be duly balloted for at the next meeting.

A little later the party drove back to the railway station for the return journey.
WEST PURBECK MEETING.

The Third Outdoor Meeting of the Club was held in West Purbeck on Wednesday, August 21st. The meeting consisted of 85 members and their friends, nearly 80 of whom assembled at Wareham Station, and were conveyed from thence in seven brakes. On account of the lateness of the trains, it was nearly 12 o'clock before the brakes left the station yard for Creech Barrow. On arriving at the foot of the barrow, the party alighted from the carriages, and, ascending the steep sides of the hill on foot, viewed from the top the magnificent panorama stretched out on all sides of them. Here Mr. Richardson, addressing them, expressed regret at the absence of the President, who was unable to be with them, and, on behalf of the Club, invited Lord Eustace Cecil to act as President. Two new members were proposed, Mr. Ralph Edward Hill, of Shillingstone, and Miss Emily Yeatman, of King's Stag. Mrs. Fisher, of Weymouth, who was proposed as a member at the last meeting, was elected.

CREECH BARROW.

Lord Eustace Cecil then introduced Mr. Hudleston, ex-President of the Geological Society, who had promised to speak upon the physical peculiarities and geological features of the hill and neighbourhood.

Mr. Hudleston premised that, as he intended to write upon the subject, he did not mean to develop all the geological particulars now, but to content himself with giving a brief sketch only.

I will say a few words, he said, upon the scene before us. It is one of those panoramic scenes where it is difficult to know where to begin, for, turn in whatever direction you will, there is something of interest to note. With regard to the scenery I do not know that there is any place which gives a better idea of the scenic character of East Dorset than the peak that we are now upon. We have the great estuary of Poole, the vast extent of heath land, and then the rolling hills of Purbeck itself. That is eminently characteristic of East Dorset scenery. I have heard
people say that it can fairly hold its own with the scenery of Devonshire. I think so myself. But, as to the coast of East Dorset, it is without an equal anywhere, not only for beautiful scenery, but also for the magnificence and wonder of its geological sections. Many of you, I dare say, are acquainted with the work of Sir Henry Englefield, who, with his draughtsman, Webster, immortalised the coast of East Dorset in the early part of last century. One of the leading features of the geology of the Isle of Purbeck is that great overthrust, or fault fold, which runs right through from Ballard Head to White Nose, near Weymouth. I suppose that most of you have seen the effects of that fault as it shows itself in Swanage Bay. There, according to the present reading of the geological surveyors, we have an immense overthrust from the north which has pushed the horizontal chalk forwards and caused it to mount up against the vertical chalk which lies to the south of it. Whatever may be the real interpretation of that phenomenon, at any rate it indicates the maximum of disturbance along a line which runs nearly east and west, and comes out of the chalk cliffs again not very far from White Nose. We cannot see the disturbance here, but we are within 300 yards of it. It is generally shown as passing along the junction of the chalk ridge there and the Tertiary beds upon which we are now standing. Nobody can see it. Its precise position is a matter of conjecture; but, as one of the results of its proximity, the chalk at the lime-kiln is almost standing on end. It has a dip of about 80 degrees to the north—only ten degrees short of verticality. Such a high dip serves to show us that the effect of this great thrust-fault is being felt in this neighbourhood. I shall develop this point further when speaking of Creech Barrow itself. But, before attacking that very knotty problem, the origin of Creech Barrow, I ought to say a few words about the scene before us. The whole of this great basin inland is a great stratigraphical synclinal. That is to say that the great fold in which it exists was impressed upon it at the period of mountain-making, when these hills and the whole of this part of the county received an
original impress from the great squeeze on which I have already spoken. It is a purely geological question, and I ought not to dwell too much upon it before a general audience. But, until you realise the meaning of the synclinal, you will not be able to understand what I am going to say about Creech Barrow itself. The hills in the southern half of the Isle of Purbeck are composed of beds which dip towards the north, and this dip increases as we approach the long chalk ridge, so that in some places it is nearly vertical. The Chalk passes right underneath the Tertiary clays and sands hundreds of feet below the surface, and the same Chalk crops up again in the Dorset Downs which you see facing you. That gives you an idea of what a true stratigraphical synclinal is. That synclinal, no doubt, has been the ruling guide of the drainage system ever since these hills were upraised, and there may possibly be some traces of the original base or axis of that synclinal. It may be sought in that great extent of plateau gravel which lies between the North and South rivers, and is very well developed in the neighbourhood of Binnegar. The Wareham Waterworks, or what are intended for them, are at the very end of it. This gravelly plateau represents, I believe, the bottom of the original synclinal. All the other features have been developed more or less by denudation, by the action of rain, frost, snow, rivers, and so forth, which have moulded and sculptured the hills as we see them now. For we must not suppose that the hills are everlasting, although that is a fine poetic statement. "The everlasting hills" is only a figure of speech. All these hills, as we see them now, have been moulded since Middle Tertiary times, and the process is going on still. If anybody had been on top of Creech Barrow, as I was last Wednesday, they would pretty soon learn what denudation means. It came down remarkably straight. (Mr. Hudleston referred to the day when over two inches of rain fell.) I will now endeavour to apply the remarks already made to the elucidation of the question of the origin of Creech Barrow, this picturesque conical hill, which, seen in the distance from the valley of the
Frome, looks somewhat like a volcano. It has certainly a most beautiful conical outline. Some of you may be inclined to ask why such a fuss should be made about the origin of a hill like Creech Barrow, which is not very high, not even the highest in Purbeck. But there is something peculiar about it, as you will realise when you see how completely all the Tertiary Beds lying at the foot of the chalk escarpment have been eaten away on both sides, and the Tertiary Beds occupy the low ground all over that great synclinal basin. What is the reason, then, why these Tertiary Beds should be so high up here? I confess that it is an extremely difficult problem, and I am far from saying that I have found out the true solution of it. But I can offer a few theories upon it. It is, I know, a dangerous thing to broach a theory. It was once said "Oh! that mine enemy would write a book." Now, one might say "Oh! that mine enemy would broach a theory. Wouldn't I walk into him!" But I must run that risk, and will let you know what I think, so far as I have investigated the subject, may be the origin of Creech Barrow. I must not go into details. It would be too tedious; and the Editor of the Club's "Proceedings" has been so kind as to invite me to write a paper on the subject. If I find enough material, I shall be glad to do so, and to add to it drawings and other matter which will be of help in understanding the points. Briefly put, the great peculiarity of Creech Barrow is that it consists, to a great extent, of clay—at least, that is what we suppose. No doubt, the development of clay in the Tertiary Beds of this region, and especially where we are now standing, is at its maximum. You all know what valuable workings in the clay immediately at the foot of the hill have been carried on for nearly a century. It has been one of the most important industries of this part of East Dorset. You can trace the line of the old workings exactly as if drawn on a map. One of the workmen who have been engaged in this business for a great many years pointed out to me the other day that Creech Barrow bulges all these beds and throws them out of their line. That shows that there is something peculiar in the composition or
original construction of this monticle. The second point is perhaps more important still. You remember what I said about our proximity to the great thrust-plane which forms the backbone of the whole of the Isle of Purbeck. It is represented in the geological map as passing along the junction of the Chalk and the Tertiaries about 300 yards to the south of our present position. It is quite possible that, instead of sticking to that route, the line was deflected somewhat, so that the thrust-plane has come in among the Tertiary clays, and muddled them up with the sand and everything else in a most extraordinary manner. The great thrust from the north has pressed these clays against the hard chalk and doubled them up, making them harder and fitter to withstand the forces of denudation. Certainly, the clay workings give evidence which justifies that view. The late Mr. Lawrence Pike, whose premature death we all lament, told me that the valuable clay beds which he worked for so many years often stand on end quite vertical and sometimes overthrust, so that a number of “S” curves can be detected. That could not have been found out without the workings in the clay, for it is impossible in these soft beds to judge from the mere surface features what is underneath. Therefore, these workings have given us most valuable insight into the internal structure of this hill and its immediate surroundings. And, as giving you some idea of how beds are disturbed, we have already seen that the chalk dips on the north at an angle of 80 degrees; whilst the bed of pipeclay in the Creech Woods beneath us is at present being mined on a dip of 30 degrees to the south. That shows what change of dip there has been in this neighbourhood. Of the third point there is less evidence, though it is the most important of all. That is the point where my enemy will probably attack me. All the dwellers in the Bagshot district, whether in Dorset, Hampshire, or Surrey, are well aware that one of the chief causes of high ground in these areas is a good capping of plateau gravel. It withstands most successfully the action of denudation, so that what was originally a valley, like the great plateau at Binnegar,
now becomes a hill. Can I bring the plateau gravel on the top of this hill? I believe that it has been there, but, unfortunately, we cannot find it now. This will be the great difficulty in any future investigations as to the origin of Creech Barrow—to prove that there has been at some time or other, to help in the protection of these soft clays, a great amount of clay with flints which has been, as it were, banded and pugged together, and thus constituted the good strong cover which has protected it from the usual agents of denudation acting through a long period of time. The principal evidence for the existence of this hypothetical bed of gravel is that, about a thousand yards from the summit of the hill on the north side, there is a large deposit of clayey gravel, which has been worked, but, unfortunately, we do not know the full extent of it. The late Mr. Pike thought it 130 feet thick, but the men think it 90 feet. It is impossible without investigation to say what the thickness is. But it is a peculiar phenomenon, and I suggest that that bed of gravel has, to a certain extent, been slid off these slippery clays, especially during a period when there was a great deal of snow—the so-called Glacial period—which would facilitate deposit on the north side of a slope. I believe that that gravel bed, which is now on the 300 feet contour, was originally a portion of a great mass of flinty gravel and clay on the top of this hill. Another proof is that, go where you will round about the foot of this hill, you are always kicking up great flints. Where do they come from? They do not come very far, for all flints have their origin in the chalk which is close at hand. They belong to that peculiar class of flints which are found on the top of the Chalk, and are known to occur in the form of clay with flints. They are large unrolled flints, which have not come from any great distance. Those flints are also evidence to a certain extent of the existence of my hypothetical gravel bed on the top of this hill. There is another large exposure of gravel in the neighbourhood of Furzebrook, of which also it may form a part. But we cannot say what the hill itself consists of, for the whole hill, especially the top of it, has been thoroughly sophisticated.
I have not the remotest idea of what the original surface of the summit consisted. This tumulus, which forms such a convenient shelter, consists of those very large flints which have been gathered from all round. But the greatest annoyance is that a house has been built on the top of Creech Barrow, and the foundations and walls make it utterly impossible for anyone to judge what may have been the original composition of the summit. It has been sophisticated by man, and the only way I can see of ascertaining the true structure of Creech Barrow is to drive a horizontal level right in to see what the hill is really made of. If the Dorset Field Club would like to vote a sum of money for that purpose, I will undertake to see that it is properly spent. But I am afraid that this is hoping rather too much.

Lord Eustace Cecil expressed the thanks of the Club to Mr. Hudleston for his most interesting and instructive address, and the party shortly afterwards descended the hill and drove by Cocknowle to

**Barnestone Manor House,**

which the tenant, Mr. Chilcott, had kindly given the Club leave to inspect. Here Mr. Hudleston, who had taken Lord Eustace Cecil's place as President, introduced the Rev. W. D. Filliter, who reminded the Club that they had now dropped into the quietest part of Dorset. Owing to its isolation, Purbeck had preserved almost unchanged for many ages its ancient characteristics. Some of the old feudal customs had lingered on. They went back in thought to days when the great feudal castle of Corfe overawed the whole valley, when the life of a deer was of more value than that of a man, and builders were not allowed to build a stone wall so high but that a doe and her fawn could jump over it. "Many old Purbeck manors are still standing, all of them now used as farmhouses and considerably altered, such as Godlingstone, Downshay, Afflington, Blackmanstone, Lutton. They are marked by no great architectural features to which Purbeck stone is not adapted, but are of considerable interest. Barnestone was one of the best preserved of the old manor houses. There was a house of some kind there in Edward the
Confessor's time. The manor was then held by a Saxon thane called Bern, and so it got the name of Barnestone. At the Norman Conquest William bestowed it upon Walter de Clavile, who also owned five lordships in Dorset and thirty in Devon. The name only lingered on as the Christian name of collateral descendants (in its spelling "Clavell"). In 1623 the manor house came to William Bond, of Lutton, and passed through the Yeatman family, until in the middle of last century it came into the hands of his (Mr. Filliter's) grandfather, who, in 1852, sold it to the Rev. Nathaniel Bond, in possession of whose family it still remained. Part of the building dated from the reign of Edward I."

To members versed in architecture, Barnestone Manor House came as a surprise; few, probably, were aware that there existed in Dorset so perfect a specimen, so far as it goes, of domestic architecture of the 13th century. A manor house of the 13th century consisted of chambers in two stories, often detached; a kitchen, detached; and a hall; each with its various offices. There were also capacious stables with harness-rooms, which sometimes contained beds, in which guests could be lodged. The whole group of buildings was surrounded by a wall, often with a gate-house in it. Barnestone Manor House was originally a house of this description, but of 13th century date there now remain the two chambers, marked on the plan B and A, a portion of the walls of the ancient hall C, and some foundations, which, with the kindly aid of the present tenant, throw some light on the original plan of the range of buildings.

The oldest part of the house is the centre, showing a gable in the engraving and marked B on the plan. This seems to have been a chamber, with its wardrobe underneath. In the wardrobe the household stuffs were kept, and the ladies did their spinning and needlework. It is not now certain how the upper room was reached; there is a circular stone staircase in the north-east corner lighted by a small window with an ogee head. This staircase, when first built, was very narrow, but was afterwards widened. At the time it was widened, it was taken down completely, for the winders have not been replaced in their
original order, and presumably it was shifted a little; why otherwise was it taken down? So much is clear from the stone-work. Judging from the size of the newel, the steps may have been recut, in which case they may be the original 13th century steps, moved perhaps to give access to rooms over the hall, they could not have occupied their present position at the time the house was built; and we have then an original 13th century chamber and wardrobe almost complete, with its original staircase, but little altered; and, sitting down in the lower room, we can sympathise with King Henry III., whose chamber at Rochester was on the ground floor and his chapel above it, with a similar staircase to connect them, when he gave the order to make a staircase to the chapel outside the building, so that strangers and others might go to the chapel without passing through his chamber.

If the winders have not been recut, the whole is Tudor, though it may have replaced an earlier circular stair, or the chamber may have had a staircase outside with a door in the east wall, where there is now a recess. Both kinds of staircase were in common use in the 13th century, and both, as we have just seen, were in use at the same time in the King's chamber at Rochester. Shortly after the completion of the chamber B, the chamber A was added, with a cellar underneath. The upper floor of this building is now considerably above the original level of the floor, which was once so much lower that there would scarcely be height enough for a living room beneath it. To build a chamber above with a cellar under it was a very common practice in the 13th century, so much so that a 13th century house has been humorously described as a cellar and a solar. Here is one out of many instances that might be given of the cellar and solar arrangement. In the year 41 Henry III., the Sheriff of Southampton was commanded to lengthen the house of the King's chaplains at Winchester 24 feet, so that a cellar and a solar might be made of that length. Here, however, the cellar was a wainscoted room for the use of the chaplains, but very frequently it was a cellar for storing wine, wood, charcoal, or other commodities.
EXPLANATION OF THE PLAN.


The walling of the south end of the chamber B may be wholly Tudor.

On the floor of the hall is the plan in dotted lines of the moulded beams of the ceiling.

The building marked C has generally the appearance of Tudor work, but not altogether. At the east end of the south side is a blocked doorway, marked E on the plan, which has every appearance of much greater antiquity. If this is 13th century work, and a portion of the stonework where it is exposed seems to be of that date, it is the doorway of the ancient 13th century hall, which was partially pulled down when the new south front was added and the present handsome and massive ceiling, with its great moulded beams of oak, were put up, and a second storey added above it. The original hall was in all probability a building nearly, if not quite, the length of the present hall; that is, it might have stood alone, or it might have been attached to the chamber B. The roof would have had louvres in it to let out the smoke from the fire, which burnt on an open hearth in the midst of the room. When a second storey was added to the hall, a fireplace was necessary to heat the room, as, with the storey above, the smoke could not be carried off as
before. Hence the chimney gable on the south side of the hall. That this is an addition is clear from the straight joint between the old masonry and the masonry of the gable. And that some of the walls are original may be inferred from this fact: To build a fireplace some of the wall had to be taken down; near the base of the Tudor wall, which backs it, is a chamfered string course, which has the appearance of 13th century work, and is certainly much earlier than the Tudor masonry. Had it been an original part of this masonry, it would have been carried from end to end at least. There was evidently not enough of it to do this; the length is only about the length of the portion of the old wall which was taken down, and therefore, presumably belonged to it; and, if so, much of the walling of the lower part of this hall is of the 13th century also. There were further changes in this hall. A second doorway was made at F, opposite the old doorway at E, and the passage between them screened off as in college halls. The remains of the scantling to which the oak screen was attached may be seen on the massive beam above, where indicated on the plan. The dais was at the west end of the hall. The wall which now divides the hall is modern.

A wall protected the whole range of buildings. On the south side and at some little distance from the house this wall can be plainly traced, and at the junction of this wall with that which met it on the east the gate-house is said to have stood; there are some stones in position here which might have been part of the foundation of this gate-house.

The court was between this wall and the present house. The outbuildings, which were taken down some 60 years ago, and are said in Hutchins' to have had "an appearance of great antiquity," were on the east and south of this court, according to the testimony of old inhabitants of the village, and were used at that time as farm buildings.

The walls were carried round the east, south, and west of the court; on the north side the house itself seems to have been the boundary, for the walls are from 3 ft. to 3 ft. 6 in. in thickness on this side, and the central portion is strongly buttressed, and, as
there is no trace of windows in the lower part of the house, unless there were loop windows where the Tudor windows are inserted, this side of the house would have presented as formidable an obstacle to an attacking force in those troublous days as a wall manned by archers and men at arms.

The window in the gable on the north side of the house calls for some remark; it is a very perfect specimen of a house window of the 13th century.

The early windows were not constructed for glass; window-glass was a rare luxury in those days. Even the King's houses did not always possess a glazed window, as orders still in
existence to put glass into certain windows to keep out the wind proves. In wet and rough weather these open windows were closed by shutters, and the hooks at the sides of this window have the appearance of having been put there to hang the shutters on. If so, the shutters were divided, so that one half, the upper or lower, could be left open and the other closed if necessary. In the central mullion the holes for the bolts which secured the shutters when closed are still perfect; in most old windows of the date the bolt holes are broken away. And the stone seat in the window is also perfect, though it is partially concealed by a board put across for a cill. Seats of this peculiar form are a marked feature of 13th century windows.

The club are indebted to the Rev. W. D. Filliter for the admirable plans of Barnestone and the drawing of the roof of Tyneham old hall, as well as for the sketch of this window.

Tyneham, Gadcliff.

The party, resuming their places in the brakes, drove on to Tyneham, where they were courteously received by Mr. and Mrs. W. H. Bond. Mr. Bond at once led them through the woods which shelter the house to Gadcliff, where Mr. Hudleston again addressed the members of the Club. With regard to the geology of the locality, he said time would not allow of their going to Worbarrow, which was a much better place for studying the formations than the place where they were, although Gadcliff lacked nothing of the picturesque. Indeed, that celebrated traveller and naturalist, Mr. Alfred Russell Wallace, whose son had been with them for a while that day, once told him that he considered Gadcliff the finest feature in the Isle of Purbeck. And he believed that most artists would endorse that opinion. This particular district of Gadcliff especially, Mr. Hudleston continued, always reminded him of the more calcareous portions of the Alps. One might imagine that it was a kind of Dent de Morcles in miniature. Hard limestones were superimposed on soft sands and clays, in this case on the Kimmeridge clay, and such a conjunction produced the feature which was so excessively striking. He should have
liked to take the party to Worbarrow, because there they obtained the best section of the Purbeck beds. The rolling hills of that part of the Isle were one great feature of it; but they did not see what those rolls were made of. At Worbarrow, however, they could see the whole thing, for there they obtained an end section, as it were, of all the beds. At the foot of the precipice they had the Kimmeridge clay in the lowest place. Then, ascending, they came to the Portland sands and Portland rock, which formed the mass of the precipice of Gadcliff, and which in some places was very fossiliferous. That Portland rock was a very different development from the Portland rock in the Isle of Portland. He believed that there was little or no building stone in it. It consisted of a lot of coarse limestone full of flints, with fossil beds at the top. The building stone at Winspit and Tilly Whim was not developed in that part of the Portland series. Immediately succeeding the Portland beds came the Lower Purbecks, which were very interesting. If they had gone to Pondfield Cove, they would have had an extremely fine section of them. Dirt-beds, marls, and limestone constituted these peculiar beds, as at Lulworth and Stair Hole. The great Isle of Purbeck thrust-fault, to which he had alluded at Creech Barrow, had brought the Lower Purbeck Beds into these curious sigmoidal folds. The Middle Purbecks were very fossiliferous. There was in them a well-known hard bed called the cinder bed. Speaking parenthetically, "Cinder" reminded him of coal.

**Coal in Dorset.**

That morning some small specimens of coal were placed in his hand which, he was told, were found recently in the course of boring a well on Lord Salisbury's estate at Cranborne. At a depth of 90 feet in boring through the chalk, it was said, a man struck a seam of coal 5 inches thick embedded in the chalk. The coal was said to be of good quality. When he first read the announcement of the find in the papers, he thought that it might possibly be lignite, such as was found in great abundance in the Tertiary clays, as in the neighbourhood of Creech Barrow. It certainly was not lignite; but what it was one could not judge from
specimens so small. He did not think, however, that coal of any value would ever be found in the county of Dorset. The best Dorset coal was probably the well-known Kimmeridge coal, which had been often worked, but which had never paid very well. Another great source of coal in Dorset was the beds of lignite associated with the clay mines on the other side of the hill where they had been that morning. In the neighbourhood of Corfe Castle there were beds of lignite several feet thick, and some of the miners burnt it in their homes in the winter; but it had no commercial value, and would not be worth mining for itself. It was found in the course of mining for the clay. Returning once more to the scene before them, Mr. Hudleston concluded his remarks on the Purbeck Beds, referring especially to the "Purbeck marble," which lies at the top of the series. At Worbarrow they had a most complete sequence, and they could compare it with the section at Swanage. The last formation that he need mention was the Chalk, which was nearly vertical in the seacliffs opposite. Arish Mell was generally considered to be the point which separated the Isle of Purbeck from the mainland, so that all these hills right away to Swanage were portions of the Isle of Purbeck. A striking feature about Flower's Barrow, the prehistoric earthwork which ended the range of Purbeck Hills overlooking Arish Mell Gap, was that since its construction a large portion of it had been carried away by denudation and slipped down the hillside. That would afford them some idea of the rate at which the coast locally was wasting away.

Mr. Dale, referring to the question of "Coal in Dorset," said that a find of coal was made at Milton Abbas fifty years ago.

The party walked back to Tyneham House and inspected it. Over the entrance of the greystone mansion is carved the date 1583. They visited the old building close to it.

**Great Tyneham House—The Ancient Hall.**

Rivalling in interest the 13th century house at Barnestone is the small building by the side of Great Tyneham House. This building is all that remains of the ancient manor house of Tyneham. It has evidently undergone many changes. It seems to
OLD ROOF TIMBERS
TYNEHAM HOUSE

conjectural restoration
(dotted lines)

in 12 0 1 2 3 4 5 6 7
Bat

W.D. Tillyer
1901
have been originally the hall of the ancient manor house, and to
date from the late 13th or early 14th century.

It seems probable that when the new house was built, in 1567,
this hall being no longer required as a hall, and being in too
good condition to be pulled down, was converted into a cottage.
A floor was put in, and the space above and below it was
divided into rooms, and the walls pierced for the insertion of
the windows which now light the rooms upstairs and down.
The Rev. W. D. Filüter, who has had the experience and train-
ing of an architect, has examined the building, and concurs in
the view that the floor and the dividing walls are additions to
the older building, which was originally a hall, 45 feet long by 20
broad, with a handsome timbered roof of oak of late 13th or
early 14th century date. A portion of this roof is still in
position, and is a remarkable, perhaps a unique, specimen of
timber roofing. The writer is not aware that there is on any
existing domestic building a timbered roof of a similar char-
acter; indeed, roofs of early 14th century date are very rare.

It is unfortunate that the lower parts of the moulded braces of
the principal are gone. The side wall plates which supported
them are, however, in position with their mortices. Mr. Filliter, in
his excellent measured drawing, has made a conjectural restora-
tion of the lost portion, and the restoration seems justified by
the details on the curved braces which support the lower purlins.

Leaving Tyneham, the Club drove to Creech Grange, where
they were graciously welcomed by Mrs. Bellasis and members of
the family, and refreshed by tea supplied from tables laid out
under the trees on the lawn. After tea some members of the
party rambled about the grounds and gardens, and inspected the
house; others paid a visit to St. John's Chapel, a sham Norman
building, with nothing ancient in it but the chancel arch, which
was brought from the old Cluniac Priory at Holme, but which,
however, has been mutilated, some moulded caps being used as
bases of small pillars at the sides of it.

On leaving Creech Grange, the party drove back to Wareham
to catch their trains.
MEETING IN THE NEIGHBOURHOOD OF SALISBURY.

The Club was again favoured with exquisite weather for the last of the outdoor meetings of the season, which was held on Wednesday, September 18th, in the neighbourhood of Salisbury. On that day a large party assembled at the Salisbury Railway Station, where carriages were in waiting to convey them to Britford, Longford Castle, and Downton.

The route led them by "The Moat," a picturesque old mansion house near Britford Church, still encircled by the ancient girdle of water from which the house derives its name. Of this house and its inhabitants in the reign of Queen Elizabeth the Hon. Treasurer, Captain Elwes, afterwards related a romantic and interesting story. At

Britford Church

the party were received by the Vicar, the Rev. T. J. Woodall. Here Lord Eustace Cecil, who was President for the day, called upon Mr. Doran Webb to speak upon the church. In the course of his remarks, Mr. Doran Webb said the church was restored in 1873 by Sir Edmund Street. The present building is in the main Decorated, but there are remains of earlier work in the nave, the arches on either side being Saxon work. The present nave stands practically on the foundation of the old Saxon church which stood there; the two arches representing the small transepts such as are to be seen at Breamore. The old chancel probably had an apsidal end, the church then consisting of a long nave, a short apse, and transepts. The earliest part of the church, which was first swept away, was the nave, this part being altered and recast. The high windows are proof that there has been a Norman building here, for the windows, although presenting unmistakeable Decorated features, are yet on the plan and line of older Norman windows, which in turn took the place of the Saxon windows before them. Then, in the fourteenth century, came the destruction of either side of
the chancel and the pushing out of the transepts, and further on
the sweeping away of the chancel and the building out of an
entirely new chancel, starting from the apse of the old Saxon
church. An interesting feature is an ancient carved stone tomb
brought from the old college just by Harnham Bridge. Its side
is carved with statues of St. Catherine, St. Edmund of
Pontigny, St. Nicholas, and the Virgin and Child. A brass
affixed to the tomb said it is the tomb of the ill-fated Duke
of Buckingham, who was beheaded in the Market-place
of Salisbury. The inscription runs:—“Henricus Stafford, Dux
Buckingham, Decapitatus apud Salisburi. I. Ric. III., A.D.
1483.” But he was afraid that the tale rested only upon the
authority of a great antiquary who had not the facts before him
when he made the statement. A clue to the real history of the
tomb was a will of a warden of De Vaux College, in which
he expressed a desire to be buried in the College Chapel under
a tomb such as the one they saw before them. De Vaux College
at one time threatened the existence of Oxford University. In
the chancel are some old stall ends; one of them carved with
the rebus of the Cervington family.

The chief objects of antiquarian interest in the church were
then examined—the Buckingham tomb, a miniature effigy of a
priest holding a chalice, which Mr. Doran Webb assigned to the
14th century, the details of the chalice being of that date,
and the Saxon arches on each side of the nave, where the
ancient apsidal chancel formerly joined it. These arches have
been curiously mutilated, apparently at some mediaeval restor-
ation of the building; on the south side the head of the arch is
built of Roman bricks, on the opposite side of stone, or faced
with stone. On this side stone carvings, interlaced patterns,
and other designs of the Saxon age have been introduced, but
apparently at a much later date. To the writer it appeared
probable that the church originally contained ambonese, as was
usual in churches of early date, and that, when the church was
restored in later mediaeval times, it was modernised to that date,
the ambonese being removed and their pilasters and other carved
ornaments being used for the repair and decoration of this originally plain arch. The carvings are such as might have decorated an ambo, as we know from early examples. That the opposite arch is plain seems to show that the carvings available were insufficient for the decoration of both arches as they might have been if the supply was derived only from the ambones.

Resuming their seats in the carriages, the party drove on through a beautiful park-like country to

**LONGFORD CASTLE,**

the residence of Lord Radnor, who had given the Club leave to go over it and to view the valuable collection of pictures it contains. The inspection of the castle afforded very great pleasure to the Club.

The history of the castle and the list of its art treasures will be found in the catalogue, which can be obtained from the housekeeper of Longford Castle for one shilling. It is not within the province of archaeology or natural history, to which the Club devotes the record of its transactions, to give details of works of art, especially as those details are already in print. It may, however, be said that the fine collection of pictures contains examples of all the principal European schools of painting.

Amongst the more valuable antiquities which the castle contains is the Imperial chair magnificently wrought in steel for the Emperor Rudolphus II., to whom it was presented by the town of Augsburg in 1572. It was purchased by the second Earl of Radnor, cir. 1790, from a Swedish gentleman, Gustavus Brander, in whose family it had remained since the days when the Swedes looted the Musée des Curiosités at Prague. The name of the artist who executed it was Thomas Ruker. There are inlaid ivory chairs in the same gallery which were brought from India by Warren Hastings for Queen Charlotte.

To antiquaries the plan of the old castle will be of interest; it was one which was followed by other builders of the age.

The plan was prepared by John Thorpe, cir. 1578, at the request of Lady Northampton, the wife of Sir Ed. Gorges, to
IMPERIAL CHAIR OF THE EMPEROR RUDOLPHUS II.,
A.D. 1572.
whom the property at that time belonged. She requested that the castle should be built in triangular form to represent the ancient symbol of the Holy Trinity. The three towers repre-

senting the three circles at the corners of the symbol were to be called after the persons of the Holy Trinity. A copy of the symbol from an old illustration and the ground plan of the castle of 1578 are here put side by side that they may be compared. It will be noticed how nearly they correspond.

In 1717 Longford passed into the hands of Sir Ed. Des Bouveries, Bart. In 1776 Jacob, second Earl of Radnor, to whom Longford then belonged, conceived the unfortunate idea of rebuilding it as a castle with six round towers, instead of three. The mutilation was commenced towards the close of the 18th century, but, on account of the failure of funds, the work soon ceased, and it was only resumed and completed by his grandson (the late Lord Radnor) about 20 years ago.

A comparison of the plan of the original castle of 1578, with the plan of the castle drawn in 1898, the blocks of which plates have been most kindly lent to the Club by Helen, Countess of Radnor, will show that the changes, though they have not left the original building untouched, have altered the original plan much less than might have been expected. The
ancient triangular castle can still be plainly traced in the enlarged building, though the open triangular court in the centre, with its three circular staircases, is now covered in, and is known as the triangular hall.

Leaving Longford, the party drove to Downton through Trafalgar Park. The Hon. Secretary had announced at Britford that Earl Nelson, who had kindly given leave for the Club to drive through the park, thought that some of the party might have seen Longford Castle already, and might like, therefore, to drive on and see a little of Trafalgar House. He invited any to do so, and promised to lead them through his flower garden and to show them a little ancient chapel. Lord Nelson's kindness was appreciated by the Club, and it was a matter for general regret that, as all the party wished to go over Longford Castle, time did not allow of their accepting Lord Nelson's invitation also. Lord Nelson met the carriages near his house, and Lord Eustace Cecil and the Hon. Secretary alighted for a minute to express the Club's salutations and their regret that imperious time did not admit of a halt.

DOWNTON. THE CHURCH.

The party were received at Downton Church by the Rev. R. G. Plumtree, the Vicar. After a few preliminary remarks by the Vicar, who thought it probable that the first church at Downton was consecrated by Bishop Birinus, cir. 648, on the invitation of the Vicar, Lord Eustace Cecil called on Mr. Doran Webb to describe the architecture of the church.

Mr. Doran Webb observed that the earliest part of it is the west end. The cylindrical columns with square caps date from early in the 12th century, being early Transitional Norman work. The church at that time doubtless only reached to the western arch of the tower. The present chancel is Decorated in style. He called attention to the good Early English work of the caps opening into the south transept. The tower again is early 13th century work. The great interest about Downton Church, Mr. Webb continued, is that William of Edyngeon, the architect of
Winchester Cathedral, tried his 'prentice hand on the church. He pointed as one result to the first Decorated two-light window ever built in the country, and called attention to the picturesque contrast of the red and green sandstone in the pillars of the nave arcading. Incidentally he observed that people were beginning to think that the Dorchester of which Birinus was Bishop was Dorchester, Dorset, and not Dorchester, Oxfordshire.

Leaving the church, the party were conducted by Mr. Squarey, who had warmly received them on their arrival at Downton, to his house, where they were hospitably entertained at tea on the lawn.

After tea the President, on behalf of the Club, warmly thanked Mr. Squarey for his hospitality. Mr. Squarey, having suitably responded, led the way to

**The Moot,**

a remarkable terraced mound in the grounds of the house. The moot hill is 70 feet high, with a slope towards the river cut in a succession of terraces. As to whether these terraces were ancient or of more recent date opinion was divided.

There was no time for discussion, but, in conversation, various theories were propounded, of which the following are the principal:

That the mound was a Saxon Burg; that it was a place of assembly in Saxon times, a "cradle of mighty parliaments;" that it was a Saxon stronghold, within an earlier British earthwork; that it was a military work constructed to command the passage of the River Avon, and to protect it from foes coming from the eastward.

Mr. Squarey, in the course of his remarks upon it, said the late General Pitt-Rivers once did him the honour to stay with him three or four days in order to inspect the earthworks which abound in the neighbourhood. The General was delighted with The Moot, although he would not hazard an opinion upon it. At last, at the end of his short sojourn with him, General Pitt-Rivers said "Now, Squarey, give me leave to cut a trench
through the Moot 30 feet deep and 20 feet wide, and I will tell you the whole history of it." "Thank you," he answered; "I am deeply grateful to you for your offer, but I prefer the mystery." And so, beyond the traditions of those who lived around Downton, the authentic history of the place was still utterly unknown. Another distinguished visitor at The Moot was the late Professor Vigfusen, Professor of Norse Literature at Oxford, who came one Sunday morning, bringing letters of introduction from Oxford. Taking his arm and leading him down to the foot of the Moot, the Professor said "Sir, if you will come with me to Iceland, Sweden, or Norway, I will show you hundreds of these places; but I have never seen so perfect a one as this." Professor Vigfusen was so good as to begin preparing a paper for examining the place in detail; but, unhappily, death prevented him from completing it. The Tynwald, in the Isle of Man, was the nearest approach to a place like The Moot. There there were three benches of stone, and, instead of being concave, they were convex. And the Tynwald is still the place of assembly for the Parliament of the Isle of Man. Everyone who went there was required to bring up a stone, so as to maintain it; but there at Downton, on the chalk, with their moderate rainfall, mother earth, with its grassy surface, maintained the Moot.

After Lord Eustace Cecil had again cordially thanked Mr. Squarey and expressed regret that time did not allow of a longer stay, the party left for the station.

Miss Emily F. Yeatman, of King's Stag, Sturminster Newton, and Mr. Ralph Edward Hill, of Long Lynch, Shillingstone, were elected members of the Club, both proposed by Mr. H. S. Bower and seconded by the Rev. P. R. Gorringe.
Anniversary
Address of the President.

(Read April 29th, 1901.)

It has been my perennial lot to preface my Anniversary Address with a lugubrious list of departed fellow-members who had passed away during the previous year. The last was one of painful memories to me. It recorded the names of one near relative and of two most intimate friends. I commence this Address without one regretful sigh, and dismiss the Year 1900 with hearty congratulations, and thanks to God for the many benefits he has conferred upon the nation, and on mankind generally, during the 100 years which have rolled on within the limits of the century. We hail the new year with hopeful anticipations as it emerges from the ashes of the old one, and trust that more and more of the secrets of Nature, from her abundant store, which has been so lavishly placed at our disposal, will be continued to us, and that we shall have yet a more comprehensive grasp of her treasures, now stored by the Creator for man's use. The Nineteenth Century will probably be known in future ages as the century of science. It not only has developed, but controlled the material forces of Nature. Steam will
soon have run its course, giving place to other forces more subtle. It is possible that the telephone will be superseded, and that it will not be necessary to light our streets and houses by gas or electricity. It is inconceivable, however, that any future century can develope such a vast amount of the world's material as the one just past has done. It is only within a short time that doubts have been suggested as to the character of the ether with which we are surrounded. If the whole fabric of science is to be rebuilt nothing can deprive the last century of the claim for clearing the foundations and for the invention of the tools by which the new edifice is to be raised. In the meantime we must be proud of the magnificent discoveries of the last century. It would be impossible in this limited space to enumerate the sciences which have been founded or advanced during that period. Let us take the monumental discoveries of Pasteur. During quite the latter part of the century, through laborious researches with the microscope into microbic diseases he has shown how many epidemics can be successfully treated, their development arrested, and their recurrence suppressed. It is difficult to realise that before these discoveries patients who have had to undergo formidable operations, with much risk and danger, can now with almost certainty come through them completely and be rapidly cured. To annihilate pain was a dream at the commencement of the century; by the aid of antiseptics it has now become a fact. The most delicate operations can be made upon a living body, which on recovering sensibility, will awake up as if out of a deep sleep, and without any recollection of what has passed in the interim. Lord Kelvin's name will always be associated with the doctrine of the conversion of radiant energy, such as that which brings us light from the Sun, carrying the waves of ether vibrations, by which Marconi's wireless telegraphy instruments are worked. Through the development of mechanical skill Astronomy holds a foremost place among the sciences; the discovery of Neptune by Leverrier and by our own countryman Adams, aided by the improvements in telescopic power, gave confirmation to the belief in universal gravitation.
Since that date the invention of the spectroscope has enlarged the range of enquiry into boundless space. We should have been unacquainted with many of the theories of the atmosphere, rain, rivers, glaciers, earthquakes, and volcanoes had we not been familiar more or less with the groundwork upon which geological investigations are based.

By the study of Geology we obtain some idea of the changes which the earth has undergone since it shook itself out of chaos. Early writers noticed that the strata were arranged in layers, but it was not until the year 1794 that William Smith, "the father of Geology," showed that the strata followed each other in succession, characterised by their fossils, and were laid down in the bed of the sea, estuary, or lake. The fossil remains are of the animals and plants which lived and died in them. This was confirmed by Hutton soon after in his memorable "Theory of the Earth." The views of Hutton are mainly known to geologists through Dr. (Lord) Playfair. The third volume of this great work was not published until the year 1899, through the energy of Sir Archibald Geikie. In the preface he expresses a hope "that it may be the means of directing renewed attention to his (Hutton's) immortal work, which must ever remain one of the great landmarks in the onward march of science." De la Beche, Lyell, and Scrope confirmed the soundness of the "theory," and that the changes of the earth can be interpreted. The revered names of Owen, Murchison, Prestwich, Huxley, Hulke, and others who have passed away, and contributed towards placing the science of Geology in its present exalted position, and whose labours are followed up by their successors and contemporaries, O. Fisher, W. Carruthers, W. H. Hudleston, Clement Reid, G. Murray, Dr. H. Woodward, H. B. Woodward, A. S. Woodward, A. J. Jukes-Browne, R. Lydekker, and many others, who are more or less in close relations with our club.

Towards the latter half of the last century microbiology, petrology, and the physiology of animals and plants made a marked and rapid progress. Ocean-dredging has brought to our knowledge many forms of life which had been unknown.
Organisms have been found showing their relations with living forms, and elucidating, by the aid of comparative anatomy, questions of adaptation and heredity and the solution of problems attending the struggle for existence. It cannot be denied that obscurities still remain. There is one question which forces itself upon us. Are the characters of a species so definitely fixed as to be incapable of modification? Palæontology and zoology both evidence the marvellous elasticity even of a single species. Some species of animals and plants have been traced through a series of geological beds showing a continuous, gradual adaptation to the conditions of their new environments, and at the same time retaining their ancestral characters. This plasticity, however, has its limits, beyond which it cannot pass, the species either reverting to their original types or disappearing entirely. In plant-life there is one incessant struggle between this plasticity on the one hand and inflexibility on the other, which prevents changes and preserves species. Before hastily determining a new species, as so many do, it would be well to carefully trace its relations with the type, and by comparing a series of intermediate forms between two extremes to hesitate before severing any one of them. Some families split up into endless varieties, such as brambles, roses, willows, hawkweeds, and others, and until we obtain a better acquaintance with the laws of variation the clouds of uncertainty must remain. The new science of biology affords incontestable evidence that all life, vegetable and animal, commences with a cell, containing protoplasm associated with a small body, the nucleus. The difference between the plant- and animal-cell consists in the former being furnished with a protecting envelope. The presence of these two distinct organisms is not a simple chemical combination, but an organic whole endowed with life-possessing evolutive powers peculiar to itself. Under favourable circumstances of temperature and environment it carries on its work by a series of bi-sections. Some retain their protoplasm and nucleus, others undergo modifications, the nucleus disappears, and the cell is so transformed as to lose all traces of its primitive character. In tracing the progressive stages of life
we cannot help coming to the conclusion that it is under the influence of a directing power, which can only be attributed to that of a beneficent Creator.

The X Rays were discovered by Professor Röntgen in 1900. He found that, under certain circumstances, various substances can be brought into conditions affecting the ordinary photograph-plate and penetrating opaque bodies according to their density and relative thickness. The rays are produced by a special form of electrical currents in connection with some fluorescent substance, which becomes luminous to opaque objects, making them transparent when under their influence. Wood, carbon, slate, leather, are more transparent to the X Rays than glass. Paper is so transparent that they will pass through a book of a thousand pages. Flesh and skin are translucent, while bone is opaque. Their use has been found most valuable in the South African war; they indicate the exact position of the bullet or missile in the limb or body. The photograph on the wall shows plainly the injury to the heel-bone (calcaneum) of a young soldier—(formerly educated in my Boys' Home)—in the King's Liverpool Regiment incurred at the siege of Ladysmith. The exact position of the fragment of a shell and a piece of the boot was indicated under the direction of the X Rays, and was the means of saving the gallant soldier's leg.

The identification of Helium, by Frankland and Lockyer, about the year 1870, as present in the corona of the Sun was revealed by the spectroscope during an eclipse. The nature of the substance remained in doubt until 1895, when Professor W. Ramsay proved it to be equally a terrestrial element, associated with uranite, a mineral in which nitrogen and argon are its component parts. In the same year Lord Rayleigh and Professor W. Ramsay were the first to discover another gaseous element, Argon, which constitutes about one per cent. of the atmosphere, and is present in certain minerals and in meteoric-iron. After much patience the discoverers found a means to separate it from the Nitrogen of the atmosphere, with which it had been
hitherto confounded, owing to its chemical inertness. It is a compound and not a simple substance like Helium.

The Club is now governed by a Code of Rules which was passed last year. They were drawn up with much care and consideration under the supervision of a sub-committee, and on the lines of larger scientific societies.

The resignation of the Honorary Treasurer is one of the most regrettable circumstances in connection with the subject, as by it we lose the services of an efficient Officer, to whom the Club is much indebted for his devotion to its interests from the year 1883 to the date of his resignation, 1900. The Club, on the other hand, has to be congratulated on the appointment of his successor, Captain Elwes. I feel there is no one more capable of fulfilling the duties of the Honorary Treasurership, and I thank him most heartily for so kindly coming forward to help us in our difficulties. During the past year Lord Eustace Cecil, Mr. W. H. Hudleston, and Mr. Vaughan Cornish have been elected Vice-Presidents to succeed the late Sir Talbot Baker and General Fox-Pitt-Rivers. Mr. Clement Reid, Mr. A. S. Woodward, Mr. R. Lydekker, and Mr. A. J. Jukes-Browne have been elected Honorary Members. Their names testify to the high estimation in which the Dorset Field Club is held by the scientific world.

In my Anniversary Address last year I endeavoured to show that the Palæozoic Beds contain the remains of three only of the five Vertebrate Orders, Fish, Amphibians, and Reptiles, which succeed each other in an ascending series of progressive organisation. I was then unable to get farther than the Fish, and hope now to be able to dispose of the Amphibia and Reptiles. The Amphibians made their first appearance in the Carboniferous Age and the Reptiles in that of the Permian. As yet neither Mammal nor Bird has been found in any of the Palæozoic Beds. Amphibia breathe through gills, during the earlier portion of their lives, thus connecting the Fish with the higher Orders of the Vertebrata. One of the peculiar characters of the group is the metamorphosis of its members. Like Fish they are oviparous and cold-blooded, and ultimately attain the true
Reptilian conditions, which some reach more completely than others. The Tadpole (Batrachian larva) lives exclusively in the water. It has the large head and expanded tail of the Fish; it is destitute of limbs and moves through the water by lateral undulations of the body. As growth proceeds two pairs of limbs are developed, the tail is atrophied, and in the adult state it creeps or jumps. According to Boulenger the Amphibians amount to about 140 genera and 900 species, of which 27 genera and 300 species are tailed (*Urodela*) and 11 genera and 300 species, limbless (*Apoda*); the remainder comprises 105 genera and 300 species. The tailless Frogs and Toads (*Anura*) are more widely distributed than the rest of the Order. They are absent in the higher Northern and the lower Southern latitudes and in the remote Oceanic Islands. Next to the Toad the Frog (*Rana temporaria*) is the most Cosmopolitan, it reaches North Latitude 70deg. It is met with at elevations of 8,000 feet in the Alps. The Edible Frog (*R. esculenta*) extends from Scandinavia to Southern Europe and North Africa. The Tree-Frogs (*Hylide*) nearly related to the Toads, are represented by upwards of 100 species, their greatest development is in Central and South America. They are absent in South and Tropical Africa and in the greater part of India. Unlike the Toad the Tree-Frog has teeth in the upper-jaw; it differs also in the last phalange of each toe, which is expanded into a broad disc, and assists the animal to climb vertical surfaces.

As in the metamorphosis of the larva of the Frog, its entire organic structure undergoes considerable modifications and the branchial fringes of the fish-character give place to the pulmonic cavities of the reptile and respiration suitable for sub-aerial life. The heart acquires an additional auricle, and the whole system of circulation is changed. The intestinal canal, too, is modified. The skeleton is raised through various changes from the type of a fish to that of a Reptile, especially as to its ossification. The skeleton of a Frog contrasts strikingly with that of the Lizard, which is remarkable for the great multiplication of the vertebrae and for the small size of the limbs in proportion to the trunk,
whilst those of the Frog, especially the hinder pair, are immensely increased in dimensions and take upon themselves the whole locomotive functions. The skin of *Amphibia* plays a very important part in the aeration of the blood.

The Order Urodela is spoken of collectively as the *Tailed Amphibians* because the tail in its larval-state is retained in the adult stage. The Urodela is characterised by its naked skin and no exo-skeleton. The bones of the fore-arm (ulna and radius), and of the hind leg (tibia and fibula) are not ankylosed. In one of the sections of this Order, Perennibranchiata, the larva-gills are retained through life in the form of three plume-like appendages on each side of the neck. Another section, Derotremata, comprises *Amphiuma* and *Menopoma*, in which the larva-gills disappear, and the gill-slits are retained by the adult. In a third section, represented by the *Salamandridae*, having no branchiae or branchial clefts, furnished with movable eye-lids, the perfect adult is destitute both of gills and gill-slits.

Among the Perennibranchiata the *Sirens* or Mud-Eels are remarkable for the total absence of hind limbs and pelvic arches; fore-legs are weak. *Siren lacertina* inhabits the swamps of the Southern United States. Another remarkable form is *Proteus anguineus*, which inhabits the subterranean waters of Carniola and Carinthia; it is furnished with both pairs of limbs, the anterior have three toes, the posterior two only; the eyes are extremely weak. Some of the tailed Batrachia present a simplification of organisation, many of them being retrograde. The maxillo-jugal arch is incomplete; none of them are pentadactyle in both limbs; ten species out of six genera are without lungs; respiration is buccal or pharyngeal. Among these recently-discovered Reptilian troglodytes three are from America. *Spelerpes* lives in the valley of the Mississippi, the eyes of *Typhlotriton* during growth undergo an easily detected degeneration, *Typhlomolge* was discovered in 1896 in the underground waters of Texas. It is quite blind, possessed of functionless eyes. The animal is of special interest as furnishing the American
counterpart of the European *Proteus anguineus* from which it differs in being shorter-bodied and longer-limbed, so much so that the limbs appear by attenuation to have become converted into tactile organs, the discovery that the eye is destitute of lens and eye-muscles recalling the condition of the blind-locust of the New Zealand caves, in which, under the functional atrophy of the eye, the antennae have become elongated and a means of guidance by the sense of touch. These morphological instances of degeneracy teach us forcibly that in specialised forms of life facts are to be found enabling us to gauge Nature's operations and that the causes of change in organic nature can be ascertained by the study of progressive evolutions.

The group of Salamanders to which *Spelerpes* belongs includes the Newts, the Land Salamanders, and the *Amblystoma*, of which there are about 20 known species, closely allied to the *Axolott*, which is found in the United States and Mexico and now recognised to be the larva of *Amblystoma*; this genus is terrestrial and insectivorous; one species passes through a remarkable metamorphosis which only became known within the last few years. Naturalists had not been long familiar with certain *Perennibranchiata*, which inhabit the lakes of Mexico and the western part of North America, and usually known as *Axolott*. These not only resemble the larva of the ordinary Perennibranchiata (*Urodela*), in having three gill-tufts on each side of the neck, but in having fully developed reproductive organs, which give rise to new individuals by a true generative process. No doubt, therefore, was felt that the Axolotls were generally adult and a new genus (*Siredon*) was assigned to them. About 20 years ago it was discovered that the common *Axolott*, when kept in confinement, loses its gills, with other external and internal changes. It is now recognised to be the larva of *Amblystoma*, arrested in its development, before arriving at the adult state.

The Labyrinthodont *Stegocephali*, now extinct, depart from the Batrachian type, by an ossified basi-occipital, and comprise both *Salamandrid* and *Ophidian* forms. They were more or
less furnished with a protecting armour of bony plates. They date from the Carboniferous Age. The body is elongated, and furnished with a tail. The orbits have usually bony sclerotic scales. They ranged in Europe from the Carboniferous to the Permian Age, and were abundant, especially in the latter. Only one genus survived to the Jurassic Age. The foot-prints of *Cheirolepis* may possibly have belonged to one or more of this family. The dental system of the *Stegocephali* was more formidable than in any other Batrachian, and differs in the implantation of the teeth in distinct sockets and the development of the anterior into large tusks. The teeth of the Labyrinthodonts have a peculiar structure which suggested its name, on account of the singular cerebriform convolutions pervading every portion. The Batrachian characters of the Labyrinthodont foreshadow and lead up to those of the Crocodile, the highest developed of the Reptilia. Both have a double occipital-condyle, vertebrae biconcave, and branchial apertures, which are retained some time after birth. Many have an exo-skeleton, which appears to have been confined to the ventral part of the body. Reptiles present a remarkable contrast to Birds and Fish with regard to their inactivity and their power of sustaining a lengthened privation of food. The extinct Reptiles equally shared the characters of Fish with those of the highly-specialised Reptiles now living. Others on the other hand approximated to the Mammalian type. The inferior organisation of the reptile is shown more distinctly in the cranium than in any other part of the skeleton. The occipital-bone of the Crocodile is composed of four pieces, which remain distinct throughout life. With Mammalia they coalesce and form one single element. The lower-jaw of Reptiles shows a peculiarity to which there is no parallel in any other Order. Each side is divided into five and sometimes six distinct pieces, united by sutures, apparently to diminish the danger of fracture to which those with long, slender jaws, such as the extinct *Teleosauria*, are liable. Ichthyosauria, those great marine carnivorous Reptiles, were devoid of an exo-skeleton, the orbits furnished with an ossified sclerotic-ring; teeth implanted in a
groove, anchylosed; vertebrae deeply concave on both faces, like those of Fish; the limbs modified for swimming. They show Labyrinthodont characters, such as the short amphicoelian vertebrae, ribs two-headed, and the absence of the pectoral-girdle. Although aquatic they breathed through lungs. Their skeletons have been found containing embryos in good preservation, which leads to the belief that they were viviparous. Nearly all the Ichthyosaurian skeletons have a dislocation in the vertebrae of the tail, which led Sir Richard Owen to the conclusion that they were furnished with an expanded fin at the end of the tail and that the weight of this fin caused the fracture in question. Years passed on without affording any evidence one way or the other in relation to this theory. At length, in the year 1892, a skeleton of one of these reptiles was found in the Lias of Wurtemburg, in which the outline of the fleshy parts is completely preserved, which proves the existence of a caudal fin of still larger dimensions than Owen supposed to be the case. In addition to this it had a triangular fin in the middle of the back, behind which was a crest of horny excrescences similar to those of the crested newt. The tail-fin is vertical and nearly symmetrical; the backbone runs downward terminating in the lower lobe.

Squamata—Reptiles furnished with scales. With the exception of Crocodiles they have only one articulation of the skull with the vertebral column, which is received into the concave surface of the first vertebra of the neck (the atlas). Lizards are usually furnished with dermal horn scales, and sometimes with bony scutes, which are developed on the true skin beneath. Amphibians are generally naked, with some exceptions. The heart has two auricles and one ventricle, the occipital, two condyles with the exceptions noticed above, the ribs are never attached to the sternum. The three pelvic bones, the ilium, ischium, and pubis, are separate elements, but they invariably preserve their relative position one with the other, and are not anchylosed as with Birds and Mammals. The Secondary Age abounded with Reptiles which were quite distinct from any
of the present day. In the extinct Order of Sauropterygia, of which, perhaps, the *Plesiosaurus* is the best known, the body was without an exo-skeleton, while the neck was more or less elongated and the tail short. The teeth, which are implanted in distinct sockets, have curved crowns. The ischium resembles those of Amphibia, which have a long symphysis. The limbs of the earlier generalized forms are adapted for progression on land, while in the specialised types they are modified into paddles. The limbs are readily distinguished from those of the Ichthyopterygia by the relatively longer humerus and femur.

Plesiosauridæ—This group was adapted for a purely aquatic life, and probably frequented sea-coasts and estuaries. Being an air-breather it had to come to the surface occasionally for respiration. The genus *Plesiosaurus* is now restricted exclusively to the upper Trias (Rhaetic) and the Lias. *Cimoliosaurus*, from the Inferior Oolite to Cretaceous beds, is characterised by the elongation of the centra, with flat faces and enormously high neural spines.

Reptiles in the passage of time have suffered more severely than any other class of the vertebrata. Of the ten original Orders proposed by Baur, only four are now existing, *Chelonia*, *Rhynchocephalia*, *Squamata*, and *Crocodilia*. There is some doubt as to their earliest known appearance. *Protosauria* and many of the European *Anomodontia* have been undoubtedly found in the Permian. All the ten Orders, with the exception of the *Ornithosauria* and *Squamata*, occur in the Trias. The former appeared in the succeeding Lias, but no traces of *Squamata* have as yet been found in any bed earlier than the Upper Jurassic; these reached their fullest development in that and Cretaceous epochs.

Anomodontia—The most remarkable feature of this Order is its resemblance to the extinct *Labyrinthodont* Amphibians on the one hand, and to the living Monotreme mammals on the other. The vertebrae are amphicoelous, and in some cases have notochordal centra. The Order is supposed to be confined to the Permian and Trias. The sacrum differs from that of all
other Reptiles, and in this respect resembles that of the Mammalia. The ischium, ilium, and pubis are anchylosed into one os-innominatum. The sub-order Parasuchia closely approaches the Amphibia. The vertebral-centra retain the notochordal-canal. The sacral vertebrae are limited to two, of which only one supports the ilium. Pariasaurus is found in the Beaufort beds of the Karoo of South Africa. The teeth are close-set and fused with bone resembling those of the Iguanodon in their mode of implantation. The abrasion of the teeth indicates that they were herbivorous. The two very remarkable genera, Cynognathus and Gomphognathus, resemble the Mammalia in the character of their skulls, the former especially, with its small incisors and powerful canines, bearing striking likeness to carnivora.

The most ancient air-breathing Vertebrate is probably the Telerpeton from the Trias. Unlike Mammiferæ, Reptiles have never been modified by man in their distribution over the globe. They have all preserved their circumscribed limits, and have never been domesticated. The edible Frog is said to have been introduced into Madeira and Teneriffe. The distribution of Reptiles is aided by the favourable climate of the equatorial regions, and checked by the lowering of the temperature as the Poles are approached. In temperate regions they live more or less in a torpid state during the winter. At latitude 60° N. they disappear. In the north of Europe, and south of that latitude Lacerta vivipara, L. agilis, Anguis fragilis, Coluber natrix, Vipera berus, Rana temporaria, and Triton cristatus are the only survivors.

The skin of the Batrachians is periodically shed. That of the Bufonidæ splits along the median dorsal and ventral-lines, and shrinks in vertical folds down the sides, the limbs free themselves by alternate struggles of the fore- and hind-legs. The skin of a snake is turned inside out in the process of shedding. It is covered with small closely-set scales along the back and sides, the ventral-scales are set transversely.

I have already said that Birds are connected with Reptiles in many fundamental points. The late Professor Huxley groups
them together in one family (Sauropsida), contrasted on the one hand with Ichthyopsida (Amphibia and Fish), and on the other with the Mammalia. Sauropsida have an epidermic exo-skeleton and a single occipital-condyle. The lower-jaw is connected with the skull by a quadrate-bone; some of the blood-corpuscles are nucleated. All are oviparous or ovoviviparous, with the exception of the Chelonia. The shape of the body of a Reptile is very variable, elongated, and usually provided with four limbs, some have two only, and some are limbless and serpentine. The vertebrae are more or less ossified. Cheloniidae and some extinct Reptiles are destitute of teeth. The heart consists of two separate auricles (a right and a left), and an incompletely divided ventricle. The arrangement to counteract this incomplete division, by which the venous and arterial streams are kept separate more or less and prevented from being completely mixed, deserves notice with Crocodilia only. Of all Reptiles the partition between the right and left halves of the ventricle is complete in the Crocodilia only, so that the right-side deals wholly with venous blood and the left-side with arterial. All Reptiles respire through lungs, the skull is larger and the brain exhibits an advance on Fish and Amphibians. With regard to their distribution in time, the earliest Reptilian remains have been found towards the close of the Palæozoic Age in the Permian rocks, where we meet with representatives of Lacertilia which do not seem to differ much from Lizards which are now living.

Chelonia is the first Order of Reptiles. It comprises Tortoises and Turtles, distinguished by the following characters:—They have an endo-skeleton connected with an exo-skeleton (a bony case in which the body is enclosed). This is covered by horny-plates, and in some instances by a leathery-skin.

The dorsal portion of the case has three series of plates, of which five are median, and four on each side, their outer margins guarded by twenty-four or twenty-five plates. Those connate with the neural-spines, eight in number, are termed neural-plates. The plastron or ventral shield, unlike the carapace, is wholly exo-skeletal, as no bone of the endo-skeleton forms any
portion of it. It consists of nine pieces. Both the carapace and plastron are covered by horny plates. The skull of Chelonia does not much differ from the general reptilian type, except in the replacement of the teeth by a horny beak, which invests the margins of the jaws along their whole length. In the carnivorous species the beak is furnished with a sharp cutting edge, the two jaws acting the one against the other, like the blades of a pair of scissors or shears. On the other hand the working of the jaws of vegetable-feeders is adapted for bruising as well as for cutting. Sir Richard Owen considered the horny beak to be the representative of the two rows of teeth usual with other Reptiles.

The Order Chelonia is divided into five principal families, it includes the true Turtles characterised by their depressed, flattened carapace, so that when on shore and turned on their backs, they are unable to retain their natural position. The large interspaces between the ribs and sternum are never ossified, but remain cartilaginous, a provision to make the carapace lighter and adapted for the pelagic life of the Turtle. The head is large, and cannot be retracted within the shell. Their habits are essentially marine. The feet are long, compressed, fin-like, and unretractile. They are found hundreds of miles from the shore, to which they periodically resort to deposit their eggs, which they bury in the tropical sands. The most remarkable species is the Leathery Turtle, so called from the soft leather-like substance with which its shell is invested. It is carnivorous, and is found in the Atlantic, Pacific, and Indian Seas. The Loggerhead Turtle, which is also carnivorous, is not found in the Indian Ocean. It is amphibious and met with at great distances from land. The Hawks'-bill Turtle furnishes the valuable tortoiseshell of commerce. Two are recorded from the coast of this county. It derives its name from its elongated, compressed, and curved upper-jaw. The Turtle which is best known, is the Green Turtle, whose flesh affords a luxurious and dainty dish to the gourmand.

Trionychidae, the so-called Soft Tortoises or Mud-Turtles, are distinguished by the imperfect development of the carapace and
by the union of the ribs to each other at their base only. The exo-skeleton is covered by a leathery skin. They are carnivorous and inhabit fresh-water, and for the purpose of swimming the feet are webbed. The carapace as well as the plastron are destitute to a great extent of a bony support. The ribs, which are cartilaginous, do not reach to the marginal plates. The neck, tail, and ribs are furnished with scales. A good example of the family is the Soft-shelled Turtle *Trionyx ferox* of the Southern United States.

Chelydridæ—Body covered with epidermal plates, head and limbs not retractile, amphibious and carnivorous. This family is found only in North and part of South America. The *Alligator terrapine* (Chelydra) and the *Larger Snapper* (Macrolemmys) are the most worthy of notice. If all the genera provisionally assigned to this family are rightly referred, it will be the oldest representative of the Order Chelonia.

Emydidæ—The *Terrapines, Pond Tortoises, and River Tortoises.* These are amphibious, living in ponds, marshes, and slow streams. They can be easily distinguished from the Testudinidæ (*Land Tortoises*) as will be apparent in the diagnosis further on. Several genera appear to live as much on the land as in the water; their webbed-feet show aquatic habits. They frequent the neighbourhood of fresh-water in nearly all the temperate and tropical regions. The depressed carapace distinguishes it from that of the *Land-Tortoise,* which is very convex. The carapace of the *Emydidæ* is intermediate between that of the *Chelonidæ* and *Testudinidæ,* this is also the case with regard to the limbs.

Testudinidæ—*Land-Tortoises.* These have a solid convex carapace, into which the head, limbs, and tail can be completely retracted. Their habits are essentially terrestrial. A familiar species, *Testudo graeca,* inhabits the countries which border on the shores of the Mediterranean and is often imported into this country. Several species of gigantic Tortoises are found in the Galapagos Islands. Another gigantic species is found in Aldabra Island, lying to the N.E. of Madagascar, attaining the length
of four feet. Another equally large, but now extinct species, inhabited the Mascarene Islands.

There is no evidence of the presence of the Order *Chelonia* in the Palæozoic beds, its earliest appearance dates from the Upper Trias. The Keuper beds of Suabia have furnished the carapace of a fresh-water Pleurodira, *Proganochelys* and in the Rhaetian beds of the Alps and England, and a marine Turtle *Psephoderma*. *Chelonia* appear in great numbers both in genera and species in the Upper Jurassic beds. Lydekker divides the Order into two sub-orders, *Athecata* and *Testudinata*, the first group shows the nearest approximation to other Reptiles and is consequently the most generalized of the Order. The second group includes by far the greatest number of this sub-order. It is characterised by the median region of the carapace, consisting of bony-plates, which are firmly attached both to the neural-spines of the vertebrae and to the ribs from which they are primarily developed. The Upper Jurassic yields several remains of *Plesiochelys*, a Pleurodiran with a strongly ossified carapace differing from those now living, by the weak attachment of the plastron to the carapace. The Order *Chelydridae* is represented by *Platychelys*, in which the characters of *Cryptodira* and *Pleurodira* appear to be united. The occurrence of a marine Chelone (*Chitracephalus*) in the Wealden Beds of Bernissart, Belgium, is an instance of their power of adaptation to new conditions, such as a change from a marine to a fresh-water life. *Plesiochelys* already mentioned, appears to have survived from the Jurassic to the Wealden and Purbeck periods, and to have been supplanted by *Pleurosternum*, to which it is closely allied. *Tretosternum*, also from the English Purbeck and Wealden, and the Belgian Wealden, has no mesoplastron. The Upper Cretaceous Beds of North America are far richer in *Chelonia* than those of Europe. They did not make much progress during the older Eocene period, as compared with the Cretaceous. The Trionychidae are found in the Eocene Beds of the Isle of Sheppey, and in the Paris Basin. North America has furnished the most ancient land-Tortoise, *Testudo Nebrascensis*, which has been found in the
White River, Dakota (Miocene). The Emydidae, *Freshwater Tortoises* became very abundant and widely distributed. There are about 70 species now living in Southern Europe, Asia, and North and Central America. The oldest representative in Europe is *Emys bicarinata* from the London Clay of the Isle of Sheppey. During the succeeding Miocene Age the present types of Trionychidae, Testudinidae, and Chelonidae began to prevail, while the Pleurodira, Marsh Tortoises, *Chelonemydidae*, and Dermatemydidae which are so abundant in the Eocene Age disappeared. Land Tortoises were varied and abundant in the Upper Eocene Beds of the East Indies. The gigantic Land-Tortoise, *Colossochelys*, has been found in the Fresh-water Beds of the Sivilak Hills of India. It measures from fifteen to twenty feet in length. Nothing is known of the ancestry of the *Chelonia*. There is no evidence of the Order in the Palæozoic Age. From the absence of any sternal evidence, coupled with an analogous structure of the humerus, and the limbs of the *Stegocephali* from the Coal Measures, it has been suggested that the line can be traced through them, but on a closer examination it is considered that it cannot be thus solved.

Of the four Orders of existing Reptiles the Crocodiles are the most restricted in their distribution. There are 25 well-defined species, all confined to the tropical and sub-tropical regions of the world. These comprise three distinct families, Gavials, *Crocodiles* proper, and *Alligators*. The Gavials are exclusively Old-world forms; *Alligators*, New World. *Crocodilia* represent the most ancient group; their first appearance dates from the Trias; *Stagonolepis*, from the Elgin Sandstones of Scotland, and *Belodon* from Wurtemburg, the United States, and India; *Parasuchia* from India. The succeeding Jurassic Age yields a number of distinct genera and species, including *Teleosaurus*, *Steneosaurus*, *Dakosaurus*, and *Goniopholis*. All have been found in this county. Gavials are found associated with Crocodiles in the Upper Cretaceous beds of Europe. The *Alligator* delayed its appearance in Europe and America until the Eocene Age. The various *Crocodilian* types show a gradual structural
change, connecting the most ancient with those of the present day. With the exception of the later Jurassic Crocodilia their bodies are protected with a dermal armour of bony scutes, and in some cases with ventral armour of the same character. The Order Crocodilia is divided into two groups—Longirostres and Brevirostres—the former are aquatic and good swimmers; those which lived in the Mesozoic Age were marine or freshwater. The extinct Teleosaur resembled the living Gavial; their remains are widely distributed from the Lias to the Upper Jurassic. Their latest appearance was in the Upper Chalk of Provence, France; two Longirostres only survive. Crocodilian remains, Petrosuchus and Pholidosaurus, are found in the Purbeck beds of Langton, near Swanage, associated with terrestrial and freshwater animals. They are intermediate between Telesauridae and the Metriorhynchidae, or the more recent Rhynchosuchidae. The Brevirostres have been found in the Upper Jurassic Beds of Bavaria. The skull is short and broadly triangular, the dorsal-armour is not well developed, and there are no ventral scales; the limbs are long and slender. Unlike their predecessors they lived in freshwater when the Purbeck and Wealden beds were laid down. Mr. Beccles found some dwarf Crocodiles in the Purbeck beds, near Swanage; they are exceedingly small, but relative in size to some equally diminutive Mammals with which they were associated and on which they probably preyed. The size of these little Crocodiles does not exceed 18 inches. In all the Crocodilian family the faces of the anterior vertebrae are convex and not concave on both, as is the case with mammals. There is a valvular appliance at the proximal part of the snout by which the water is prevented from entering the glottis, and which acts as a complete partition wall, preventing suffocation when the head is under water, allowing a free passage of air through the outer-nostril when above the surface. This is a necessary provision, as the food of the Crocodile is not restricted to fish only, but consists also of large land-animals which have to be submerged for a considerable time in the process of drowning. The Amphibian
Crocodiles (vertebræ concave on both faces) have no such provision, as their food consisted of fish, or mammals which in the Mesozoic Age were insignificantly diminutive. No Dinosaur, Ichthyosaur, or Plesiosaur survived the Mesozoic Age. The climatal changes through which the land and sea at that period passed, caused their disappearance.

The Ichthyosaurus and Plesiosaurus differ from each other both in the size of the head and its connection with the vertebral column. The head of Ichthyosaurus is large and like the Fish and Whale joined to the trunk without an intermediate neck. The head of the Plesiosaurus on the contrary is with a few exceptions small and attached to a long neck. The eye of the Ichthyosaurus was extremely large, in some cases the orbit is not less than 16 inches. The eye-ball was protected by bony-scales (sclerotic) articulated together. The vertebrae are biconcave like fish. The cartilaginous union of the vertebrae gave them freedom of movement, and their neural-arches connect them with the highest of the cartilaginous Fishes. Like the Whale the cervical-vertebrae are narrow and thin. The caudal-fin was vertical, in which it differs from that of Fish, which is horizontal. The clavicles form an arch, and unite in the central-line, resembling the merry-thought of a bird. The sternum sends forth a lateral prolongation on the upper portion of each side, corresponding with the episternal pieces of the plastron of the Chelonia, and approaching the scapular-arch of the Ornithorhyncus. The fore-limbs are attached to the trunk by the scapular-arch. The posterior limbs of the Plesiosaurus are much smaller than the anterior; their attachment to the trunk is by a feeble pelvic-arch, they were used more as a rudder, than for progression.

The iliac-bones are not connected with the sacral vertebrae, but detached from the vertebral column, similar to the arch which supports the ventral-fin of Fishes. The skin was naked like that of the Whale. As its name implies the Plesiosaurus approached more nearly the Saurian type than the Ichthyosaurus. This is especially apparent in the conformation of the head, and the reception of the teeth into distinct sockets, as with the Crocodile
in distinction to the *Ichthyosaurus*, whose teeth are anchylosed to the jaws. The teeth of Reptiles like those of Fishes are successional; new teeth were constantly in progress of development, at the same time as when the old ones were in course of shedding. The rapid succession of tooth-germs which stamps the impress of decay even before the growth of the new ones is completed, is very apparent in Crocodiles, where three and sometimes more than four generations are sheathed one in the other, within the same socket. The Pterosauria, winged Saurians, now extinct; both limbs modified for aerial flight to each of which was attached a membraneous apparatus similar to that of a Bat. The structure of the skull shows its reptilian character closely approaching that of the *Crocodiles*. The neck, consisting of six vertebrae, is of unusual length in proportion to its body. The orbits, like the Ichthyosaurus, are large; but there is no trace of bony-sclerotic plates. The bones of the arm and fore-arm are of considerable length, in order to give the membraneous wing sufficient force to raise and move the body in the air. We learn from its fossilized remains that the weight of the body, in proportion to the area of its outspread wings, was greater in Pterosauria than in most Birds, and equal to Bats. The large head and strong neck appear to have been required for the extension and forward direction of the antibrachium (the ulna and radius) by which the centre of gravity was brought further in advance than either in Bird or Bat. The modification for converting the limb into a wing, is confined to the fifth metacarpal and the proximal phalange, which are nearly as thick as the ulna. The other phalanges are similarly elongated. It is of some interest to note the gradual modifications by which the fore-limbs of air-breathing Reptiles adapt them for aquatic, amphibious, arboreal, or aerial-life. Gigantic Pterosauria have been found in the Cretaceous Beds of Europe. Dimorphodon and Rhamphorhyncus in the lower Lias of Lyme Regis and Doratorhyncus in the Purbeck Beds of Swanage. Several species of *Pterosauria* have been discovered in the Middle Cretaceous Beds of Western Kansas, the first by Marsh in 1870, Pteranodon with an expansion
of wings from 18 to 25 feet, they were toothless as the name suggests. A splendid cast of *Pteranodon leviceps* is exhibited on the eastern wall of the Reptile Gallery of the Natural History Museum, Cromwell Road. The wings are eighteen feet across, the fore-limbs (wings) are enormous, and a striking comparison to the hind. Several of the vertebrae are ankylosed to act as a sacrum to the pectoral-arch (like the sacrum in the pelvic-arch) for the support of the powerful wings. The skull is over three feet long. So diminutive are its lower extremities that they seem to have depended on their flying powers for progression almost entirely. The abundance of their remains in the Kansas Beds shews that these great bird-billed Pterosaurs frequented the borders of the Cretaceous seas in search of food. There is little known of the ancestral history of the *Pterosauria*; their remains have been found as far back as the Trias, and they became extinct at the end of the Mesozoic Age.

Lepidosauria comprises the three Orders *Lacertilia*, *Pythonomorpha*, and *Ophidia*. Of these, *Lacertilia* includes all Reptiles commonly known as Lizards, also the Blindworm *Anguis fragilis*, which is not a Snake, as its serpentine form leads many to suppose. As a general rule the exo-skeleton of the Lizard consists of horny-scales. The vertebrae are procoelous (cupped in front) rarely on both faces. The teeth are not lodged in distinct sockets, but ankylosed with the jaw bone. In some extinct types however they are in distinct sockets. Their earliest authentic remains date only as far back as the Purbeck and Lower Cretaceous Age. The typical American genus, Iguana, is found in the Oligocene phosphorite beds of Central France, and at Hordwell, Hampshire.

Varanidæ, *The Monitor*, ranges over the greater part of Africa, the East Indies, and Australia; it measures six feet and more in length. The Common Monitor of the Nile *M. niloticus* is found in the vicinity of all the principal streams of tropical Africa. The huge *Varanus priscus* of the Pleistocene Beds of Australia exceeded twelve feet in length. Dr. Gunther estimates the number of known species of Lizards to be 700, the larger portion of
which is restricted to the warmer regions of the world, to the equator and tropics. Few are found further north than 40° N.L.; at 60° N.L. they practically disappear. The most widely distributed of them is *Lacerta vivipara*, which ranges nearly throughout the whole of Europe. The Blind-worm, *Anguis fragilis*, has a range nearly as wide.

Of the European Lizards, *Lacerta vivipara* and *L. agilis* only survive further north than Northern Germany. Everyone who has visited the South of Europe is familiar with the Wall-lizard, *L. muralis*, a most graceful little animal. On fine days it is seen climbing walls and the vases of the garden terraces, and round the stems of trees with the greatest agility. The grace of its movements is at all times a source of admiration. It can survive the climate of Belgium and Holland. The *Chameleon* will be the last of the Lizards I shall mention; from its arboreal habits it is called *Dendrosaura*. The tail is long and prehensile, which it makes use of to coil round the tree upon which it creeps and crawls. It has the power of changing its colour. Before the conquest of Algiers it was not known in the South of France; now it is very common, through importation. On the evidence of M. Leidy, *Chameleon* remains have been found in the Eocene Beds of Wyoming, North America.

Anguinidae.—Serpentine in form, limbs rudimentary, concealed beneath the skin. Of this Order none is so well known as the Slow-worm, *Anguis fragilis*, it has a very wide distribution, it is very abundant in England and is found almost everywhere in the Old Continent. It has no external appearance of limbs, the pelvic and scapular arches are present in a rudimentary condition; it is harmless and hibernates in the winter. It derives its name *fragilis*, because, when alarmed, it can stiffen its muscles so effectually that the tail readily breaks off, as if it was brittle.

Ophidia—This Order includes Serpents and Snakes, distinguished by their cylindrical bodies, covered with horny scales; dorsal-vertebræ, concave in front (procælous); no sternum, no pectoral or pelvic arches; limbless. The most characteristic
peculiarities of Ophidia, as compared to Lacertilia, is the absence of any solid union between the rami of the mandibles, the two being connected by an elastic ligament, which allows the animal to dilate the mouth and swallow a much larger prey than it could otherwise admit into it. No Snake has an ear opening. The absence of a sternum gives a remarkable facility of movement to the ribs, which are terminated by a tapering cartilage, attached to the abdomen by a muscular connection; by this mechanism the animal is able to glide rapidly along the ground upon the ends of the ribs, aided by the extreme mobility of the vertebral column, and the raising and depression of the abdominal scutes. The teeth, which are conical and recurved and anchylosed to the jaw, are used rather for killing and holding their prey than for mastication. The mandible has the power of independent motion by the alternate action of intrusion and protrusion, by which the prey is drawn into the gullet. It is probable that all Snakes with grooved teeth will prove to be poisonous to a greater or less degree, as the grooves must have some function; these teeth are not truly perforated, but the edges are folded over so as to form a duct to carry the poisonous secretion; when the edges meet and coalesce, the fang may be said to be perforated, and when they nearly approach each other, a channelled duct results. The Order comprises Colubridae, Pythonidae, Boidae, Erycidae, Elapidae (venomous, includes Cobras), Crotalidae (includes Rattlesnakes), and Viperidae. Colubridae form the bulk of the Order, and are represented in all the temperate and tropical regions of the world, with the exception of Australia. Our knowledge of fossil Snakes is very limited; their imperfect preservation makes it difficult to systematically determine them. With the exception of one doubtful species (Cimoliophis from the Lower Chalk, Isle D'Aix, Charante, France) all are Tertiary or Post-tertiary. The next earliest genus is Helagrus from the Lower Eocene of North America; it is the oldest known Ophidian fossil of the New World. The African types as known at present predominate, belonging mostly to the Aglyphodontia, which are harmless.
Pythonidae—The Pythons are at the present day restricted to Africa, Asia, and Australia; *Python reticulatus* reaches a length of 30 feet. It is a common species in India. *P. molurus*, which is smaller, is found in the Pleistocene of Madras, and the Pliocene of the Punjab. Vertebrae of *Palæopython* have been found in the Upper Eocene of Switzerland, of England, and France. The vertebrae of fossil Snakes occur in the Lower Oligocene fresh-water beds of Hampshire, and in the equivalent Phosphorites of Central France. Twenty extremely fine vertebrae, ribs, and maxillæ of Heteropython (*Python Eubæaciacus*) have been found in the Miocene of Koumi, in Eubæa.

Boidæ—These differ from the Pythonidae by the absence of pre-maxillary teeth. *Boavus* and *Lithophis* are found in the Eocene of Wyoming, North America; *Botrophis Gaudryi* in the Miocene of Sansans, Gers. Erycidae allied to Boidæ, tail shorter and non-prehensile, *Aphelophis talpivorus* from the Miocene of Colorado, *Ogmophis Oregonensis* from the Miocene of Colorado and Oregon, *Calamagrus murivorus* and *Scaptophis miocenicus* from the Miocene of Sansans, Gers, belong to this family.

* Ptyas, formerly allocated to the Colubridæ, is represented by *P. mucosus* in the Pleistocene of Madras. Skeletons of *Tropidonotus atavus* have been found in the paper lignites of Rott, near Bonn. A species of *Periops*, closely allied to one now living in Egypt, occurs in the Pleistocene of Coudes, Puy de Dôme, France, also *Elaphis fossilis* which does not essentially differ from *Coluber Æsculapii*, the Serpent represented by the ancients as entwined round the staff of Æsculapius. *Pilemophis*, closely allied to the living *Tropidonotus*, occurs in the Middle Miocene of France, and in the fresh-water Miocene of Oeningen which contains besides the remains of Colubridæ, those of Viperidæ (*Vipera Laurenti*). A Crotalide (*Laophis crotaloides*) occurs in the Tertiary of Salonica and from contemporary beds of Oregon and Colorado we have several Erycidae (*Aphelophis, Ogmophis*). This sub-family no longer exists in the Old World.

Elapidæ—Naja. Poison-fangs with a distinct groove anteriorly, *N. tripudians*. This is the best known and most
deadly Snake of India. It is distributed over the whole Continent, and Ceylon, China, and the Malay Peninsula. In the Himalayas it reaches an altitude of 8,000 feet, and extends as far as the Caspian Sea. The largest specimen in the British Museum measures 8 feet 4 inches. *Naja bungarus* is larger, more dangerous, and fiercer than the Cobra, and fortunately is less common. Its distribution is nearly similar, it feeds principally on Snakes. The African *Cobra* or *Haje* is equally poisonous as its Asiatic relative, and, like it, is in the habit of ascending trees in search of prey. It is a good swimmer, and, like the *Cobra*, takes to the water willingly. Vertebrae of the genus have been found in the Miocene of Steinham, Germany (*N. Suevica*). Vertebrae of *N. Laurenti*, in the bone-breccias of the Pleistocene of Coudes (Puy de Dôme), France.

Hydrophidæ—These Snakes have small poisonous fangs, the tail compressed and fin-like, adapted for swimming, nostrils placed at the top of the head. They are viviparous and marine; they inhabit the Indian Ocean, the tropical parts of the Pacific, and the Australian Seas.

Viperidæ—This family is divided into two very distinct sub-families, the Vipers proper (*Viperina*), and the Pit-Vipers (*Crotalinae*); the Rattle-Snakes belong to this section. *Viperinae* are restricted to the Old World and are most abundant in Africa, the *Crotalinae* to the New World, ranging from the United States to Patagonia. Several species of the Viper are met with in Africa; the Puff Adder, *Clotho arietans*, and the Horned Viper, *Cerastes vipera*. *Viper Russellii* is a common species and very deadly. The extremity of the tail of the Rattle-Snake *Crotalus* is furnished with a series of horny plates, loosely articulated together, and when vibrated rapidly makes a rattling warning sound. *C. horridus* is restricted to North America and *C. durissus* to South America and to Guiana.

Colubridæ is represented in all the tropical and temperate regions of the world, with the exception of Australia. It is by far the largest Ophidian family and includes more than 200 species. It may be divided into three sections. 1. Aglypha, all
the teeth solid; harmless. 2. Opisthoglypha, one or more of the posterior maxillary teeth grooved, probably not altogether innocuous. 3. Proteroglypha, anterior maxillary teeth grooved; poisonous. The only British Snakes, *Tropidonotus natrix* (the Ringed Snake) and *Coronella levis* (The Smooth Snake) and the Common Black Snake, of North America, *Coryophodon constrictor*, belong to the section Aglypha. The only British fossil Snakes which have been hitherto found are *Palaeophis toliapicus* and *P. Typhaeus* from the Eocene of Sheppy and Bracklesham and *Paleryx (Palaeopython) depressus* and *P. rhombifer* from the Oligocene, Hordwell, Hants.
A Critical and Material Examination of the Hill-Fortress called Eggardun.

By H. COLLEY MARCH and H. S. SOLLY.

EGGARDUN is the name of a well-known hill-fortress in Dorset. Its altitude is 800 feet above sea level. It occupies the basal, or widest, part of a promontory of greensand rock capped with chalk, which can be seen, on the upper slopes, underlying the green turf. Within its enclosure are two barrows and many rounded hollows, commonly called "pit dwellings."

The following extract from Hutchins' account of this place is of interest, as he wrote before 1774. The irregularity of the walls that he noticed on the south side is due to slip:—

"Dimension, E.-W., 1380 feet [or 460 yards], and in breadth 720 feet [or 240 yards]. Two ditches and two ramparts on N. and E. about 30 feet asunder. On the W. three ramparts and two ditches, very regular. But on South, irregular.

On the N. side there goes a road at the bottom of one of the ditches, which leads from Powerstock to Maiden Newton, and
the ramparts at the two ends seem to have been opened for the sake of the road. The hill extends beyond W. end of the camp about \( \frac{1}{4} \) mile, and then terminates in so very sharp and steep a point that it is with great difficulty a man can get up. About half a mile from the camp, near Eggardon House, are several springs of water which are never dry. It is eleven miles from Dorchester. There is a considerable firm Roman road which goes from that town to the S.E. entrance of the camp in a direct line."—*History of Dorset*, 1st Ed. 1774. I. 607.

The chief matters in Warne's account, published in 1872, are as follows:—

"A strong advanced vallum and fosse are carried across the ridge on the West side to guard the opening at the N.W. extremity. That portion of the promontory not held by the camp is intersected about midway by a very ancient and time-worn fosse, while near at hand is a pit circle.

Numerous are the indications impressed on Eggardun itself, showing that it was extensively populated before it was entrenched; the turf being thickly strewn with shallow pits, the sites of ancient dwellings. The track trodden by the denizens of this ancient settlement runs from the open down on the East, along the interior *beneath the ramparts*, and traverses this area to the verge of the opposite [west] embankments, *which are thrown over it*. This track is easily traced down the slope of Eggardun to a field close to Powerstock Castle. Some 200 yards [283 yards] to the East of the fortress is a Disc Barrow, the largest in Dorset. On this open down are clearly marked evidences that this hill was one large and extensive settlement before it was entrenched."—*Ancient Dorset*, p. 57.

To some extent the account of these authorities, Hutchins and Warne, must be criticised and controverted. Speaking roughly, the shape of Eggardun Camp is a rounded oblong, whose shorter sides look respectively east and west. It is protected by two deep ditches with corresponding walls. Its
main approach pierces the outer wall at its south-east corner, on the edge of the steep southern slope.

It seems to have been an element in the scheme of defence that the approach should pierce the second, or inner, wall, not at its corner, but about 250 feet farther to the north; and that the road between the two entrances should pursue a straight course. A straight course between these points is oblique to the lines of entrenchment, and involves a separation of the two eastern ditches by an interval of 100 feet. But they are tied together at right angles by a third ditch and wall immediately to the north of the oblique approach which is thus better secured.

This ancient road, coming from the south is, at a distance of three furlongs from the camp, intersected by the Roman road on its way from Dorchester to Bridport, so that the two have an actual connection by which Hutchins was misled into the belief that the fortress was Roman. Nevertheless, it appears that the Roman road passes as closely to Eggardun as good engineering permitted.

The still more ancient road that Warne speaks of as running along the north slope of the hill, is considerably below the two lines of entrenchment on that side. It takes its course on what was originally a natural terrace, which became greatly worn by long-continued traffic, so as to simulate a third ditch of defence. It is crossed by traverses continued northwards from the outer wall at each end of the fortress, showing that the road is the older work. It was the only track when Hutchins wrote; but a modern one has been made at the extreme edge of the terrace. This ridge, at its easterly end, has been exaggerated by ploughing and by cutting-out to make a hedge-bank. Hollow-ways, worn by use through many centuries, may often be seen near hill-fortresses. At Cerne such a track, which leads from the valley to the summit of the hill, is furrowed in places to a depth of 5½ feet.

The north-west angle of the camp is pierced by a less important approach which, following the same elemental rule,
enters the second or inner wall 250 feet farther to the south, involving a separation of the ditches to the extent of more than 100 feet. That no additional interior work was thrown up here, as in the other case, may have been due to the fact that this westerly approach had to climb the steeps of the spur, which, as Hutchins says, "with great difficulty a man can get up;" whereas that from the east ran over the open down.

A remarkable feature of the fortification remains to be considered. A hundred and fifty feet beyond the two western ditches and their walls, is a trench which traverses the promontory from side to side. It is Warne's "advanced fosse." It has a wall on each margin, and that which is nearer the camp is much higher and evidently less ancient than the other. This entrenchment is so far away from the main defences of the camp that it could have added little to their strength, and against an agile foe might have proved even a source of danger.

On the other hand it is common to find the area of a spur fortified on its plateau side by a traversing trench and wall. The promontory of Cerne Hill may be cited as an example. In many particulars it much resembles the promontory of Eggardun. It emerges from an eastern plain and projects boldly into a western valley. It is occupied by pit-dwellings and barrows. It is traversed from side to side by two walled trenches that serve to isolate the spur from the heights that spread behind. These two works on Cerne Hill are not of the same age. The older is the nearer to the point of the spur from which it is only 700 feet distant; and it isolates a present area of about six acres. At a later time, for a larger population, the other cross-trench and wall were constructed, eleven hundred feet farther back, which isolates a much larger area. The reason why no fortification can now be traced round the edges of the spur is sufficiently obvious. Promontories that are narrow and steep are being perpetually diminished by sub-aerial denudation, by wash and slip. The edges of the ancient slopes and all that was on them are vanished. The transverse
works remain, but are shrunk in proportion to their antiquity, and their present terminations, on either side, are greatly attenuated.*

Returning to Eggardun, it has now become clear that the transverse ditch, 150 ft. beyond the camp, was originally cut, and the earth thrown up along its western margin, to isolate the spur. Long afterwards came the camp-builders, who deepened the ditch and threw up earth along its eastern margin for the purpose of strengthening, though doubtfully, their own fortification.

The very ancient and time-worn fosse that Warne speaks of as intersecting, about midway, that portion of the promontory not held by the camp, so far from being midway, is near to the end of the spur. It is indeed the westerly counterpart of the trench just described, and the distance between the two is 440 yards. The pit-circle that Warne mentions as close at hand may have been sunk in later times to protect the warden of beacon fires.†

* My colleague has reminded me of the geological dictum that chalk downs, covered with turf, are denuded with "colossal slowness." At the foot of such hills gush forth swift and copious streams of water highly charged with lime. As the rain sinks to the springs through the chalk, the latter is perennially dissolved and carried away. The great downs are undergoing an interstitial shrinkage, invisible but perpetual.

It may be noted, for what it is worth, that the last surveyors of Dorset assign a much less altitude to the hills than was obtained by the first survey, which perhaps was inaccurate.

In 1886, on the edge of a declivity near Portesham, was discovered the outer end of a stone cist which penetrated the slope. This grave, which contained human bones, was about six feet long. In 1896 not a trace of the interment was left. It is reasonable to assume that when the sepulchre was constructed the earth about it was level, and was not then the steep edge of a combe; but the fact remains that within a period of ten years several feet of a grass-covered slope had disappeared without revealing to the eye any sign of denudation.

H. C. M.

† The outer edge of the raised rim is, on the sea-ward side, too sharp to be ancient.
Warne's further statement that Eggardun was extensively populated before it was entrenched, cannot be sustained. It is true that there are two barrows within the enclosure and several on the plateau outside. The disc barrow, which is about 283 yards from the fortress, has the unusually large diameter of 45 yards. Interrupting the southern portion of its rim is a second barrow, obviously of earlier date than the first, and without encirclement. It is probable that some of these barrows are older than the fortress, especially the two that it includes. But the distribution of the pit-dwellings is decisive against Warne's view.

There are three areas to be considered: first, the open down to the east; second, the fortress itself which encloses 20 acres; and third, the extension of the spur beyond it to the west. In the first area, 350 yards eastward from the camp, is a large circular hollow that was doubtless a chalk pit. It slopes south, and is about 40 feet in diameter and 6 feet in depth. In the third area, on the tip of the spur, is the small hollow that may have been used by the warden of beacon fires. But in neither of these two areas can a single pit-dwelling be found.

Within the camp, on the contrary, the pit-dwellings are no fewer than 123. They occur in no distinct order, but, generally speaking, they are nearer the circumference of the enclosure than its centre, and are much more numerous in its southern than in its northern portion. No pit is cut through by the walls of the camp. Indeed there is no pit near to and none between them. In some instances two pits are adjacent, but they do not communicate, and their proximity does not seem to be part of any plan. There is at least one example of a triple pit.*

* There are only two circular hollows within the modern "octagon," but others may have been obliterated by the plough when trees were planted there.
When all these facts are considered, the conclusion is irresistible that the pit-dwellings were made after the fortress was constructed.

Five of these pits have been explored; a solitary one, on May 1st and 2nd, 1900; a pair that lay towards the east of the camp, on August 27th; and a second pair towards the west of the camp, on September 13th.

The method adopted was to cut a trench two feet wide through the centre of a pit, from rim to rim, right down to the undisturbed earth. It was anticipated that this would be chalk, but it was found that, on the top of the hill, this formation was covered, to an estimated depth of at least 10 feet, by a yellow gravel, or that débris of chalk-denudation which consists of "clay-with-flints." During the excavation many erratics were met with, notably some "plateau flints," and a large ragged piece of greensand rock. The pits are not, as are some on Hod Hill and elsewhere, surrounded by a drainage-ditch; but the dug-out earth seems to have been originally heaped up round their edge, though little trace of it remains.

On the rim of the first pit selected for exploration, this raised margin was well marked, and was exposed by the section. In this previously disturbed earth and along the pit's rim, just beneath the turf, small flint flakes were found, many of which had bulbs of percussion. Below this was a coarse flint gravel, the remains, no doubt, of that which was originally excavated, since it had lost its proper yellow colour and contained no worked flints.

The middle of the hollow was occupied by brown mould which was slightly argillaceous, and was traversed by minute rootlets. It evidently consisted of that silting from the surface and of that decay of vegetation that have been going on since the dwelling was abandoned.

The floor of the pit was a layer of flints, which itself rested on a loose rubble of larger and coarser flints so incoherent that many of them fell out into the trench. The ancient interspaces
of the structure remained almost empty; no subsequent in-wash had filled them up.

The thickness of this open-work was 2 feet 2 inches, and its purpose was obvious. Had the pit been excavated in a bed of chalk, any rain that got in through the roof of rushes or boughs, would have sunk away. But, dug as it was in the stiff clay that capped the hill, water would quickly have "ponded." The loose aggregate of coarse flint was a perfect provision for drainage, by which the carpet of heather or bracken was kept dry.

The dimensions of the pit were as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>ft.</th>
<th>in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth of the turf-floor beneath the general turf-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>surface of the camp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness of silt</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Depth of dwelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness of drainage rubble</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total depth of pit</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

The rim of the pit had been probably raised at least two feet by the excavated earth...

<table>
<thead>
<tr>
<th>Description</th>
<th>ft.</th>
<th>in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poles or branches, placed on this, tentwise, so</td>
<td></td>
<td></td>
</tr>
<tr>
<td>as to meet in the centre, would give an elevation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of, say, four feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depth of dwelling as above</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Total height of dwelling</td>
<td>10</td>
<td>6</td>
</tr>
</tbody>
</table>
The Hill-Fortress Called Eggardun.

1/8 inch = 1 foot.

I. Diagram of the Mean of Five Pit-Dwellings.

II. Restoration of the Mean.

The long vertical lines represent the undisturbed yellow clay-with-flints, and the long horizontal lines the earth thrown out by the pit-maker. The small crosses show the drainage-layer of large coarse flints, and the super-jacent short transverse lines the inwashed silt. In the restoration the short vertical lines indicate the raised rim on which rest the roof-poles. The man inside has a stature of 5½ feet.

The diameter of the pit at its rim was 14 feet and a half, and of the flint floor about seven feet. The drainage rubble rested in a bowl-shaped hollow.
The Hill-Fortress Called Eggardun.

On cutting carefully through the brown mould, there were found, at measured depths:

Fragment of typical neolithic pottery, hand-made, imperfectly baked, with gritty matrix . . . .
A squared flint-core, together with many flakes . . . .
A flint knife, many bits of charcoal, two more pieces of pottery, some pebbles, and a magic stone or totem—a large oval flint pebble with two natural hollows in it that look like eye-sockets . . . .

No baked clay was found in any of the pits, nor calcined stones. The pieces of charcoal were very small, as of burnt twigs. Hence no fire had ever been kindled there. The charcoal may have been blown in from the outside where cooking may have been done; or it may represent a last conflagration, the final capture of the fortress.

The dimensions of the other four pits do not much differ. They are all given in the following mensural table:

<table>
<thead>
<tr>
<th>Serial No. of Pits Explored</th>
<th>Depth Of Turf Hollow. ft. in.</th>
<th>Depth Of Silt. ft. in.</th>
<th>Depth Of Drainage Rubble. ft. in.</th>
<th>Total Depth Of Pit. ft. in.</th>
<th>Total Depth Of Rim. ft. in.</th>
<th>Total Depth Of Flint Floor. ft. in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>II</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>III</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>IV</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>V</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Mean Values</td>
<td>About 2</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>14</td>
<td>6</td>
</tr>
</tbody>
</table>
THE HILL-FORTRESS CALLED EGGARDUN.

The disproportion between the width of the rim and that of the flint floor is due chiefly to slip; but partly, no doubt, to an original dishing of the sides of the pit, which were lined with flint.

In pits II. and III. the drainage rubble was rather more filled in with silt than in the others, and no charcoal and no implements were found. But a number of percussed flakes were met with, and in pit II. a thin flat piece of pottery. This, like the rest, was hand-made, with a matrix full of rounded particles of quartz, interspersed with black grains, suggesting a green-sand derivation. Under the microscope the matrix is seen to effervescence a little with acid, but no shell-fragments can be detected. Minute pieces of charcoal are adherent to both surfaces of this bit of pottery, relics of the baking, which may have been done in the open air since, together with a thicker piece, it is red throughout. On the other hand, two smaller fragments have dark interiors.

No pottery was found in pits IV. and V., and no charcoal in the former. But in the latter many portions of burnt boughs came to light, and smaller pieces were met with throughout the lower layer of silt.

On the pit-margins, under the turf, numerous neolithic flakes occurred, and implements in the pits themselves. Thus, in pit V. were found a large core, some smaller cores, a few scrapers, many percussed flakes, of which some were minute, and pieces of slab-chert. One slab has well-rubbed edges, and was, perhaps, used in cleaning skins. In pit IV. were found a flat beach pebble \( \frac{2}{3} \) by 2 inches, a white quartz pebble with red veins, several percussed flakes, some used scrapers, and a flint saw. All these stones, together with a fragment of bone, were much more deeply stained with black lichenous spots than was the case with stones from the first three pits, as if they had not been so quickly covered by silt.

No trace of any metal was detected. Probably to a pre-metallic, certainly to a pre-Roman period, this entrenchment belonged. It was the defence of an indigenous race, perhaps of
the Durotriges, against hostile raids. The sheep or cattle, which were the people’s wealth, together with women and children, were gathered, on occasion, into this great fortress, where they remained in security until the driving storm had passed.

All the finds, as well as a sample of silt, are now shown, and, subject to the approval of the council, are presented to the Dorset County Museum.

A magic pebble that Bateman found in a barrow is also on the table.

It is due to the Society to add a note on totems or magic stones, and I do so apart from my colleague, though with his full sympathy.

H. C. M.

APPENDIX.

No conviction is more widely spread among the existing Irish peasantry than a belief in pebbles as charms against diseases of man and beast. The use of crystal [quartz] pebbles for similar purposes still continues in the South of Ireland.*

There is a blue stone on an island near Skye, which when “washed all round with water” causes a favourable wind. This stone is held in such regard that decisive oaths are sworn on it. It is likewise applied to the sides of persons with “stitches,” and it cures them. Such ailments are often caused by flatulence.

In the Isle of Arran is, or was, a green stone, about the size of a goose egg, called Baul Muluy, or Moling’s Ball, which cures diseases, sanctions oaths, and gives victory in battle. The custody of it was in the family of MacIntosh, or Clann Chattan, of the parish of Kilbride.

Adamnan speaks of a white pebble which was used as a charm by the Picts [Celts]. This had been taken, by St. Columba, from the River Nesa [Ness, Ireland]. “Venit ad Nesam, de quo fluvio lapidem attollens candidum,” &c. With this he

wrought cures through the Lord: “Dominus multas aegrotorum perficiet sanitates.”

St. Hecla appeared to Alypius, who was perilously sick, and cured him by the touch of a round stone.

The Red Stone of St. Columba [Columkille] was brought forth into the world by his mother at the same moment as his own birth. It was a smooth stone of the size of a quince: “Lapillum teretem, mali aurei magnitudine,” and was preserved as late as A.D. 1609 in Glencolumkille. It had power over demons.

The sign of the cross was effectual to endow a pebble with healing virtues: “cum lapide a se benedicto.”*

Maledictive stones were kept on the altar of a church, and were used for cursing. In exsecration the left hand was placed on the stone, which, as the imprecation was pronounced, was thrice rotated in the direction opposite to the sun’s course, since the solar path itself was auspicious.

These stones were sometimes meteoric, sometimes pebbles of unusual aspect, sometimes boulders in which had been worn by nature, or by human hands, hollows; often three, to denote the Trinity.†

It is obvious that these practices and beliefs belong to the Pagan-Christian overlap. In an account of the Burial of King Cormac it is well said of the Druids that

“They loosed their curse against the king,
They cursed him in his flesh and bones,
And daily, in their mystic ring,
They turned the maledictive stones.”‡

But, on going behind all this, one comes to the use of totems. The totem was a sacred possession, a credential of alliance with

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* Reeves, Adamnan’s Life of St. Columba, pp. 290, 330, 147, 318.
† Reeves, Op. cit., p. 461; Wakeman, Inismurray, p. 59; Margaret Stokes, Irish Christian Inscriptions II., 156.
‡ Ferguson, Lays of the Western Gael, p. 54.
supernatural agencies. The symbol of divine aid might be a bird’s feather, a tuft of hair from an animal, a black stone, or a translucent pebble.*

Speaking of Ophelia’s “shards, flints, and pebbles,” Thomas Bateman, the opener of 400 barrows, says, “Fragmentary pottery, flints, and pebbles have been all but universally present in the tumuli.

“The presence of chippings and instruments of flint, and pebbles foreign to the soil, occurred in such situations as clearly indicate that they are not fortuitous accompaniments to the barrow, but were placed there as a kind of offering to the shades of the deceased.

“On opening a barrow on the Kenslow Farm . . . . on the breast of the entire skeleton lay a circular fibula of bronze. There was also a large quartz pebble and a fragment of pottery of red clay.

“Between the bodies was placed an axe of basalt in a decomposed state and broken in the middle. In the same situation was found a porphyry-slate pebble, highly polished, of very singular shape, \(4\frac{1}{2}\) inches in length, the sides triangular and tapering towards the ends.”†

In a barrow at Ringham Lowe, in 1821, Bateman found fragments of two dark-coloured vases, a spear-head and some flakes of flint, and a pebble [now submitted for inspection, H. C. M.].

Mr. Rooke, who opened a barrow on Fin Cop, Derbyshire, in 1795, found a skeleton face downwards. “On the top of the skull was a piece of black Derbyshire marble dressed into an oblong, 2 feet by nine inches broad and 6 inches thick. In the kistvaen was a circular stone, polished, and of a yellowish colour. On one of the urns was a smooth stone foreign to the soil. This kind of stones may have been preserved as valuable amulets.”

* Alice C. Fletcher, Totemism.
† Bateman, Vestiges of the Antiquities of Derbyshire, pp. 14, 29, 50.
Similar deposits were found on Stanton Moor.*

Canon Greenwell found in Wiltshire, on the Warren Farm, in a barrow, two "incense cups," by one of which were beads of glass, lignite and amber, bronze implements, a cast of a cardium, and a small polished black pebble. "These two last, from the appearance of their surfaces, were not accidentally present, but seem to have been treasured as objects of value."†

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* Archæologia, XII., 328.
† Proc., Soc. Antiq., VIII., 179.
Colour Variation in British Adders.

By GERALD LEIGHTON, M.D., F.S.Sc.

(Read April 29th, 1901.)

In choosing a topic for my remarks to you to-day, I have, naturally, taken into consideration the peculiar position of your Society, as far as British serpents are concerned. A short time ago I was invited to address a society in the North of England, and, in giving me the invitation, the Secretary said he hoped that I would bear in mind that the subject of reptiles was a new one at their meetings, and that they had never had any paper on that subject during the whole history of the society. I find myself, as I say, in a very different position to-day, as you in Dorset are very familiar with this branch of our fauna, and do not require to be told by anyone that we have only one venomous reptile in Britain—a statement which was a somewhat startling piece of news to the society I spoke of.

Indeed, it must be one of your proudest thoughts, as Field Naturalists, that the history of the due recognition of the smooth snake as a true British species is for ever connected with the Natural History Society of Dorsetshire. The most valuable
COLOUR VARIATION IN BRITISH ADDERS.

paper read to this society in the year 1886 by your distinguished member, the Rev. O. P. Cambridge, placed on record the first undoubted capture of this species in 1853 by Mr. Frederick Bond and Mr. Cambridge, and in 1859 by the Hon. A. Russell, and this paper still remains one of the best accounts of the smooth snake we have. In my forthcoming book on "British Serpents," I have quoted it almost in extenso, and am glad to have the opportunity here in the town in which it was read of acknowledging my indebtedness to Mr. Cambridge for that, and also for examining some specimens of this snake he was good enough to send me. So, gentlemen, you all being familiar with the snake group, I have chosen one point—colour variation—to speak of to-day.

(a) The Colours Observed.

It may be truly said that adders vary in colour from black to white, since specimens of both these types are met with, though both are rare. But the colours one generally finds in our vipers are the following:

Brown    Yellow or gold    Blue
Olive green Grey Red

Shades of these combined.

Those are the colours seen, but they affect different parts of the body of the reptile.

The body ground colour—not the belly—may be yellow, brown, or olive, or of any intermediate shade. The zigzag dorsal line and the V-shaped marking at the back of the head may be very black on various shades of brown. The belly may be dark blue, black, mottled greyish blue, with the outer edges of the belly scales black, or even white. The throat may be yellowish, or have the scales black-edged or all black. Finally, in the variety of adder known as the Small Red Viper, the whole reptile is of a mahogany red colour, the zigzag line being only differentiated by being of a darker shade than the rest of the body. These colours, then, are briefly those most commonly encountered. The problem to which I wish to draw your
attention, and, if possible, to throw some light upon, is, what are the factors concerned in their variation? The answer to this question must be sought for by applying the same general principles as one would to any other class of animals, and those in the case of colour variation would be as follows:—(a) Heredity, (b) climate, (c) locality, (d) sex, (e) age, and in the special case of reptiles (f) sloughing, must be noted.

Let us very briefly consider these influences seriatim.

(a) Heredity.

Little can be said upon this point, as all observations of this factor must of necessity be made upon adders in captivity, which at once introduces an artificial factor, the results of which might be misleading. But what has been observed of this factor tends to show that it has little influence. Thus, a black female is known to have produced seventeen young, only one of which was black, and that one a male.

(b) Climate.

Now it is probably the case that the animals which are dwellers of tropical climes show more brilliant colouring than those of cooler lands, but this is a question of protective colouration, and not at all concerned with the special point we are considering. I do not think it could be held that the slight variation of climate to be found in a country the size of ours could have much influence on colour variation, though it might have on distribution. For instance, the climate of Dorset, Somerset, and Hampshire, though, no doubt, showing some slight differences, could hardly have any appreciable effect in this direction, and very variously coloured adders will be found within that area. So that we may dismiss climate in connection with England.

(c) Locality.

By locality is meant the precise nature of the district in which any particular adders are found. Now, here, at first sight, one is apt to think, is a powerful influence. It seems so natural to
suppose that adders living on bare mountain sides, or sandy heaths, will be of a light colour, showing the colours of brown, or reddish shades, or golden, and, indeed, I ought to say at once that the theory that colour variation in adders is mainly due to the locality is the one apparently accepted. Personally, I do not believe it to be the true explanation, and I shall try and give good reasons for my disbelief in it. The locality theory is suggested by the analogy of colour variation in fish. Thus, a correspondent writes to me, saying: "The different colours of adders are due, I think, to the precise spot they frequent, just as trout vary within a few yards in the same stream, one taken out of a deep hole being of a darker colour than one from a shallow rapid." Very plausible, but, in the case of adders, I am afraid not true. I say nothing about fish, as I know nothing about their colour variation. But the crucial test of this theory is this: if locality determines the colour of adders, then all adders taken in the same locality ought to show the same colouring. Anyone who has made even a small collection of his local adders knows that this is far from being the case; indeed, probably finds that no two are exactly alike, while some are strikingly different from others taken in the same spot. If this be true, and it cannot be denied, then it follows that locality fails to provide the explanation. Had I my own local collection here, I could show you every variety of colour variations in adders in specimens all taken from one hill, and I have not the slightest hesitation in saying that it is utterly impossible to tell from the colour of an adder the nature of the ground from whence the specimen came. It might be that a number of adders from one place might show some similarity in colouring, but they would also show great variation, and my argument is that, while the locality might account for the resemblance, it cannot possibly account for the differences. I will go further and say that, if any great resemblance is noticed, it will be found to be accounted for by the two facts which we have yet to consider. So far, then, we have arrived at this point, that a collection of adders in any given district shows a wide colour variation;
therefore, there must be some factor other than locality on which this variation depends.

(d) Sex.

Let me now examine the sexes of our adders and see if this throws any light on the matter. This is obviously a distinction that requires a certain amount of special education in adders, as it is not every field naturalist who could tell the sex of any given adder. However, it is a very easy matter when once learnt, though I have not time to go into that to-day. I must presume that one can tell the sex by merely examining the adder without dissection. Suppose one has a collection of fifty adders from any given locality, and one separates the specimens in two groups—male and female. The female group will be probably found to outnumber the male by about three to one. Looking at the two groups of specimens thus separated, one is immediately struck with the fact that all the so-called "beautifully-marked specimens" are in one group. That is to say, the male collection is remarkable for containing the brilliantly-coloured adders. More definitely, the specimens showing a striking contrast of yellowish body and jet-black zigzag line, with black or dark blue bellies, are all on the male side. Contrasts of brown body and very black markings, or grey with very black markings, are also seen on the male side. In the group of females one is struck by the predominance of shades rather than brilliant colouring; olive green or brownish shades are more evident, and the markings are brown, not black. The bellies in this female group are noticed to be mottled, or of a light colour, not black or deep blue. On examining the throats, all those specimens showing black-edged scales are found amongst the males, whilst all those with yellowish or reddish throats are amongst the females. So, then, here at last is, one says, the explanation. But someone objects that all the males are by no means alike; some are much brighter than others. Also, the females show great divergence, some being almost one shade all over. Quite true; and that brings us to the other most important factor.
It is only when these two influences of age and sex are jointly considered that the problem of colour variation in adders is solved. I am far from saying it is possible to tell the exact age of any given specimen, but, still, it is not difficult to tell an old one from a young one. If this factor of age be now applied to the series of adders we are considering, it will be found that the two extremes of colouring are the young males and the old females. That is, the young male is the most brilliant of all, the old female the least brilliant in colour markings. Of course, the male must not be too young; his plumage must have time to develope, but, having reached a certain age, he will exhibit a brilliancy of colour contrasts seen in no other stage of adder life. In some of the old females, on the other hand, there is hardly any differentiation of colour at all, only a dull uniform shade. And, surely, this is only what one ought to have been prepared for from the outset. If one thinks for a moment of what obtains in amphibians and birds—the two classes of vertebrates nearest to reptiles on either side—the same thing is found. All the brilliant colouring is found amongst the males, the females, as a rule, being of more sombre hues. Indeed, wherever the females outnumber the males in a class of animals, we see the same thing, except in the genus "homo."

So we have now the factors in sex and age, which are seen to play a very definite part in the question of colour in adders. I am not at all sure that the white adder can be accounted for in this way. White is not, strictly speaking, a colour; rather it is an absence of colour, and what one has to deal with in the case of white adders is a non-production of colour. These specimens are so rare that one cannot speak positively. My idea is that they are pathological cases, and not normal variations at all. The small red viper is another exception, as both sexes appear to be constant in that variety. The white adder and the small red viper are exceptions.
A Young Male Adder.

(This illustration is reproduced by permission of Messrs. Blackwood and Son from Dr. Leighton's book on "The Life History of British Serpents.")

An Old Female Adder.

(This illustration is reproduced by permission of Messrs. Blackwood and Son from Dr. Leighton's book on "The Life History of British Serpents.")
COLOUR VARIATION IN BRITISH ADDERS.

(f) Sloughing.

But while sex and age are, in my opinion, the two great factors in colour variation, there is another point to be considered in the special case of reptiles, viz., sloughing. Casting the slough does not really affect the production of colour, but the colours are undoubtedly brightest immediately after that process. Thus, the most brilliant adder is a young male just after casting the slough, while the female shades are also brighter then than at other times. The effect of sloughing is far more noticeable in the cases of the grass snake and smooth snake, with which we are not dealing to-day.

Conclusion.

Our conclusion, then, is that colour variation of adders is mainly a matter of sex and age, certain colours being characteristic of one sex or the other, that young males are the most brilliant, old females the dullest in colour, that the colours are best seen after sloughing, and that locality cannot account for the variation, even if it is responsible for some slight resemblance.

REPTILIA IN CENTRAL DORSET.

The following is a record of the reptiles taken and measured during a few days' reptile hunting at the end of April, 1901, within a radius of about three miles of Buckland Newton, Central Dorset. I have to thank my friend, the Rev. F. W. Brandreth, a member of the Dorset Field Club, for giving me the opportunity of making this investigation:—

1. Adder, Male, 22 inches.
2. ,, ,, 19½ ,, 
3. ,, ,, 20½ ,, 
4. ,, ,, 20 ,, 
5. ,, ,, 19½ ,, 
6. ,, Female, 25½ ,, 
7. ,, ,, 20 ,, 
8. ,, ,, 21 ,,
COLOUR VARIATION IN BRITISH ADDERS.

9. Adder, Male, 22 inches.
10. ,, ,, 20½ ,, 
11. ,, ,, 20 ,, 
12. ,, ,, 19½ ,, 
13. ,, ,, 17½ ,, 
   Total—10 male and 3 female adders, 1 red viper.
15. Ring Snake (Tropidonotus Natrix), 28 inches
16. ,, ,, ,, ,, 32 ,, 
17. ,, ,, ,, ,, 30 ,, 
18. ,, ,, ,, ,, 29 ,, with a blunt tail.
19. ,, ,, ,, ,, 30 ,, 
20. ,, ,, ,, ,, 34 ,, 
21. ,, ,, ,, ,, 40 ,, 
22. ,, ,, ,, ,, 38 ,, 
23. ,, ,, ,, ,, 30 ,, 
24. ,, ,, ,, ,, 24 ,, 
25. Slow-worm (Anguis fragilis), 16¾ inches.
26. ,, ,, ,, 17 ,, 

Thus, in a few days' actual work I was able to determine the average size of adders and ring snakes in Central Dorset, and also slow-worms were seen to reach an unusual size. The Viviparous lizard (Lacerta vivipars) was also seen, so that the smooth snake and the sand lizard were the only British reptiles not observed.
The Trench near the Amphitheatre.
An Ancient British Trackway.

(A Disclaimer.)

By W. MILES BARNES.

THROUGH some inadvertence, my name was given by Mr. Pope as favouring the opinion that the trench cut through at the Brewery buildings (see p. 110 of last year's Transactions) was a Roman road from Dorchester to the Amphitheatre.

I do not think the trench existed in Roman times.

The roads leading to Roman amphitheatres which are known to me are all paved roads of the ordinary type, and I have never heard of a Roman road cut deep into the earth and left unpaved. Such a road on a slope, as here, would be a watercourse in wet weather; and after frost, if in the chalk, would be impassable; even in dry weather a chalk road is distinctly uncomfortable to walk upon. Was the trench a road for ordinary traffic at all?

A reference to the very excellent illustration to Mr. Pope's paper, opposite page 105 in last year's Transactions, will make it as clear to readers as it was to me from observation on the
spot, that the trench has been *cut* in the chalk, and not *worn down* in it by use, and that very little traffic has passed over it, for the bottom is level and the angles are sharp. This seems to dispose of the theory that the channel is a British trackway or a mediæval pack-horse road, both of which, like the sunken track at Came, would be *worn* hollow. Besides, if it was either, it would have been carried past the Amphitheatre, and this trench did not go beyond it, for it does not appear in the slope of the railway cutting just beyond it on the south side; it clearly had something to do with the Amphitheatre, but what that something was is not so apparent. Let us try to find out by an examination of the trench and its contents.

I would first of all point out that the filling in was intentionally done; the trench was not gradually filled up by drifting sand and dust, or by the sides being trodden down into it by beasts, because the sides are sharply cut, and the filling in is not of fine earth, but of earth mingled with lumps of chalk. The character and sharpness of the cutting, and its filling, suggest that it was made for a temporary purpose. It is also apparent that the earth and chalk thrown out from the trench were thrown up on both sides; that the channel was not open for long—not long enough for time to disintegrate the chalk sides of it—and that, when its purpose was served, the earth and chalk thrown out of it were thrown back again mingled, the workers commencing on the west bank and completing the filling with the material thrown out on the east bank.

We must now look back over the history of Dorchester to find some incident in that history which would suit these conditions. The only incident I can think of which might account for it was one which occurred in the course of the Civil Wars. Dorchester on one occasion was threatened by the Royalists, and the Parliamentarians converted the Amphitheatre into a fort.

Was the trench a protected and defensible way from Dorchester to this fort, to be used in the event of an assault being made upon the town?
NOVA PERSEI (10TH MARCH, 1901).

[Photographed by H. Ellis, Esq., F.R.A.S.]
Exposure, 110 minutes.
Note on the
New Star in the Constellation Perseus.

By the Rev. W. R. WAUGH.

(Read Feb. 28th, 1901.)

The astronomical world is much interested—we might almost say excited—by the somewhat sudden appearance of a new and bright star in the constellation Perseus. It is situated near the well-known variable star, Algol, north declination 43° 34min., and right ascension 3hr. 24min. 25sec., forming the apex of an acute triangle with Alpha Persei and Beta Persei. Its magnitude is about that of an average first magnitude star. Its tint is a steely blue. I estimate it as nearly as lustrous as Procyon. Its spectrum is solar and continuous. It is too early to determine whether bright lines are developed in its spectrum. By whom it was first discovered has not been ascertained, though it is probable that our American brethren will, as usual, be able to claim that honour, their vigilance as observers making it probable. No Novea (as new stars are generally designated) so large and of so striking an appearance has been seen since Tycho Brahe discovered the very bright one in the constellation Cassiopeia in the year 1572. I possess an average knowledge of that part of the stellar heavens,
NOTE ON THE NEW STAR.

it having been assigned to me by Mr. Gore, the late Variable Star Director of the British Astronomical Association, in order to watch for variables and Novea, and I am quite sure that there was no star of sufficient brightness to attract attention in the early part of February. Hence it is fair to conclude that it has burst out suddenly in the sky.

The cause of these wonderful apparitions is an unsolved problem in astronomy. There are three leading conjectures that may be worth attention.

1st.—That they are the sudden condensation of nebulous matter, causing intense light and heat in the formation of a new sun, a new creation in fact.

2nd.—That they are the destruction of a sun and its planetary attendants by a vast conflagration, such as the predicted fate of our own system.

3rd.—That they are the result of a collision between two or more stellar bodies, the impact arising from the rapid motion of such developing intense heat, and brilliant light arising from the gaseous nature, or semi-gaseous nature, of such bodies, not necessarily light-generating prior to the impact. The large proportion of hydrogen known by the spectroscope to exist in half-formed suns gives some credibility to this theory, though there are many objections to this supposition, the chief being the electric propulsion inherent in gases or their compounds. Of course, it is presupposed that any or all of these causes are subject to the control or arrangement of the Supreme, according to laws at present unknown to us.

Any observations, however seemingly slight, will be welcome contributions to the solution of these intricate problems, and the members of the Dorset Field Club may assist if they will put their observations in a permanent form and forward them to Colonel Markwick, of the Ordnance Department at Devonport, Colonel Markwick being the present experienced Director of the Variable Star Section of the British Astronomical Association.
**NOTE ON THE NEW STAR.**

Tabular statement of light variations of *Nova Persei*, as given by observers at Kensington, communicated to the Royal Astronomical Society by Sir Norman Lockyer:

<table>
<thead>
<tr>
<th>Date</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 5th</td>
<td>2.7</td>
</tr>
<tr>
<td>6th</td>
<td>2.9</td>
</tr>
<tr>
<td>9th</td>
<td>3.5</td>
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<tr>
<td>10th</td>
<td>3.7</td>
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<tr>
<td>11th</td>
<td>4.0</td>
</tr>
<tr>
<td>12th</td>
<td>3.8</td>
</tr>
<tr>
<td>21st</td>
<td>4.2</td>
</tr>
<tr>
<td>22nd</td>
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<tr>
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<tr>
<td>24th</td>
<td>4.5</td>
</tr>
<tr>
<td>25th</td>
<td>5.5</td>
</tr>
</tbody>
</table>

The star has been long invisible to the unassisted eye, but its place is being carefully watched by many competent observers in hope of a possible revival.

Sir Norman Lockyer gives the following general description of its spectrum:

"The photographs show that the bright hydrogen lines are successively feeble as the ultra violet is approached. The spectrum extends far into the ultra violet. Also, that there have been changes in the photographic spectrum."

The following metals are reported as being certainly detected:—Fe., Ti., Ce., Ca., Sr., and Se. The iron lines were very distinct. *Colour*—At discovery it was bluish white. During the period of decline it assumed a reddish hue. These changes in colour have been reported in the case of other Novae.

Full particulars of the spectrum are given by Sir Norman Lockyer in the "Monthly Notices" of the "Royal Astronomical Society, also by other observers.

It is hoped the discovery of *Nova Persei* by Dr. Anderson will induce others to watch for Novae.
Notes on Some of the Markings on Jupiter.

By Rev. W. R. WAUGH, F.R.A.S.

(Read December 13th, 1900.)

It is currently believed that the planet Jupiter is the most interesting of the planets which form collectively our Solar system, and this conviction arises not merely because it is larger bulk for bulk than all the other planets together, justifying its appellation as the "Giant planet of our system," or on account of its attendant five moons, nor of its peculiar semi-sun composition, but chiefly because of the striking and ever-changing markings and spots with which its visible surface is covered, and which form the sole subject of this brief paper. In the present cultured auditory it is hardly necessary to refer to the dimensions or to the rotatory or orbitary motions of the planet further than to recall to memory the few following figures taken from the last published authority of the astronomical constants of Jupiter—viz., that its revolution round the sun is accomplished in 11·86 years; that there are considerable irregularities in its orbital motion, owing chiefly to the attractive influence of the planets Saturn and Uranus; that its rotation on its axis
THE PLANET JUPITER.
is accomplished in 9 hours 25 minutes, being at the rate of nearly 28,000 miles per hour at its equator, a rapidity sufficiently accounting for the great disparity between its Polar and equatorial diameters, and easily so recognised in a small telescope; or that its dimensions are about 88.390 miles in mean diameter; that its apparent mean diameter in arc is 40''·7, varying, of course, according to its distance from the earth, that mean distance being 384,262,000 miles, its mean distance from the sun being 472,693,000 miles. There are many interesting facts connected with these figures which are not intended to be comprised in this paper, which, as intimated, is on the surface markings of the planet. And here we must qualify our title, for it is highly probable—some would say certain—that we do not see the actual surface of the planet itself, but only the marvellous atmosphere with which the possibly more dense body of the planet is enveloped. It is, therefore, with that atmosphere we have chiefly to deal. It is probably of a semi-fluid or viscous material, and also in a highly-heated condition; perhaps consisting largely of metallic substances at a high temperature not very dissimilar to the sun—indeed, in a kindred condition to our own earth when, in long, long past ages, it was cooling down from its nebulous state to a condition susceptible of organic life.

The spectrum of Jupiter is mainly solar, arising from its reflection of the solar light; but there are some ill-defined lines not in the sun, and which probably indicate the existence of substances peculiar to the inchoate condition of the planet. Its great distance will suggest the difficulties of this part of Jovian lore, and also the impossibility of organic life, as we know it, on the planet. The physical condition of Jupiter is debateable ground, and will probably ever remain so to us.

That the different markings of Jupiter lie at varying depths in his atmosphere is a well-ascertained fact, as they have often been seen to pass over each other, and their varying motion and the general manner of their appearance and disappearance give some colouring to the theory that many of them are ejected from
the lower regions of the atmosphere, possibly the result of some volcanic action.

"The principal markings are called belts or bands, because they surround almost continuously the body of the planet. Thus these belts and bands are conveniently mapped out for purposes of observation and study on the surface. (See diagram.) The one covering the region of the equator is called the equatorial band, and is characterised by a number of white flocculent spots of various tints, chiefly of a yellowish hue, the yellowness being far more dense at some seasons, which is the case at the present date.

There is a thin dark line very near the equator, which is occasionally broken up into parts, and sometimes very difficult of detection owing to its faintness. It is called the equatorial belt. On the equatorial band there are frequently seen strange lines, when definition is good, stretching quite across the space, and generally at an angle to the axis of the planet. They are conventionally called wisps. They vary in width and density, and are always weird-looking objects." Bordering the equatorial region there are two much denser belts. The upper one on the diagram is called the South Equatorial belt, and the lower one the North Equatorial belt. (It will be remembered that all astronomical telescopes invert and reverse the object viewed.) The southern of the great belts is always, more or less, in activity, and perhaps the most interesting of any portion of the planet.

It is generally duplex, i.e., divided into two distinct portions, though in some parts those two portions are united. It is, on the whole, the most active part of the Jovian surface. It is very disturbed at the present time, there being many dark and light spots of various dimensions and intensity on both portions of this belt. There is a curious bay or depression on the south edge of the southern portion, and in this bay, though not attached to it, there lies the wonderful red spot, which has excited so much attention for several years past. The following, that is the eastern end of the bay, is often very dark, and
frequently presents the appearance of a huge uprising cliff. The red spot was first noticed scientifically in 1878, when it was of a dark red colour, as shown in Mr. N. E. Green’s classical drawings. It was surrounded by a bright halo-like substance, probably a background, giving it a prominent aspect. It gradually faded year by year, and now it is very pale and of a greyish tint; indeed, in bad seeing it is often difficult of detection. The inner portion of this remarkable oval spot is paler than the outer portion, giving it a ring-like aspect. The following end is somewhat darker, and has been seen connected with the bay by a thin dark line. I have never been able to fairly detect that line. This wonderful spot has been largely used in ascertaining the rotation period of the planet. Dr. Marth, who is well known as the constructor of tables of the varied aspects and motions of Jupiter, has fixed the zero longitude of the planet at the preceding end of the red spot, from whence, of course, the longitudes of the different markings are calculated. The movements of this spot are very slight. Possibly it is a fixture in the Jovian atmosphere, and the slight movements are only apparent, arising from the whitish material around it partly covering it, and threatening to ultimately hide it from view. What is it?

Here we may well pause, for the theories of its origin are too numerous to detail. The writer inclines to the idea that it is ejected matter from a lower atmospheric stratum floating in the Jovian envelope, though something may be said for the theory that it is a prominence based on the more solid portion of the planet; indeed, a huge mountain probably in a state of semi-incandescence, the friction it would be subject to by the passing currents of other material being sufficient to account for its heat, for it should be taken into account that the movements in the Jovian atmosphere are at enormous rates. The diverse spots, especially the darker ones, generally have a movement of their own, as well as partaking of the general rotational motion. Messrs. Stanley Williams and W. F. Denning, well-known and highly-qualified observers of Jupiter, have paid special attention
to these movements, and the former has contributed a special paper on the subject, which has been published in the monthly notices of the R.A.S. It has also formed a feature of the work of the Jupiter section of the B.A.A.

The North Equatorial belt is similar to the South, as it is duplex, though of a less marked character. Many dark and light spots are also on its surface, having varying motions; but this belt is subject to occasional shrinkage, so that sometimes it loses its duplex aspect. A few years since it was comparatively thin, and was almost featureless. It is much wider and more active now. This evidently shows there are latitudinal as well as longitudinal movements in it. In the light band to the north of this belt there have been several remarkable dark spots with very rapid inherent motion, one or two of which were very persistent, being under careful observation for successive apparitions.

The two thinner belts north and south of the equatorial belts are called the North and South Temperate belts, and, as a rule, possess fewer striking features, though sometimes they are duplex, and are covered with light and dark markings of a less pronounced character. Some years since, however, the South Temperate belt had an elongated dark marking, which continued for several months; it was a dense and striking feature for a time, and was the subject of careful observation by several expert Jovian students. It was just south of the great red spot; few, if any, traces of it are now left. There are two other belts north and south of the Temperate belts called respectively North-North and South-South Temperate belts. They are generally much fainter than the Temperate belts, though this may be the result of position on the curved surface of that portion of the globe of Jupiter; dark spots are occasionally seen on them. Leo Brenner, in his exquisite drawings, shows some of the spots.

North and south of these named belts are what are so-called the Polar regions of the planet, and are frequently encircled by faint belts giving that portion of the planet a ringed appearance. Owing to position, they are rarely the subjects of observation, though sometimes a cloudy and somewhat indefinite marking is
seen, and attracts attention. Herr Leo Brenner's beautiful drawings show several of these strange markings.

In addition to these markings, curved ones are occasionally seen at a considerable angle to the equator, as if, by some strange convulsion in the Jovian atmosphere, portions of belts were wrenched off, possibly by revulsion, rather than attraction of other parts. Some ten years since I saw such a singular phenomenon in the southern portion of the planet.

We close by a few remarks on the colour of the belts and markings, and on this subject records materially differ, being largely influenced by personal equation, colour appreciation being a very varied faculty, especially in the light tints of stars and planets. So I venture to give my own observations only. The entire surface of Jupiter appears to me of a light straw colour, intensifying in the portions north of the equator sometimes, as at present, to a light amber. The South Equatorial belt is generally of an ashy chocolate colour; the north nearly the same, with a dash of green of varying intensity. The other belts are of an olive tint, varying to light brown. The red spot is now of a very light grey. The dark spots vary much from a rich brown to nearly black—black probably by contrast. The light spots are sometimes of pearly white. In this matter of colour my observations vary very much from acknowledged authorities. For instance, I have never been able to perceive the pinkish hue so beautifully shown in Herr Brenner's drawings.

Ladies excel us in colour appreciation. I have sometimes wished they would form a committee to give united opinion on this subject, including star colours.

**Description of Jupiter Drawing.**

As the drawing was taken in an astronomical inverting refractor, it should be remembered that the south is at the top and the north at the bottom of the drawing, that the east is to the right and the west to the left of the drawing, thus inverting and reversing all the surface marking. The two principal belts are the South and North Equatorial. The south belt at the date of
the drawing was plainly duplex, the dividing line being fairly distinct. The northern edge of this belt was indented, and had two dark and two somewhat diffused white spots. The longitude of these spots changed slightly in the course of a few days. The south edge of this belt was more definite, and shows the deeply indented bay in which lie the remains of the wonderful red spot, now of an ashen grey colour. The body of this belt was of warm chocolate colour. It should be stated that the so-called red spot is now only seen when atmospheric and instrumental conditions are of the best. In 1880 and 1881 this spot was of a brick-red colour. Space does not permit further details of its interesting history. Its form, an elongated oval, has not materially changed since its discovery. Its origin and cause are unsettled matters among astronomers.

"The North Equatorial belt was also clearly duplex, the dividing line being somewhat broken up, and nearer the southern edge of the belt. On the northern edge of this belt there were four dark spots and four distinct white spots. The dark spot near the centre of the drawing was well defined, and had a proper motion, more rapid than the planet’s rotation. The times and other circumstances were taken and seconded. The colour of this belt was similar to that of the South Equatorial belt, with the addition of a decided greenish hue.

"On the equatorial zone, between these two belts, a faint dark belt, somewhat broken in outline, was clearly perceived when seeing conditions were good. The zone itself was mottled with white markings, which were continually changing in character.

"The two belts north and south of these principal belts are called the North and South Temperate bands, and at the date of the drawing had no very marked features, though both these bands are frequently covered with well-marked features.

"The north and south Polar regions were comparatively featureless, except the ringed aspect of the north region, which at the date was fairly well marked. The longitude of the central meridian of this drawing was 32°. The date was January 1st, 9 hours 5 minutes, 1895."
If this brief and confessedly sketchy and imperfect paper should stimulate qualified members of the Dorset Natural History Club to observe and study the giant planet of our system, the object I had in writing it will be accomplished, and, by a little stretching of the meaning of our title, it may be regarded as natural history, if not antiquarian.
There are many things which set us wondering—many things—yet living on amid destructive improvement, which set us wondering whether we quite know what manner of men the medievals were. We hardly can, to be sure. Who that is much with "the working man" can say that he is able to look into the very heart of him? How, then, can we really know our Englishmen of the far away centuries? There are many things which set us thus pondering. And among them these monastery barns are not a little noteworthy. They are so utterly different to all and sundry barns of these times. So much so that many people cannot believe that these huge majestic buildings were made for barns. Yet nothing is more certain than that this was the case. The great doorways, to name one proof, show this. They are not church doorways; they are not hall doorways; they are barn doorways, pure and simple. Look at them here, look at them at the other great Dorset Abbey barn, that at Abbotsbury. Once again, the lighting, or non-lighting rather, is a proof. These long narrow loops are all right for a barn, but
CERNE ABBEY BARN.

[Photographed by Rev. T. Perkins.]
all wrong for a church or hall. Thinking of the size of these barns, of their majestic outlines, of their strong, everlasting build of wall and roof, they set us wondering once more what was indeed the mind of the men that planned them and made them. Were they thus greater than we are in building, smaller minded in everything else? A dim idea may be here recorded for what it is worth. "Murder will out." Poetry will out. Poetry has no need always of rhythm, nor even of words. Is not a Mendelssohn organ-fugue a poem? Is not the Sistine Madonna a poem? Is not Salisbury spire an epic? Is not this Cerne Abbas barn a pastoral idyll? Is it not the outcome, for it would out, of the poetic heart of an old Benedictine, or, maybe, of an itinerant Freemason? Is it not his builded poem?

However, it is not an essay on the mind of the mediaevals that is here wanted, but a few sentences about this material result thereof. It would, nevertheless, be out of place to say much respecting the extremely admirable masonry and carpentry of Cerne Abbas barn, because there is a paper on the subject in the "Proceedings" of the Field Club, Vol. X., p. 187. To what is there written only one or two small additions seem needful. In that paper it is suggested that the light grey stone, which is used for wings and other dressing, is of the Portland formation, and perhaps from Portesham or Sutton Poyntz. But this has since been doubted or denied by an expert. He thinks, as was understood, that it is of a different formation and from Somerset. Again, a word about what is the extraordinary feature of Cerne Abbas barn—the flint masonry which prevails outside and within, too. The paper just quoted says that it may be doubted whether any specimen of this masonry to beat that here could be found in Sussex, Norfolk, or any other county noted for this kind of work. Later the writer visited Norwich, a city abounding in flint masonry more than any other in England. Of the forty-two old churches there not one was noticed without that feature. But what was pointed out as the crack sample of flint facing is the wall of the Bridewell. This is very fine work. But the writer's honest impression was that it is not quite equal in quality to this
at Cerne Abbas. The surface of the flints appeared to be scarcely so even, or the jointing so close, at the Bridewell as at the barn. And here the outside work only is spoken of. As to the splendid inner flint facing of this barn, nothing of the sort whatever was observed at Norwich. Again, it has to be noted that the chance of studying the original roof design, which the writer had in 1888, now no longer exists. Then there was one of the great trusses almost entirely exposed to view in a large loft or store-room. Now it, as well as all the rest of the huge original timbers still upholding the stone-tiled roof of the dwelling portion of the barn, is ceiled away from sight. In Vol. X. there is an outline showing the uncommon framing of these timbers which, to the writer, appeared to be used. It is quite useless to try to describe the grievous loss in effect suffered by the present barn through the disappearance of its dark, majestic roof-timbering. But never let it be forgotten by antiquaries that in many hands not the inner effect only, but the outer also, would have been ruined. All honour to the late General Pitt-Rivers for covering the new roof with stone tiles as of old, and not with slates or iron.

The opinion ventured in the former paper that this and other great monastic barns are, at least partly, crop-barns, and not simply tithe-barns, is still upheld. It may be suggested that, as this seems to have been, and the great Abbotsbury barn certainly was in two divisions, one part may have been for tithe corn and the other for the whole corn crop in straw from the monastery farm. Tithe or main crop, conceive the millions and millions of sheaves which have been carted in great loads through this stately barn-porch. And what divers fashions of waggons, and what divers sorts of raiment on the farm-folk, grouped with the red wheat-loads. It is well within the memory of some of us that the old build of waggons—almost all and every part of it curves—died out and died hard; and the old rustic decorations of the painting and bright colours linger yet. Think of the tawny-red wheat, of the scarlets and blues of the graceful waggons, of the greys and russets of the lay brothers and
"adscripti," of the charming, mellow, ashlar porch and its noble arch framing it all. Think, lastly, of what must have given splendid value to all these colours. Think of the black. There is the Benedictine father, told off to be steward of the season's work, and-giving a bit of a hand, too, with the neighbours, sable-hued frock notwithstanding. Would that this porch could utter speech and tell us of some of the far-off harvest-homes among the five hundred which it has seen.
Returns of Rainfall, &c., in Dorset in 1900.

By HENRY STORKS EATON

(Past President of the Royal Meteorological Society).

The changes to be recorded are more numerous than usual. A gain of four new stations hardly compensates for a loss of seven. The new stations are Lyme Regis, Piddletown, Sherborne Castle, and Shroton. The gauge at Tower View, Beaminster, was moved on the 1st of January 200 yards east to Fleet Street. On vacating the Vicarage of Bere Regis the Rev. W. Farrer handed over the rain gauge to his successor, the Rev. W. E. H. Sotheby, who has continued the observations; and at Cattistock Mr. E. S. Wilmot-Sitwell took charge of Mr. Palairet's register from the 1st of July.

<table>
<thead>
<tr>
<th></th>
<th>N. Latitude</th>
<th>W. Longitude</th>
<th>Above Sea.</th>
<th>Diameter</th>
<th>Above Ground</th>
<th>Hour.</th>
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<tr>
<td>Beaminster, Fleet Street</td>
<td>50 48</td>
<td>2 44</td>
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<td>1 0</td>
<td>9</td>
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<td>56</td>
<td>250</td>
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<td>1 0</td>
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<tr>
<td>Piddletown</td>
<td>30</td>
<td>20</td>
<td>190</td>
<td>5</td>
<td>1 0</td>
<td>9</td>
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<td>56</td>
<td>210</td>
<td>5</td>
<td>1 0</td>
<td>8.30</td>
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<tr>
<td>Shroton</td>
<td>54 40</td>
<td>12</td>
<td>205</td>
<td>4 9</td>
<td>1 2</td>
<td>9.30</td>
</tr>
</tbody>
</table>

The losses include Bere Regis (Whitelovington); Broadway; Chickerell Rectory; Corfe Castle (Furzebrook), where a 22-year
RAINFALL IN DORSET.

register has come to an end; Hamworthy; Sturminster Newton (River Side); and Wimborne (Codford). There are thus 44 complete returns against 47 last year. Abundant rain in January, February, and December raised the ratio of the fall calculated from 31 stations to 104·3. It ranged between 115·3 at Binnegar Hall, where the 50-year constant is based on 11 years observations, and 95·4 at the Nothe, Weymouth, where it depends on a record of 15 years. In each of the aforesaid months more than an inch of rain was measured on two days. The average of 39 stations was on the 30th of December 1·74in., January 6th 1·16in., and on February 15th 1·12in. On no other day did it exceed 0·71in. The largest individual falls in 24 hours were on the 30th of December 2·45in. at Gillingham and Horton; 2·30in. at Wimborne; 2·20in. at Cattistock and Whatcombe; 2·17in. at Holwell; 2·10in. at Bloxworth Rectory and Piddletown; 2·02in. at Houghton and Steepleton and 2·00in. at Melbury; and on the 15th of February 2·07in. at Holwell and 2·00in. at Cattistock. June was the only other wet month. March, April, July, September, and October were dry, particularly July, in which month there has been a falling off of rain for the last five years.

When two rain gauges are at no great distance apart, and still more so with a larger number, there is the advantage that one is a check upon the other. This is well illustrated in the case of the Coneygar Hill and Portville gauges at Bridport. When started in 1893 there was little difference in the amount of rain collected by them, the Portville register showing, perhaps, the larger rainfall—but see the report for 1893. This condition of things soon altered, and a deficiency at the latter station, slight at first, has gradually developed till in the present year the record of rain at Portville (ratio 92·9) is 12 per cent. less than at Coneygar and 7 per cent. short of the deduced 50-year average. At Coneygar a ratio of 111·6 is in fair accordance with the nearest stations, Beaminster Vicarage and Blackdown, which tends to prove the correctness of the gauge and its exposure. As there is no lack of care on the part of the observer the discrepancy must be looked for in the deterioration of the rain
RAINFALL IN DORSET.

gauge at Portville or alteration of its surroundings. The rainfall constant for Portville is 32·71in. and for Coneygar Hill 32·87in. (Appendix to Rainfall Report for 1898.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Portville</th>
<th>Coneygar</th>
<th>Portville greater</th>
<th>Ratio to the Annual Fall</th>
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</thead>
<tbody>
<tr>
<td>1893</td>
<td>26·41?</td>
<td>25·51</td>
<td>+·90</td>
<td>73</td>
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<tr>
<td>1894</td>
<td>42·25</td>
<td>40·04</td>
<td>+·21</td>
<td>122</td>
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<tr>
<td>1895</td>
<td>31·40</td>
<td>31·81</td>
<td>-·41</td>
<td>97</td>
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<td>1896</td>
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<td>26·41</td>
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<td>1897</td>
<td>24·57</td>
<td>26·75</td>
<td>-·18</td>
<td>112</td>
</tr>
<tr>
<td>1898</td>
<td>24·74</td>
<td>28·59</td>
<td>-·35</td>
<td>85</td>
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<tr>
<td>1899</td>
<td>22·22</td>
<td>32·44</td>
<td>-·22</td>
<td>90</td>
</tr>
<tr>
<td>1900</td>
<td>30·59</td>
<td>36·67</td>
<td>-·628</td>
<td>112</td>
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Seldom, if ever, do untrained observers estimate the number of wet days in the course of a year precisely alike. Even when they are most conscientious and careful the personal equation comes in and considerable divergence may exist. For instance at Beaminster in the present year two good observers register respectively 174 and 184 wet days and two others at Swanage 160 and 173. For this reason those schedules alone which, giving the daily rainfall in full, show that due care has been taken in the measurement of small quantities, and where '01in. of rain has been recorded at least eight times, have been employed in reckoning the 'wet days in Table III. Thirty stations marked with an asterisk fulfil these requirements compared with 35 last year. In former years the entries of rainfall were too haphazard and casual to afford a satisfactory basis for investigation; but for the last six years the improvement in registration justifies the following comparative statement:

<table>
<thead>
<tr>
<th>Year</th>
<th>Rainy Days</th>
<th>Ratio of Rainfall at all Stations to the Annual Fall</th>
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<tr>
<td>1895</td>
<td>135</td>
<td>94</td>
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<tr>
<td>1896</td>
<td>156</td>
<td>84</td>
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<tr>
<td>1897</td>
<td>171</td>
<td>104</td>
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<tr>
<td>1898</td>
<td>155</td>
<td>81</td>
</tr>
<tr>
<td>1899</td>
<td>184</td>
<td>90</td>
</tr>
<tr>
<td>1900</td>
<td>179</td>
<td>104</td>
</tr>
</tbody>
</table>
RAINFALL IN DORSET.

Thunderstorms occurred, or lightning or thunder noticed, on the 19th, 20th, 26th, 27th, and 29th of July, the 7th and 22nd of August, the 28th of October, and 22nd of November. None of them were severe except on the 29th of July when, besides those mentioned in the observers' notes, the Dorset County Chronicle states that a tree at Alton and another at Buckland Newton were struck by lightning and considerably damaged; and that at Wool a carter was ploughing with two horses, and while in the act of taking the horses from the plough, the plough was struck by lightning and portions of it considerably injured. The heaviest rain accompanying these storms was 78 in. at Chalbury on the 29th of July; 65 in. at Cattistock and Gillingham and 54 in. at Shroton on the 27th of the same month; and 60 in. at Beaminster Fleet Street and 59 in. at the Vicarage on the 7th of August.

Observers' Notes.

Beaminster, Fleet Street.—Average maximum temperature in the shade:—January 46°0, February 43°2, March 45°6, April 56°7, May 60°2, June 67°7, July 74°1, August 69°0, September 66°2, October 57°3, November 50°6, December 50°0; average 58°1.

Broadwindsor Vicarage.—January 2nd: Rain 0°6 in.; imperfect observation, probably more. [The rainfall for the day has been taken as 1°0 in. H.S.E.]. July 26th: Thunderstorm; 29th, thunderstorm which lasted between 1-1½ hour, rain 58 in. August 7th: Thunder, rain 46 in.

Buckhorn Weston Rectory.—December 30th: The greatest rainfall in seven years.

Chalbury Rectory.—July 19th and 27th and October 28th: Thunder. Highest temperature 82° on July 25th; lowest 22° on February 8th and 9th.

Cheddington Court.—February 1st, 2nd, and 3rd: Snow storms; average depth 4°25 in.

Chickerell, Montevideo.—Rain on 32 days to a less amount than 0°1 in. February 2nd: Snow all day from an early hour; 10th, a little snow; 13th, snow afternoon, and morning
of the 14th. March 17th and 18th: Small showers of something between snow and hail [Graupel, H.S.E.]; 19th, hail about 3.30 p.m. All the hailstones were of a conical shape with convex bases, the height being 4-16in. and in a few larger ones up to 5-16in., the diameter 3.18in. and in the largest up to 7-16in.; 26th, several snow showers. July 20th: Distant thunder but no rain; 26th, summer lightning at night; 27th, thunder and lightning. Two loud claps very close. A man on the top of a hay cart was struck by lightning and made insensible for a short time, but soon recovered; an iron bar being carried by another man in a brickfield was knocked out of his hand and thrown to a distance, but the man was not hurt. November 12th: Slight thunderstorm.

Dorchester, Wollaston House.—The type of weather in November and December was remarkable for constant depressions advancing over England from the Atlantic, which culminated in heavy gales at the end of the year. On the great majority of days the sheltered thermometer marked a maximum of 50° and over, and only twice showed a minimum below the freezing point, when 31° was recorded.

Horton Vicarage.—February 1st—15th: Fifteen frosts in succession, 17° on the 10th. April 21st: Thermometer 81° in the screen. July 10th—20th: Eleven hot days in succession, from 79° to 95°; also eight from 22nd to 29th, 79° to 95°.

Lyme Regis.—July 27th and 29th: Thunderstorms.

Portland, Chesil.—July 26th: Lightning; 27th, thunder and lightning.

Sherborne, Coombe Farm.—February 15th: The greatest flood on record in the little valley of "The Coombe" (a water shed of about two square miles). A farm house... was flooded to a depth of 3ft. The occupant has known this house for fifty-five years, and it had only been flooded once before to the depth of 1½ft. The cause was the fall of snow the two previous days of about 1ft., and, the ground being frozen, the melting snow and heavy rain could not penetrate into the earth. August 22nd: Hailstorm with lightning and thunder.
RAINFALL IN DORSET.

Verwood Manor.—The heaviest fall of rain that I have recorded in my short time, some eight or nine years, was on the 30th of December.

Wareham, Binnegar Hall.—February 15th: Gale from south with heavy rain till three p.m.

Winterbourne Houghton.—July 27th: Severe thunderstorm between one and four p.m.

Extremes of Temperature in the Shade.

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<tr>
<td></td>
<td>Jan.</td>
<td>50°5</td>
<td>26°5</td>
<td>April</td>
<td>70°0</td>
<td>27°0</td>
<td>July</td>
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<tr>
<td></td>
<td>Feb.</td>
<td>55°0</td>
<td>17°0</td>
<td>May</td>
<td>64°0</td>
<td>35°0</td>
<td>Aug.</td>
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<tr>
<td></td>
<td>Mar.</td>
<td>52°0</td>
<td>19°0</td>
<td>June</td>
<td>75°0</td>
<td>45°0</td>
<td>Sept.</td>
</tr>
</tbody>
</table>

Winterbourne Steepleton.—The rain registered on December 30th is the heaviest recorded for one day since the commencement of my register in September, 1892.
TABLE I.—MONTHLY DEPTH OF RAIN IN INCHES IN 1900.

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<td>J. C. P. White</td>
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<td>Rev. A. A. Leonard</td>
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<td>4.46</td>
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**DEVON.**

<p>| Sir Cuthbert E. Peek              | Rousdon                                  | 5.03 | 4.92 | 1.50 | 1.82 | 1.83 | 3.41 | 0.99 | 1.97 | 0.69  | 2.45 | 3.48 | 5.68 |</p>
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<th>Days of</th>
<th>Number of Days on which '01in. or more was recorded</th>
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**DEVON.**

| Rousdon                      | 33.87 | 1.13                      | Jan. 6 | 219                                          | 21    | 19    | 11  | 12   | 14   | 11  | 15   | 7    | 13   | 7    | 17   | 20   | 23   | 176  |

**RAINFALL IN DORSET.**
TABLE III.—Average Monthly Rainfall.

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TABLE IV.—Statistics of the Temperature of the Air, and of the Humidity and Amount of Cloud at Winterbourne Steepleton Manor at 9 a.m., forwarded by Mr. H. Stillwell.

<table>
<thead>
<tr>
<th></th>
<th>Temperature of the Air.</th>
<th></th>
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<th>Humidity, Saturation = 100.</th>
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<tr>
<td></td>
<td>Averages of</td>
<td></td>
<td>Average</td>
<td>Humidity.</td>
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<td></td>
<td>Highest.</td>
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<td>Saturation = 100.</td>
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<td></td>
<td>Daily.</td>
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<tr>
<td>January</td>
<td>45.8</td>
<td>36.4</td>
<td>41.3</td>
<td>51.1</td>
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<td>February</td>
<td>43.0</td>
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<td>38.1</td>
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<td>March</td>
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<td>December</td>
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<tr>
<td>Year</td>
<td>56.1</td>
<td>42.0</td>
<td>48.8</td>
<td>84.2</td>
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The Water Supply of Ancient Dorchester, dating probably from Roman Times.

By Major COATES, R.A.

(Read Dec. 13th, 1900.)

WATER for the supply of ancient Dorchester was obtained from a small stream, which rises near Compton Valence, and was carried in an open water channel some ten feet wide in a winding course of over twelve miles, entering Dorchester at the top of the town. Altogether about six miles can still be traced. Most of this has been levelled at some time for cultivation, the result being that the remains of the aqueduct for a great part of its course look much like a road. Only about three-quarters of a mile in the neighbourhood of Whitfield Farm, Bradford Peverell House, and a few other places still show the aqueduct in its original form. The remainder of the aqueduct has been entirely obliterated by cultivation, although in one or two places it may still be traced by the different colours of the crops.

The part of the aqueduct I first noticed was near Whitfield Farm, where the aqueduct still remains almost perfect in its
AQUEDUCT SUPPLYING ANCIENT DORCHESTER
where visible thick line & where obliterated thin line is drawn

Scale 1/4 inches to 1 Mile

Sections looking towards Dorchester
Approximate Scale 1/8 inch = 10 feet.
original form as an open watercourse, and although I at once saw its similarity to a water course, such as is seen in all hill districts of Northern India, I failed at first to realise what it really was owing to a curious delusion by which the course on both sides of the valley appeared to run down towards the head of the valley, but on making a rough test with an Abney's level I found the course to be true, and not as it appeared to the eye.

In all other cases which I have been able to test with the Abney's level, I have found that the course on one side of a valley corresponds as regards height with the course on the other side, especially I may note from the spot where the aqueduct touches the railway near Bradford Peverell to the opposite side at Longwoods Coppice, which latter appears to the unaided eye to be at a higher level than the former.

A few small discrepancies can no doubt be found, but I have seen none that cannot be accounted for by such lowering of level as might occur from years of ploughing, or in some cases, possibly, from earth falling from above.

The aqueduct started from the foot of the masonry dam of a sheep-washing pool at Foxlease withy-bed.

Assuming that the ground would hold water without excessive leakage, this spot would seem to be an ideal place to form a large reservoir, as a dam of about 25 feet high and less than 100 yards long would have flooded about 30 acres. No such dam could, however, have existed without some trace being left. The existing dam is only five feet high, and the water held up quite insignificant.

The remains of an embankment, which indications show to have been about ten feet high, is to be seen in Home Coppice withy-bed, a few hundred yards higher up the stream. This tank, however, was never large, and—if it formed part of the old waterworks—could only have held a few days' supply. It is possible that some other small tanks exist in the neighbourhood of Compton Valence Rectory,* but I have not examined the

* There are tanks, as Major Coates surmises, near the Rectory House.—Ed.
ground, and no large reservoir could ever have been made there.

The fact of there being no trace of a large reservoir at the head of the aqueduct, the comparatively large size of the channel, and the insignificant volume of the stream, which rises at Compton Valence, and which in ordinary times is but a mere trickle, drying up entirely before it reached the River Frome, points conclusively to the aqueduct being intended to carry water from the stream when in flood, either after rain or when water allowed to accumulate in the small reservoir was discharged. This is all the more probable, as the expensive puddling of the sides and bottom necessary to make the aqueduct watertight, would not be nearly so necessary as it would be if the aqueduct were required to discharge a smaller continuous stream.

Such an intermittent supply at the source involved a reservoir at the Dorchester end, if a constant supply was given to the town, even supposing the rainfall to have been much heavier and more continuous in ancient times than it is now. My own impression is that the depression now occupied by the public gardens is the most likely spot.

This spot is, I am told, on the site of the old ditch surrounding the town. Consequently if my surmise proves correct it would show that the aqueduct was made in peaceful times, when no danger was anticipated from tampering with the defences.

A reservoir in this position is high enough to have supplied the greater part of the town by gravitation, so saving the labour of carrying water from the level of the River Frome, which is some 60 or 80 feet below the top of the town.

To complete the survey satisfactorily, levels with the theodolite ought to be taken from the last spot where the watercourse is intact for several hundred yards beyond the last visible trace. Such a survey would almost certainly show the true position of the reservoir.

I have not examined North Slip Plantation, but in all probability the remains of the aqueduct can be seen in it.
I have made these last observations in the hope that someone else will complete the survey, a copy of which on a scale of six inches to one mile, so far as I have been able to do it, is deposited in the County Museum.
Some Notes on Major Coates' Discovery of the Ancient Water Supply of Dorchester.

By W. MILES BARNES.

(Read Feb. 28th, 1901.)

WHEN Major Coates read his paper on this subject before the Society, the President expressed the hope that the discussion upon it might be resumed at some future time. I have prepared these notes with the object of re-opening the discussion. For myself, after examining the watercourse and carefully weighing the arguments Major Coates has advanced in support of his theory, I accept it as one of the most interesting and important discoveries that has ever been made in connection with the ancient history of the town, and I hope that the publication of his paper may move archaeologists in other parts of the country to look for similar traces of aqueducts in the neighbourhood of the sites of Romano-British towns.

The fact that four out of the fourteen aqueducts which in ancient times supplied Rome with water are sufficient to supply the needs of the large population of Rome to-day, shows how
much larger the consumption of water was in Roman times than it is now, and how necessary an abundant supply of water was to those who accepted Roman civilisation and adopted Roman habits, and it supplies the motive for the construction of an aqueduct at Dorchester. That Roman wells have been found at Dorchester need not cause surprise; there are wells in Pompeii, though the wells there had to be sunk through 100 feet of solid rock, yet Pompeii was abundantly supplied by aqueducts with water from a distance, for there is none suitable near. From the fact that the River Frome flowed at that time so far from the town, and that it would have been necessary to cross a marsh or stagnant water to reach it, as well as from the known preference of the Romans for spring or rain water from a pure surface,* it seems improbable that any quantity of water for domestic and public uses was ever obtained from that source, so that the need of an aqueduct must have made itself felt before, or as soon as the population of the town became numerous enough to justify the construction of so important a work; and the ingenious way in which the Romans supplied that want, the knowledge of engineering and levelling shown in its construction, should excite the admiration of all, especially of those who believe that the science of engineering is of comparatively modern date.

Our knowledge of the manner in which the Romans built their aqueducts is obtained mainly, I suppose, from Vitruvius. According to him, the Romans conveyed water by three ways—either by water channels, or by means of leaden pipes, or through earthenware tubes. Vitruvius preferred earthenware to leaden tubes, because the water conveyed through the former was more wholesome than that which passed through the latter, which might be contaminated with white lead, and because the first cost would be less, and an earthenware pipe, if broken, could be replaced by anyone. These are the reasons he gives for his preference.† The earthen pipe was made with a collar

* Vit. I.8. c.2. Vit. I.8. c.7. † Vit. I.8, c.7.
at one end, into which the next pipe would fit, much as stone-
ware drainage pipes are made now. They were cemented to-
gether with a mixture of quicklime and oil. Ashes were mingled
with the water first sent through the pipes, these would settle in
any imperfect joint and stop leakage, which shows, by the way,
that there could have been no high pressure of water in these
pipes, and that they would be suitable for an aqueduct having a
very low gradient as the one at Dorchester undoubtedly had.

The aqueduct was planned to a suitable fall; if the ground
was impervious to water, the channel was cut in it, and was
carried round the sides of hill slopes, the fall being preserved;
if hills intervened, a tunnel was cut through them; the valleys
were either bridged, or the channel was carried at a suitable
height on the slopes of the hills round them (as at Dorchester),
"if," Vitruvius remarks, "the course would not be too
circuitous." Should the soil be gravel or earth, side walls were
to be built and an arch turned over the channel to protect the
water from the heat of the sun. In England this protection
would not have been needed.

It is clear, therefore, that the aqueduct, presuming it to be so,
at Dorchester, has been constructed in its main features on the
Roman model. In one respect it differed from the Vitruvian
model. Vitruvius recommended that a fall of not less than one
in 200 should be given to the aqueduct, which would amount to
a total fall of 300 feet or more between Compton and Dor-
chester; the actual difference in the levels between the two
extremities of the aqueduct fall very far short of that, and the
slightness of the decline, so much less than Vitruvius recom-
mended, might be urged as an argument against the theory that
the course was intended for an aqueduct. It might be urged that
on so low a gradient the water would be so long in flowing from
Compton to Dorchester that much of it would sink into the
ground and be lost, and that a very small quantity, if any, would
be delivered. Now, in reply to these objections, it should be
taken into account that the chalk which underlies these downs is
of a very close texture, so that there would be comparatively
little leakage through it. There would be fissures in it, no doubt, but the ashes or the Oxford Clay from Compton, mingled with the first water sent down, and the chalk disintegrated by the frost, might close them sufficiently.* Where the soil was more open—or, indeed, throughout the whole course—earthenware pipes might have been used. When water was conveyed through pipes, it was customary to make reservoirs along the aqueduct at distances of three or four miles, so that a section of the aqueduct could be repaired without taking up the whole. The reservoirs would also, by breaking up the course into lengths, prevent any undue pressure being put upon the pipes. If pipes were used, a much smaller reservoir at the spring head would have been required.

Major Coates, however, believes that the conveyance of the water was by means of an open water course and not by pipes, and that the aqueduct was used only when the water was in flood. As to the low gradient, he informs me that, according to Molesworth's tables, if the maximum mean depth of the channel was two feet and the cross section twelve square feet, the velocity of water along it would be two and a quarter feet a second with a fall of four feet in a mile, and six feet a second with a fall of one two-hundredths, as recommended by Vitruvius;

* Whether an aqueduct cut in the Chalk along the side of a hill would or would not convey water need be no matter for speculation, because we have such an aqueduct close to Dorchester which has been running for centuries, and we can observe it in operation. It may be seen near the foot of the hill upon which the gaol and Poundbury Camp stand; along the foot of this range of hill it is cut for some distance in the Chalk. Upon the bank of the channel below the gaol is a footpath, and on the other side of the footpath a ditch, six or eight feet from the channel, and below the level of the water which runs in it; the leakage both here and a little above, where the meadow is below the level of the water, can be observed that it is not excessive. What has made this channel watertight? It may be answered: the alluvial soil brought down by the stream has been carried into the fissures between the lumps of chalk and there compressed by the weight of the superincumbent water. If this has rendered the channel watertight, may not the Romans, as their practice was, have sent down the aqueduct clay mingled with the water, and so rendered the chalk channel sufficiently watertight to convey the water without excessive waste to Dorchester? There is abundance of Oxford Clay at Compton; indeed, the village is built upon it.
but the latter speed would, he thinks, erode the banks of an unpaved channel. The speed of two and a-quarter feet a second with twelve square feet cross section gives a discharge of twenty-seven cubic feet, or 168 gallons a second, but velocity and consequent amount of delivery falls off rapidly as the mean depth diminishes.

With regard to the water supply itself, at Compton there is a spring of water, excellent in quality. The volume is not now large, but in all probability in Roman times, before the land was cleared, the springs were fuller and the rainfall greater; but, if this was not the case, a large supply of water could be obtained from the rainfall on the slopes. If the rainfall in those days averaged only thirty-six inches in the course of the year, one square mile would yield nearly forty-two million cubic feet of water, \textit{i.e.}, 260 million gallons. If discharged continuously with no waste, this would give a supply of eight gallons a second; only a fraction of this would be actually delivered, but a much larger proportion of the rainfall would be collected on a slope with watertight strata underlying it than on more porous soil.

As to the castellum, or rather castella, the reservoirs which directly supplied the town, for Vitruvius mentions three, Major Coates in his paper expressed the opinion that the depression now occupied by the public gardens was the most likely spot for the reservoirs. Those who, like myself, examined the spot carefully for traces of the Roman fortification of the town before the gardens were laid out, will remember that the tops of two of the valla, somewhat worn down, were clearly apparent in the field which is now the northern end of the gardens, and that these terminated abruptly near the hedge between the two fields into which the site of the gardens was then divided, and that the second field was on a much lower level. South of the latter field Mr. Cunnington, I believe, again found the vallum and fossa, and I am told that the drawing of a section of them is now in the County Museum.

Any member of the Field Club who may wish to examine the water course where it is to the eye most perfect should examine
the remains of it at Bradford Peverell. Near the church is the gateway of the drive to Bradford Peverell House; a few yards up from that the aqueduct will be seen on both sides of the road. On the left hand side it winds along the steep slope of the hill; on that side, behind the barn, it has been cut into by the road surveyor to obtain chalk for the roads, and the bank of chalk thrown out by the Roman excavators in making the aqueduct has been cut through. The section proves that the excavations were not made to obtain cultivation levels, for not only is the slope too steep to make this profitable, but, though the soil is here very shallow, and every spit of it would have been invaluable for cultivation, it was not removed to be re-placed on the top of the moved chalk, but the chalk from the aqueduct has been thrown out on the top of it, and that so loosely that the fingers, or even the hand, can in places be thrust in between lumps. The section shows, underneath, the solid chalk rock with the ancient soil on the top of it, over which is the loose chalk thrown out of the aqueduct, and above that the soil which in the course of ages has been formed upon the surface.

It is significant that terraces similar to those of Major Coates' aqueduct do not occur in any of the other lateral valleys of the Frome. There are none above Frampton.

Postscript.

Since the above paper was written the watercourse has been carefully surveyed at critical points, and the survey has proved generally favourable to Major Coates' theory. I hope the surveyors, who have devoted much time and labour to the work, may be induced to give the details of their work in these pages.

Excavations have also been made at points A, B, C (see map), and the channel of the aqueduct exposed. It is cut in the solid chalk 2ft. 6in. to 2ft. 9in. in depth, and is six feet in width at the bottom; the sides are almost perpendicular. At Poundbury the
chalk sides of the channel were perfect, but at Combe Bottom, about nine inches of the top of the sides were a little broken down, which was to be expected in an open field frequented by cattle.

The filling of the trench at Poundbury (A, see map), was wholly of fine earth, and amongst it, at about two feet from the surface, a horseshoe of mediæval or Roman form was dug up with two nails still in it. The horseshoe is now in the Museum.

At Combe Bottom (B) the filling of the trench was at the bottom fine earth, containing what appeared to be clay. At the top flints, which abound in the valley, were intermingled with the soil.

At Bradford (C) the channel was not dug out; it would have required too much labour to remove the large quantity of earth which now buries it, but the outer bank was cut through, showing, as in the section dug out a little beyond it by the road surveyor, the original slope of the hill, and the chalk thrown out of the channel upon the top of it by the Roman excavators.

At Poundbury the channel was lined with a material which might have been cement. I think there had been the same lining at Combe Bottom, but there it was more broken up. The material was of a very tough and tenacious nature, and was with difficulty removed with a spade; it hardened on exposure to the air.

The survey showed that the gradient was exceedingly low, for which reason it now seems possible that the stream may have run down its natural channel, or not far from it, from Compton to Littlemore; this channel might have been paved, or pipes may have been used. The reservoir into which it emptied, and which would be the head of the gradient aqueduct, should be looked for at Littlemore. The artificial tanks near the Rectory may have been constructed to serve as the spring head. But these are conjectures; the one fact which seems clear and indisputable is that there was an aqueduct which conveyed water to Dorchester in ancient times, and that the excavations have disclosed it.
FIG. 1.—LANDSLIP OF MAY 1ST, 1900, ON JORDAN CLIFF, NEAR WEYMOUTH,
SHOWING GATE, WALL, AND IRON RAILING, IN SITU, 30 FEET BELOW ORIGINAL LEVEL. [Photographed Sept., 1900.]
A Recent Landslip on Jordan Cliff, 
with a Suggestion as to 
One of the Causes of Hill Terraces.

By NELSON M. RICHARDSON, B.A., F.E.S.

(Read December 13th, 1900.)

(Note added September 3rd, 1901.)

LAST summer my friend, Mr. J. A. Pepys, who was 
staying at Weymouth for a short time, told me 
that he wished to show me a very striking, though 
not extensive landslip which had taken place 
just beyond the River Jordan at Preston, and I 
thought it deserved some record in the Proceed-
ings of the Field Club, especially considering 
the prominence now given to the subject of 
coast erosion, in which landslips form a great feature. I should 
like here to acknowledge my thanks to Mr. Pepys, as without 
his information I should probably never have heard of the 
landslip. I went early in September and took the photo-
graphs, which are here reproduced (Figs. 1, 2), from which it will 
be seen that the strip of land has sunk down almost vertically, 
carrying with it at about the middle of its length a piece of wall,
gate-posts and gate, and some iron railing, all uninjured and in the positions they occupied when on the cliff above. The continuation of this wall runs for some distance straight inland, and its broken end is shown in Fig. 2, slightly overhanging the present edge of the top cliff. I am told by a coastguard at the Preston Coastguard Station that on the night of April 30th, 1900, the coastguard on duty walked along the edge of the cliff as usual, and passed through the very gate which a few hours afterwards sank down 30 feet, and that there was then no sign of any movement. On the morning of May 1st, at about six o'clock, he was on duty at the station, which is rather less than ½ mile from the landslip in a straight line, when he heard a loud rumbling sound, which only lasted a short time, and which he took to be the firing of guns, though he wondered at their being fired at that unusual time. About 8 o'clock the farmer came to tell him what had occurred. Though the main slip lasted for a very short time only, he says that masses of earth and stones from the cliff continued to fall into the sea for several days.

When I first visited the spot at the end of August, I found that a strip of land covered with turf, from 8 to 10 yards broad and about 200 yards long, had sunk down almost vertically to a depth of 30 feet in the middle, but with a slight downward slope towards the land, which in November amounted to about 15°, but was then slightly less. The strip runs nearly east and west, the east end being at the extreme summit of the hill marked Jordan Cliff in the map in Damon’s Geology of Weymouth. It is the hill immediately to the east of the River Jordan, which forms a cliff on the coast, and not what is usually known as “Jordan Hill,” which is composed of Oxford clay, and on which the Preston Coastguard Station stands. This latter hill lies to the west of the Jordan.

The strip composing this landslip, which I shall allude to as the “May slip,” slopes gently downwards towards the west. It ends abruptly on the east, at about 100 yards from the wall mentioned above, and was at first joined on to the cliff at this
FIG. II—GENERAL VIEW OF LANDSLIP OF MAY 1ST, 1900, ON JORDAN CLIFF.
A RECENT LANDSLIP ON JORDAN CLIFF.

point, so that one could walk on to the slip; but, when I saw it
a chasm had opened by the slip falling away from the main cliff,
which is now (November 17th, 1900), about 5 feet wide and of
considerable depth. On the 10th of December, when I again
saw the place, this chasm had been nearly filled up with rubble
which had fallen from the main cliff, no doubt through the heavy
rains.

At the western extremity of the slip, which was at first only
about 80 yards from the wall, the ending is very indefinite, and
fresh cracks are being gradually formed, and have (November
17th) extended 20 yards or so further west in the last two
months. Towards each end the outer edge of this strip forms a
cliff of 20 or 30 feet high, and here in all probability a fresh
subsidence of the strip will take place before long, as cracks are
opening and widening; but in the middle, on the contrary,
cracks, which two months ago were 1 to 2 feet wide and 8 or
10 feet deep, have entirely closed up, leaving hardly any
trace.

When I photographed the landslip in September, I placed the
legs of the camera across a chasm about 18 inches broad, and in
the excitement of the moment, forgetting its existence, stepped
into it myself, which impressed it on my mind, as well as my
body! This chasm has, with others, so closed up that the crack
is not now more than an inch or two wide.

There is no cliff below this middle portion of the May slip
as at the ends, and one can easily walk down on to the older
landslip terraces below. On visiting the place on December
10th, 1900, I found that the western end of the May slip had
already much altered in character since November 17th, when
the above was written. The cracks have opened out greatly
and several falls have taken place, to such an extent that I
considered it hardly safe to venture on to the slip itself, as the
whole of that end was so much broken up, and apparently in
very unstable equilibrium. More rubble had also fallen from the
main cliff, partly covering the gate shown in the photograph,
but the middle parts of the slip were unchanged.
Having described the strip itself, which subsided on May 1st last, I would point out further that it is only one of a series of very similar slips of which I know of no historical or traditional record, but some of which, from appearances, must have taken place in very recent times. The horizontal distance from the cliff to the sea in this part amounts at the east end of the "May slip," which is, as will be remembered, at the extreme top of the hill, to about 150 yards, roughly speaking, and in this distance something like seven or eight slips can be traced more or less distinctly, each forming a terrace with a steep slope behind it. About the middle of the May slip the ground is very much broken up with recent cracks, showing that the whole must have moved lately, probably last May, but in most parts it is much less rugged, and, if no more slips take place for a long period, it will no doubt become an irregular succession of smooth terraces varying in breadth, as at present, from about 5 to 20 yards.

This suggests an idea, in passing, that some of the terraces we see on the sides of hills, for which many causes have been assigned, such as worms, sheep, cultivation, the denudation of strata of varying hardness, the ancient action of rivers, &c., may be due to a succession of small landslips such as have occurred here.

The diagram of section of cliff does not lay claim to extreme accuracy, as it was made from rough measurements, without instruments, but it is sufficient to give a very fair idea of the section of the cliff at a point about 250 yards to the east of the gate which is on the May landslip, or about half a mile to the east of the River Jordan. The part filled in with horizontal lines represents the unmoved portion of the cliff below the landslips, which have slid down over it. The part filled in with vertical lines represents the portion which has moved in different successive landslips, and has not yet fallen over the cliff into the sea. At the lower end of this comes a steep cliff with the seashore at the bottom. The faces of both this and the cliff at the top are bare of grass, or nearly so, the remainder being quite covered. There are a few cracks of a foot or so broad towards the top, but
Diagram shewing section of Jordan Cliff with terraces (1–9) formed by landslips, about half-a-mile to the East of the river Jordan, near Weymouth.
the ground is fairly solid elsewhere. Some of the grassy strips, which are the tops of old landslips, extend for a considerable distance along the face of the cliff and form regular well-marked terraces. This is especially the case in those numbered 3, 5, 6, and 9, whereas 4, 7, and 8 are very small ones.

A section 50 yards to the west would show about the same total number of terraces, but all, except two or three, would be slightly different from these.

I have drawn dotted black lines on the diagram to show what I suppose to be the limits of each little landslide. No. 1 is the oldest and No. 9 the most recent, but of their respective dates I have no record.

A walk on the narrow beach underneath will help us to understand how all this movement is accomplished by the united aid of the rain above and the sea below.

In the first place, the hill is seen to be composed of Coral-rag, and what is called by Damon “Calcareous grit.” This appears to be Coral-rag much broken up into rubble and mixed with earthy matter. A stratum of solid stone about 6 feet thick, shown in the diagram by slanting lines, is situated at about 20 feet above the beach towards the west, but rises higher towards the east of this hill to perhaps 40 or 50 feet. Mr. W. H. Hudleston tells us that these strata belong to beds known as “Nothe Clay.” The hill occupies about a mile of coast, and rises to a height of 150 feet or thereabouts. Below this solid stratum is a less solid one much divided by cracks, which is gradually undermined by the sea. After a time a fall takes place of the solid stratum, and for a space of nearly 200 yards (which begins about 200 yards east of the River Jordan) there must have been such a fall within a year or two, as the beach is covered with numerous large masses of rock of the thickness of this stratum, viz., 6 feet, and in some cases 10 feet by 8 feet in size. These present a very fresh appearance, and are not yet rounded by the sea. The remains of the lowest bed have mostly disappeared, as well as of the rubbly beds above, though there are (November 17th, 1900), heaps of several cart loads each of
earth and rubble, which must have slipped down in the last few days, as the sea has not yet affected them.

When the support of this solid stratum is removed, all the overlying beds vertically above it and for some feet inland must come down with it, and would very soon be washed away, leaving a nearly perpendicular cliff. The top of this cliff is the lowest of a series of terraces rising in succession to the last formed one near the summit of the hill. So much for the action of the sea. This is the present state of about 200 yards of the cliff to the west of the May landslide.

It will be observed, as in the case of the May slip, that the terraces formed by these landslips have almost always the outer edge higher than the inner one, the cause of this tilting being that the mass of land forming the slip breaks off and slides at first vertically and then along a slope, as shown in the diagram, by which means its upper surface is tilted and slopes down towards the land. This is counterbalanced in slip No. 9 on the diagram (which is not the May slip, but a corresponding one further east), by the quantity of rubble which has afterwards in this case, fallen from the cliff above and made the surface more horizontal. It will be noticed that the rain stands in these tilted terraces, sometimes forming small ponds. This slowly filters down some crack, and may often be seen coming out in a tiny stream in the face of the cliff below. It is clear that, other circumstances being favourable, it will form a slippery subterranean surface, down which the mass of ground immediately over it will have a tendency to slide, especially after very heavy rains. A good instance of this may be seen at a spot about 250 yards east of the Jordan, where there is a slight indentation in the cliff caused by a recent slip of the rubbly beds. At a short distance above the beach is a hole, out of which a small stream trickles, making all the bank below it wet and sticky, whilst the part above is dry. Before the bank slipped and formed this indentation, this little stream must have had a lower outlet and produced the slippery surface underneath the now fallen piece, along which it slid down. This is an instance of
the first step due to the rain. The first slip will go right down into the sea and be, as in this case, carried entirely away. But the terrace above holds in another collection of water, which also drains away underneath it and undermines it, so that before long it also slips, but may probably not reach the beach, but merely fall some feet below its present position. The terraces above it will sooner or later do the same, and a fresh one will finally separate itself from the solid hill and slide down as this landslip, which is the subject of my paper, did last May. The sea is, meanwhile, carrying on its independent action below and preparing for a fresh series of falls.

It would seem that there are two main independent movements always in progress.

1. The whole mass of rock forming the landslips (as shown by vertical lines in the diagram) is sliding continuously downwards at the rate of, perhaps, a foot or two in a year.

2. At considerable intervals, perhaps twenty or thirty years or more, there occurs a fresh slip at the top of the cliff, which slides suddenly perhaps 30 feet and then forms part of the whole slowly sliding mass.

Besides these movements there are many more local ones continually occurring, and the fall of a fresh slip would probably cause a more or less general disturbance by the shock.

When I first saw these 200 yards of freshly-fallen masses of rock on the beach, I naturally associated them with the May landslip, but, by measuring their position, I ascertained that they did not lie below the May landslip, but entirely to the west of it, and that they had, therefore, no connection with it, but formed the first stage in an adjacent series of slips. I have been particular in giving their position, as in future years some important data may be, perhaps, thus obtained as to the rate of coast erosion at this point.

It would seem from the fact that there is very little in the way of blocks on that part of the shore immediately below the May slip that a considerable time must have elapsed since the last subsidence of the 6 feet band of stone through the action of the
sea just at this spot, as it would doubtless take some time to destroy a block of 400 to 500 cubic feet. It must, therefore, have taken a long time for sufficient slipping of the whole mass to have taken place to cause the slip of May last at the top.

Reverting again to the explanation I have suggested (which would not, of course, apply to all cases) of some of the terraced slopes that we see on the sides of hills inland, let us go back to the time when a stream began to cut its way through the surface of a raised mass of land, which was the way in which our valleys began to be formed, and had got sufficiently far down to produce a cliff on each side of 20 or 30 feet high. Falls would take place and be gradually swept away by the stream, which would have much the same action on the parts it touched as the sea on Jordan Cliff, with a similar result if the strata were similar, producing eventually by a series of landslips a set of little terraces, as in the diagram.

Probably, however, the work would be slower, and a time would come when it would almost cease, when the level of the stream had descended so far that it became sluggish and exercised very little denuding action.

The process being slower, more time would be allowed for the smoothing action of other influences, such as rain, wind, animals, worms, and even cultivation, which might find its terraces ready-made and only a little rough. The result would be that the terraces would be smoother, and all cracks would entirely disappear by the time that all were formed, and on most hills sheep or other animals are pastured, which would very materially help the smoothing process. It will be noticed that, as a rule, on these little landslips on Jordan Cliff the original surface soil is not much disturbed, which would be better for the cultivation than if the good soil had been washed away. It has often struck me that in many of the hill terraces one sees elsewhere there is no regularity, but they go up and down and end, and a fresh one begins, very much as is the case on Jordan Cliff, where the cause is clear. Even here, where very insufficient time is allowed for the purpose, it is wonderful how smooth some of the terraces
have become, and, could the sea be limited in its action or
stopped for 100 years or so, I feel little doubt that we should
have a fine hillside with a series of smooth irregularly shaped
terraces very much like what may be seen on numbers of our
Dorset inland hills.

Here, however, the sea goes on encroaching, and slips are
continuously occurring; so that by the time that the terraces on the
face of the hill are beginning to become regular and smooth, they
slip away and are replaced by others. In the case of a river this
movement must eventually come to an end, and the smoothing
process has afterwards an indefinite time in which to do its
work. In Dorset the rivers are now all sluggish, and the terraces
are fully formed, but, should any of them have been formed in
the way I suggest, they must at one time have closely resembled
those at present to be seen on Jordan Cliff and at many other
similar spots on the coast.

Note.—On visiting Jordan Cliff on September 3rd, 1901, I
found that no fresh slip had taken place since the slip of May
1st, 1900, which was the subject of the above paper, but the
surface of this “May slip” had since November, 1900, become
much more tilted, so that it sloped downwards towards the land
so as to make an angle of about 22°, with the horizontal at the
gate, and in other parts as much as 35°. This appeared to be
due to a further sinking of about 5 to 10 feet in different parts,
as the part at the gate was now about 38 feet below the top of
the cliff, it having been only about 30 feet in November, 1900.
A good deal more loose earth and stones have fallen on the gate
and elsewhere from the face of the cliff. The outside part of the
central portion of the “May slip” has also somewhat crumbled
down on to the terrace below, though in most places these
outside parts are still in position. The surface of the slip is
much broken up by cracks at the west end, though perhaps
hardly as much so as in November, 1900, but it has extended in
this direction by about 20 yards, cracks being traceable for
122 yards from the wall westwards. At the east end the slip has
sunk about 5 or 6 feet since last November, but has not extended laterally. Captain A. Rickards, who accompanied me on this visit, called my attention to the fact that at some distance inland there was a crack of some inches wide extending from the east side of the wall continuously for about two-thirds of the way down the western side of the hill parallel to the edge of the cliff. A subsidence of a few inches has also taken place in the outer portion, which forms a strip about 80 yards wide. This crack is very strongly marked by a large break in the wall which runs direct inland from the middle of the "May slip." This break is 78 yards from the edge of the cliff. There are a few slight cracks in this wall at distances of 5, 13, 18, and 22 yards from the cliff edge, but these are at present less than an inch wide and are not traceable in the ground. The large one at 78 yards would appear to foretell a slip on a much larger scale in the not far distant future.
The Giant and the Maypole of Cerne.

By HY. COLLEY MARCH, M.D., F.S.A.

The cult of the maypole extended at one period throughout the whole of Europe, and the time of its celebration was the spring. The tree selected was usually a birch or fir—a fact that suggests an Aryan preference; but other tall stems, like that of the poplar (1), would serve. It was brought from the forest into the hamlet by the general populace; in some places by women only (2); later by the corporate guild; and, last of all, by troops of children. The going forth for this purpose was a joyful and eager event.

"There's not a budding boy, or girl, this day
But is got up and gone to bring in May;
Each porch, each door, ere this
An ark, a tabernacle is.
Ah! then, come forth; wash, dress, be brief in praying;
Few beads are best when once we go a-Maying.
We shall grow old space, and die
Before we know our liberty;
Then while time serves, and we are but decaying,
Come, my Corinna! come, let's go a-Maying."

(1) In the Hautes Pyrénées, a fir or poplar. Among the Wends, a birch. In the Hartz, an oak adorned with birch branches. See Der Baumkultus, by Wilhelm Mannhardt, Berlin.
(2) As among the Wends.
(3) See Herrick.
The tree was prepared by lopping off all except the topmost boughs, which were left green, and called the crown; and the trunk was stripped of its bark. There was often attached to the pole a circular wreath, which in some places (4) was made of the size and shape of a waggon wheel, the roue solaire; and four cross-bows were bent against the evil winds (5) as a menace to the demons of destruction.

The peeling of the stem was often done in such wise as to show stripes or spiral bands, which in later times were superseded by ribbons.

Smaller boughs, fashioned like little maypoles, were placed in cattle-stalls over the heads of horses and cows (6) to promote fecundity and lactation, and to avert witchcraft; and were often set up in front of the dwellings of marriageable girls.

Among the Wends it was the duty of the Mayor of the village to ascend the tree and affix to its summit a masculine cross of wood surmounted by an iron cock. The former was sometimes omitted, but never the bird, which, as in Sweden, was an especial symbol of fertility both as to animal life and as to fruit and corn.

An essential part of the annual ceremony was the dance, which, with high leaps and bounds, was carried round the pole in the course of the apparent solar movement, from left to right; and this performance was required (7), at any intermediate time, of a young wife brought into the community by marriage.

A further solar association is to be seen in the facts that sometimes the pole (8), and even the wreath, were ultimately consumed in the midsummer fire; and that the collection of materials for this conflagration was begun at Easter (9).

Municipal interest was shown by attaching to the tree local flags or national banners. Any person who has travelled this year from Paris to Marseilles may have seen, near the railway in a

(4) As Questenber
(5) In Bavaria.
(9) In Ireland and in Alsace.
A. "Maypole," near Luc, France, as seen in August, 1901.
B. Map, traced from the Ordnance Survey Map.
village a little south of Luc, a maypole, stripped and peeled, with its green crown, its circular wreath, and the Tricolour of the Republic flying below. (See figure A.)

Ecclesiastical sanction may be seen in many particulars. Of the "church ales," the most important was the Whitsun drinking. The vernal erection of the pole and the summer fire were, as festivals, assigned to those of the calendar—to Ascension Day, to Whitsuntide, St. John's Day, June 24th, St. Peter's Day (10), St. Theobald's Day (11), and to the Day of the Visitation of the Blessed Virgin (12). Following, in Christian manner, the suggestion of the cross and the cock, the instruments of the Passion were (13) fastened to the maypole—the pillar, scourge, rod, ladder, cock, sword, lantern, hammer, tongs, nails, dice, spear, sponge, and pitcher.

Further evidence of ecclesiastical sanction may be gleaned from churchwardens' accounts. Thus, in the parish of Wing, Bucks, there is recorded, under the year 1593, "pd. for iron for the maypole xijd.," and, in 1595, "pd. for takyng downe of maypoles and lainge ym up xd." Also, in the parish of Eltham, Kent, in 1562, "pd. to the boys for the maypole vjd." With this may be compared a statement in an old Roman calendar that on April 30th "Maii arbores a pueris exquirentur."

The pole itself was, in some cases, left standing for five years, and elsewhere, as in the Hartz, for seven years; but the annual decoration and festival were strictly observed. Sometimes greater permanence was obtained by building a huge structure of many tree trunks joined together. Such, perhaps, was the great maypole in Cornhill set up before the parish church, which was, in consequence, called St. Andrew Undershaft; and that other, in the Strand, a remnant of which had stood all through the Protectorate, and to which, as Pepys records, the butchers ran on the 11th of February, 1660, "to sacrifice their rump," for Monk had proclaimed the Restoration; cakes and ale were

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(10) In Angoulême, June 29th. (11) In Alsace, June 30th.
(12) Among the Wends, July 2nd. (13) In Bavaria.
in again; all the church bells were ringing, and "31 bonfires could be counted from the bridge."

Attention has been called to a boundary charter, granted in the reign of King John, as containing the oldest recorded mention of the maypole. The words cited are "De Lostock mepul, ubi crux sita fuit, recta linea in anstro, usque ad crucem super le Tunge"—from Lostock mepul, where a cross once stood, in a straight line southwards to the cross on the Tonge. "This maypole," it is further said (14), "must have formed one of the land-marks which defined the boundaries, and must, therefore, have been a permanent erection."

It is true that crosses, and even crucifixes, were often used—indeed, are still employed—as terminal signs. Thus, in a charter assigned to the year 851, the definition runs:—"ondlang ðæs hearpoðes to ðæm Criste maéle, and swa fram ðám Cristes maéle ofdúnweard ondlang ánre ealdre díc": along the high road to the crucifix and from the crucifix down along an old ditch (15). A cross by its sacred character resisted removal, though in the case first cited the cross had vanished.

Boundary marks less easily disturbed are trees, and they were frequently used for this purpose.

For example, in a charter of the year 772 occurs the following:—"innon ða scip ác—in ða grátan æspan—in ðæt hreáde sloh—innon ða sif áecc—on ða hárán apeltreó" (16); to the lopped oak, to the great aspen, to the red sloe, to five-oaks, to the old appletree. The next two extracts, from charters of the respective years 774 and 770, are still more to the point:—"and swá in smalan æsc in ðonne mapultre" (17): to the little ash and then to the maple. "Of ðám syrftreówe in ðæt ruge mapeltreów" (18): from the rowan to the maple.

(14) R. T. Hampson, Medii Ævi Kalendarium, p. 238.
(15) Kemble's Codex III., 393.
(16) Kemble's Codex III., 382.
(17) Kemble's Codex III., 381.
(18) Kemble's Codex III., 379.
The maple, then, was used, like other trees, for a boundary mark; but, assuredly, the maypole never (19).

It would seem that no function, however simple, or pastoral, or divine, has been free at all times from debauchery. Of the celebration of the central Sacrament of the Christian religion St. Paul had to complain that "one was hungry and another drunken" (20). Church ales were often denounced as the cause of unseemly revels; and the festival of the maypole called forth ample invective. "Hundreds of men, women, and children go off to the woods and groves, and spend all the night in pastimes, and in the morning they return with birche boughs and branches of trees to deck their assemblies withal. And they bring home with great veneration the Maie-pole, their stinking idol rather, covered all over with flowers and herbes, and then fall they to leaping and dauncing about it, as the heathen people did. I have heard it crediblie reported by men of great gravity that, of an hundred maides going to the wood, there have scarcely the third part of them returned home againe as they went" (21).

The Long Parliament, mainly composed of "men of great gravity," made an ordinance in April, 1644, that all maypoles were to be taken down and removed by the constables, churchwardens, and other parish officers; but it met with no little resistance.

The parishioners of Cerne seem to have been subject to violent alternations of the conservative and the iconoclastic spirit; and it is remarkable that they anticipated this Puritan enactment, for in their churchwardens' accounts of the year 1635 occurs the entry, "Paid Anth. Thorne and others for taking down ye maypole and making a town ladder of it, oo. 03. 10" (22).

(19) It may be noted that in a charter of the year 972 is the word mawpul. The sentence runs:—"ondlang ðære stræt tó mawpul, andlang pulles on temedan." Here the word is clearly mewpool, the pond or lake of the mew, a seafowl, but not necessarily the gull.

(20) I. Cor. ii., 21.
(21) Philip Stubbes, Anatomic of Abuses, 1583.
(22) The Cerne maypole was destroyed in 1635; the existing altar in the parish church was erected in 1638, the pulpit in 1640; and the Long Parliament's Ordinance was issued in 1644.
But, after the advent of Charles II., the maypole was set up again and had a long life. Robert Childs, the present sexton, well remembers it. "It was made," he says, "every year from a fir-bole, and was raised in the night. It was erected in the ring just above the Giant. It was decorated, and the villagers went up the hill and danced round the pole on the 1st of May."

The fact just mentioned deserves especial notice. Cerne had been a busy town, and had some sort of market-place, as well as a village green. But the maypole was set up in neither of these places, but nearly half a mile away, on the top of a very steep hill, "in the ring just above the Giant." (See figure B.) This ring is of a rhomboidal shape, an approximate square, each side measuring about 120 feet, or, according to Hutchins, 110 feet. On the opposite side of the valley, on Black Hill, is another "square camp." Two similar camps were excavated by the late General Pitt-Rivers, and of these that at South Lodge is 150 feet square and that on Handley Hill 108 feet square.

No iron was found in them, but bronze implements and weapons in abundance, with tools of horn and flint, and fragments of pottery that revealed a continued occupation into Romano-British times. Now, if exploration has assigned such rhomboidal camps to the Bronze Age, it has proved with equal certitude that a very large proportion of the barrows of Dorset also belonged to that period of civilization.

Has the Cerne Giant a like affinity? Or is it mediaeval, or even modern? But it cannot be modern, because William Stukeley described it as ancient in a paper, not hitherto published, but now given as an appendix, which he read to the Society of Antiquaries in 1764 (23). And, assuredly, few persons can believe that it is mediaeval, the work of monks, though they

(23) This paper is preserved in the Minute Book of the Society of Antiquaries, Vol. IX., p. 233. The Cerne Giant is not mentioned by Stukeley in his works, "Itinerarum Curiosum," 1724; "Palæographia Britannica," 1743; "Itinerarum Curiosum Centuria," 1776.
failed, or were not permitted, to demolish it. Probably they pointed to it as a symbol of the Paganism that Christ came to subvert, and were content to put their mark upon it, as they would carve a cross on a cromlech, to arrest its power for evil by means of a holy signature, which Hutchins saw in August, 1772, and carefully copied. (See figure C.)

The figures can hardly form part of a date. They are not Roman numerals, and Arabic letters were not introduced until the XV. century. The formula, I.H.S., was also of late introduction, and would be altogether inappropriate.

The Giant has usually been repaired every seven years, and was last set in order in 1887 by Jonathan Hardy, now 69 years of age, under the direction of General Pitt-Rivers. It is difficult to believe that the original form of a signature has been exactly preserved by those who were totally unacquainted with its meaning. Speculation, therefore, though easy, is unsafe. But of the letters that were drawn by Hutchins, the first is J.; the second precisely resembles the sign for Saturn in use prior to the XIV. century (24) or it may be H.; and the third may be D. So that the signature would read:—Jehovah [or Jesus], Saturnum [or Hoc] Destruxit, God has overthrown this idol [or Saturn]. Saturn was the god of agriculture and growth, the devourer of his own children (25), the fabled author of circumcision (26), who bore an implement in his right hand, whose festival was celebrated with riotous merriment, and to whom human sacrifices were offered. Combined with such a conceit may have been a monkish play on the word Satan.

Passing from conjecture, it is certain that the Cerne Giant presents five characteristics:

1. It is petrographic. It is cut into the chalk on the side of a steep hill. It is, therefore, a rock carving,

(24) Adriano Capelli, Dizionario di Abbreviazure Latine, 1899, p. 368.
(25) One of the local legends is that the Giant devoured virgins.
(26) Eusebius, Prep., I., 10.
2. It is colossal, and, therefore, betokens divinity (27). Such an indication is given in other examples by making the divine figure, small though it may be, much larger than adjacent figures.

3. It is nude. This is another sign of divinity. It was the custom in early art to represent unrobed the shape of the superior gods. Man and the inferior gods were clothed.

4. It is ithyphallic, and so stood for those highest of all deities, the creative or cosmogonic, whose function was to inseminate, to fructify, to fecundate. This characteristic is not necessarily associated with the preceding. The Egyptian divinity Khem, for instance, “dieu ithyphallique, est représenté debout, le corps enveloppé comme celui d'une momie, le bras droit levé dans l'attitude du semeur, la main ouverte; et près de cette main est le figure du flagellum. Il paraît symboliser la force génératrice, prince des renaissances, survivant à la mort. Il aussi symbolise la végétation et la germination” (28).

5. Lastly, the Giant is clavigerous. It bears a weapon in its right hand.

(27) The area covered by the Giant is nearly half an acre. The dimensions given by Hutchins, 1774, are:

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole length</td>
<td>180</td>
</tr>
<tr>
<td>Length of foot</td>
<td>18</td>
</tr>
<tr>
<td>Breadth of foot</td>
<td>8</td>
</tr>
<tr>
<td>Small of leg</td>
<td>8</td>
</tr>
<tr>
<td>Calf</td>
<td>12</td>
</tr>
<tr>
<td>Thigh</td>
<td>18</td>
</tr>
<tr>
<td>Length of leg and thigh</td>
<td>85</td>
</tr>
<tr>
<td>From the top of thigh to the</td>
<td></td>
</tr>
<tr>
<td>top of the head</td>
<td>95</td>
</tr>
<tr>
<td>Length of ribs</td>
<td>16</td>
</tr>
<tr>
<td>Breadth of shoulder</td>
<td>44</td>
</tr>
<tr>
<td>Elbow</td>
<td>19</td>
</tr>
<tr>
<td>Length of fingers</td>
<td>7</td>
</tr>
<tr>
<td>Breadth of hand</td>
<td>12</td>
</tr>
<tr>
<td>Breadth of wrist</td>
<td>7</td>
</tr>
<tr>
<td>From wrist to elbow</td>
<td>30</td>
</tr>
<tr>
<td>From elbow to shoulder</td>
<td>55</td>
</tr>
<tr>
<td>Length of arm</td>
<td>102</td>
</tr>
<tr>
<td>Length of the club</td>
<td>120</td>
</tr>
<tr>
<td>Breadth of its knots</td>
<td>4</td>
</tr>
<tr>
<td>At other places</td>
<td>7</td>
</tr>
<tr>
<td>Length of face</td>
<td>23\frac{1}{2}</td>
</tr>
<tr>
<td>Breath</td>
<td>9</td>
</tr>
<tr>
<td>Of chin</td>
<td>6</td>
</tr>
<tr>
<td>Of mouth</td>
<td>3\frac{1}{4}</td>
</tr>
<tr>
<td>Length of nose</td>
<td>6</td>
</tr>
<tr>
<td>Breadth</td>
<td>2\frac{1}{4}</td>
</tr>
<tr>
<td>Diameter of eye</td>
<td>2\frac{3}{4}</td>
</tr>
<tr>
<td>Breasts</td>
<td>7</td>
</tr>
</tbody>
</table>

Forms which possess these five characteristics have been found in the rock carvings of Scandinavia (see Worsaae, Danish Arts, p. 112, for a divinity, cut on a granite rock, in Denmark), and belong only to the Bronze Age, or to its overlap with the Early Age of Iron.

If the Cerne maypole that stood away on Trendle Hill, instead of on the village green, had its vicissitudes, its changing fortune in the conflict with a new faith, no less had the Cerne Giant.

This is revealed in a story told by Gotselin, a French monk of St. Bertin, who died in 1098. He came to this country in 1058, and, as an inmate of various English monasteries, such as Canterbury, Salisbury, St. Bede's, St. Ive's, was chiefly employed in composing lives of the Saints, or "inflated versions of older writers." "His collections of miracles," observes Wright, (29) "are valuable because they contain some curious illustrations of contemporary history."

Jerome Porter has translated some of these biographies in his Flores Sanctorum (30), where Gotselin relates that St. Augustine "coming into the countie of Dorsett allwaies announcing Christ's holy Ghospell, he arrived at a village where the wicked people not only refused to obey his doctrine, but very impiously and oppressiously beat him and his fellowes out of their village and in mockerie fastened Fish-tayles at their backs: which became a new purchase of eternall glory to the Saints, but a perpetuall ignominie to the doers. For it is reported that all that generation had that given them by nature which soe contemptibly they fastened on the backs of these holy men. And Saint Augustine having left these wicked people to Carrie the markes of their owne shame, and travelled with his holy companie about five miles further through desert and unhabited places, being cruelly oppressed with the three familiar discomodities of

(29) Biographia Britannica Literaria, I., 520.
travellers, hunger, thirst, and wearines, he that sate upon the fountaine wearied with his journey, Christ Jesus, voutchsaied to appeare visibly unto him with words of heavenly comfort and encouragement. Then the holy man, being refreshed with the sweet fountaine of eternall life, fell presently upon his knees and adored the place of Christ's footsteps, and striking his staffe into the ground there straight sprung forth a cleere fountaine of cristall streames, in which all his fellowes quenched the extremitie of their thirst and gave infinite thankes to Allmightie God who had voutchsaed to helpe them in that necessitie.

"And the same place was afterwards called Cernel, a name composed of Latine and Hebrew, for Cerno in Latine signifies to see, and El in Hebrew signifies God; because there our holy apostle Augustine was honoured with the cleere vision of him that is true God and man. Moreover upon the same fountaine in memorie hereof a chappell was built dedicated to our Saviour, which, togeather with the fountaine, my Authour had seen; (31) and the water cured manie diseases.

"Afterwards one Egelward, a rich man, founded a fayre monastery of Benedictine monks in the same place, dedicated to Saint Peter the Apostle, which was called the monastery of Cernel and dured to the last fatall destruction of Abbeies in the unfortunate raigne of Henry the eight."

Of this narrative it is well to give the chief parts in Gotselin's own words, and to emphasise those of especial interest.

"Hinc divertens, dux verbi Domini successit tandem cuidam profanæ villulae in provincia quæ dicitur Dorseta, ubi demoniaca plebicola sanctos Dei omnibus opprobris ac ludibriis dedecoraver; adeo ut (quod etiam referri injuria est) productas piscium caudas ingerent. Unde indignatus spiritus Domini in hujus auctores sceleris et in omnem progeniem illorum suum dedecus per os Augustini vatis perpetualiter sententiavit; et pravis propriam ignominiam, sanctis vero perennem gloriæ refudit. . . . .

(31) Observe this allusion to an earlier record.
"Ibi quoque oratorium in perennem memoriam dominicæ visionis molitus est in nomine Domini salvatoris. Inde etiam nonasterium in honorem principum Apostolorum Petri dedicatum Cernelium est appellatum, quod constat monachorum choro decoratum. Illum autem fontem Augustini nomine consecratum credentibus esse saluberrimum, hic unum docebat miraculum, teste provincia palam declaratum." (32)

Gotselin was a picturesque writer. In another account he says— (33)

"Cumque Provinciam, quæ Dorsete appellatur, attigisset, and ubique ut angelus Domini recipieretur, simulque auditorum fide quos pasceret pasceretur, incidit in quamdam villam velut in tartaream Plutonis sedem.

"Ibi plebs impia tenebris suis excaecata, et divinam lucem exosa, non solum audire nequibat vivifica documenta, verum tota ludibriorum et opprobriorum tempestate in sanctos Dei debachata, longe proturbat eos ab omni possessione sua, nec manu pepercisse creditur effrenis audacia. At Dei nuntius juxta dominicum præceptum et apostolorum exemplum, excusso etiam pulvere pedum in eos, dignam suis meritis sententiam, non maledicentis voto, qui omnium salutem optabat, sed divino judicio, et Heliae typo atrocibus injecit: quatenus Sanctorum contemptores tam in ipsis quam in omnibus posteris suis debeta pæna redargueret, qui vitae mandata repulissent. Fama est illos effulminandos prominentes marinorum piscium caudas sanctis appendisse; et illis quidem gloriam sempiternam peperisse, in se vero ignominiam perennem retorsisse, ut hoc deecus degeneranti generi, non innocenti et generosæ imputatur patriae."

Walter of Coventry (34) relates a similar story as follows:—

"In Dorsetensi pago sunt abbatiae Kerneliensis, Middiltu-nensis virorum, Sceaftoniensis feminarum; in quo pago olim

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(33) Liba Major de Vita S. Augustini, Seculum, I., fol., Paris, 1668.
(34) The MS. Memoriale Fratris Walteri de Conventria is, says William Stubbs, who edited it, in the penmanship of the end of the XIII. or the beginning of the XIV. century. It was discovered by Leland in 1538.
colebatur deus Helith. Sed prædicans ibidem verbum Dei, Sanctus Augustinus vidit mentis oculi divinam adesse præsentiam hilarisque factus, ait 'Cerno Deum qui nobis suam retribuet gratiam.' Eventus vel potius verbum Kernel-liensi loco indidit vocabulum ut vocatur Kernel, ex duobus verbis Hebraico et Latino, quod Hel Deus dicatur Hebraice."

James of Voragine, the author of *Legenda Aurea*, of the XIII. century (35), declares that "St. Augustine came to a certeyn towne inhabited by wicked people, who refused hys doctryne and prechyng uterly, and drof hym oat of the towne, castyng on hym the tayles of thornback, or lyke fysshes; wherfore he besought Almighty God to shewe hys jugement on them; and God sent to them a shamefull token, for the children that were born after in the place had tayles, as it is sayd, tyll they had repented them."

William of Malmesbury was a careful and truthful historian. He professes to have written "non ut scientiam meam proponerem, sed ut res absconditas quae in strue vetustatis latebant convellerem in lucem; quapropter opiniones volaticas despuens, Chronica longe lateque corrogavi" (36). In other words, he sought out ancient records, not to display his own knowledge, but to bring the truth to light. His account of the Cerne incident, written near the year 1140 (37), may now be compared with other versions.

"In Dorsatensi pago sunt abbatiae Cerneliensis, Middeltunensis irorum, Sceftoniensis feminarum, praeter aliquas quæ vel omnino destructæ vel multum imminutæ sunt.

"Cerneliensis exordium ita accepimus—Augustinus primus doctor Anglorum post Cantiam Cristo subditam reliquas Anglorum provintias pervagabatur, quantum Ethelbrihti regis imperium protendebatur. Habebat enim ut alias diximus, sibi subjectum

(35) Printed by Caxton in 1483.
(36) Gesta Regum, Lib. II. prologus.
(37) Willemi Malmesbiriensis Monachi, De Gestis Pontificum Anglorum, Lib. II., s. 84.
THE GIANT AND THE MAYPOLE OF CERNE. 113


"Cum dicto, advenerunt illi properatibus gressibus, facti poscentes veniam, fidem pollicentes suam. Eventus, vel potius verbum, loco invidit vocabulum ut vocaretur Cernel, ex duobus verbis Hebraico et Latino, quod Hel Deus dicatur Hebraice. Dixit Augustinus Deum se cernere, nec veritas sermoni abfuit, quod tam cito mente mutata plebs ante limphata credidit. Nam et ibidem cum ab baptismum deesset aqua, ad jussum pontificis ex occultis meatus fons erupit, qui hodieque et Augustini merito et usus sui commodo incolis clarus habetur. Ibi, succedentibus annis Eduuoldus frater Edmundi regis et martiris vitam heremiticam solo pane cibario et aqua trivit, pertesus, ut fama est, mundi delitiam, quod se et fratrem durior excepisset fortuna. Fit enim plerumque ut adversitatibus seculi ammonitus, generosus animus ad Deum se convertat attentius, qui nec falli nec fallere novit. Et prima quidem virtus est bene per se velle, secunda cogi posse; sed non minoris, ut estimo, deputatur meriti Paulus qui ad bonum flagello coactus est aspero quam Petrus qui libens et statim accur(r)it vocanti Domino."

It is pretty certain that Gotselin and William drew their information from the same source, and it is instructive to watch the gradual growth of legend. Three miles become five; a spiritual
retreat from turbulence and violence to quietness and seclusion is transformed into a toilsome journey through desert and uninhabited places, oppressed with hunger, thirst, and fatigue; a mental perception of the Divine Being grows into an actual visible apparition; and a reactionary change and contrition of the hearts of the villagers is developed into a material, penal, hereditary growth of fish-tails from their criminal backs.

The interesting and sober story told by William of Malmesbury has, no doubt, an historical basis; but it need not be taken too literally. It would seem that, not Augustine nor in his day, but a few of his more ardent followers, in after times, had cast ignominy upon the Pagan divinity and reproaches upon those who had been taught to revere him; had called for the demolition of his image; and had set forth, perhaps, with pick and spade to destroy this idol, this Saturn, this Diabolus.

Then, indeed, arose a popular tumult. Who were these men with their new faith; with their pretended poverty, their vaunted chastity, their paraded obedience? Why should they profess to be so much better than their neighbours? If the place was too evil for them, why came they thither? Away with them, in all loathing and contempt! What animal's tail was sufficiently epicene and ridiculous to express the scorn uttered by the coarse Italian peasant of to-day, who derides these Capuchin horses, these mules, these priests in petticoats, who are neither women nor men? And so the symbol was fastened to their skirts and the monks were "driven out, driven on, driven off." But when rest and prayer had soothed the friars, and time had brought regret and repentance to the people, there came compromise and reconciliation. The giant remained, his power for evil arrested by a potent spell; a church was built, healing waters flowed, and many converts were gathered into the true fold.

But what, after all, was the symbol of contempt? William distinctly says caudas racharum. One scholiast courageously suggests the emendation vaccarum; the tails of cows. And yet, would any heathen cut off the tail of his own cow in order to show his disdain for a monk?
Another annotator suggests *tacharum*, and tacha is an instrument used in fishing. James declares that the tails were those "of thornback or lyke fysshes," and Galfrid, in his Anglo-Latin dictionary of 1440, glosses "Thornebak, fysche" by *ragadies*. Here, then, is a form of the word used by William. His fishes belonged to the family of the True Rays, all of which inhabit the sea. (38) His tails were, as Gotselin said, "marinorum piscium caudæ." From Weymouth or Bridport a catch of Skate had found its way to Cerne at "a psychological moment," and it was the long and slender tails of those marine animals that, by means of their own hooks (see figure D), were promptly fastened to the Friars' apparel.

Monastic etymology is at fault. "Cerne" is an old river name, and has nothing to do with St. Augustine. It occurs in the names Charmouth and Charminster, formerly written Cerminster. There was a River Cernei in Gloucestershire (39) and a Cearn in Somerset, where salivaria (40), or salt works, were constructed. There is also a Cern in Shropshire.

The village in Dorset was, in 958 (41), called Cern and not Cernel. In Domesday Book it appears as Cerne, Cernel, and Cerneli. It seems probable that Cernel is Cern Hill, like Fernhel, Stirtel, Mórhel (42), and Caudel (43) in Dorset, and Ernesel

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(38) Of the *Raïdae*, Skate and Thornback are the most common in English markets. In London they are both sold as Skate, and the females are denominated *maids*. The skin of these fish is beset with a number of curved spines, or thorns, which are scattered over the surface of the body and *arranged in rows along the tail*. The Sharp-nosed Ray is preferred by the French, whose boats frequently visit Plymouth during Lent to purchase Skate. By the Sting-Ray the tail is used to seize its prey. The Whip-Rays are so called from the great length of their tail. So formidable is the tail of the Eagle-Ray that the Mediterranean fishermen cut it off as soon as the fish comes within reach. Dallas, *Animal Kingdom*, 354-6.

(39) Domesday Book: also, in Kemble's Codex II., 48, a charter of the year 852, gives it as Cirnea, or Cern-water.

(40) Kemble's Codex, v. 45. The charter is assigned to the year 737.

(41) Kemble's Codex, v. 398.

(42) Kemble's Codex. (43) Domesday Book.
(44), or Eagle's Hill in Somerset; and that Cerneli is Cern-lea, like Cæafle for Cheveley. Cern-lea lay, perhaps, a little lower than Cerne Hill, since the description of its possessions includes silva, which is absent from that of the latter place.

The old name for the knoll where the Giant stands was Trendle Hill. Not far from Lulworth is Trendle Coombe. The A.S. word trendl means a sphere, disc, circle. Now the combe is remarkably circular, and the hill, as viewed from the S.W., looks curiously spherical. On Cat Hill once stood St. Catherine's Chapel. Those place-names in the vicinity of Cerne into which el enters are easily explained. "Ellen" is the elder-tree, and "hel," as in Hellwell, indicates that it was a covered spring.

Cerno Deum and the Hebrew EL have no validity.

APPENDIX.

The Minute Book of the Society of Antiquaries, Volume IX., page 233 (March 15th, 1764).

Dr. Stukeley read, and delivered in, a minute of the observations made by him on the Giant of Cerne Abbas, in Dorsetshire, read to the Society the 16th of February last. He observes it is an immense figure of an Hercules, armed with his club, cut out of the turf of a sloping chalk-hill. It required a good share of skill in opticks to make it appear with any tolerable degree of symmetry in that situation.

As the inhabitants thereabouts pretend to know nothing more of it than a traditionary account among them of its being a deity of the ancient Britons, Dr. Stukeley offers the following conjectures thereon. He deems it to be unquestionably meant to represent the primitive Hercules, the Phœnician Chieftan and leader of the first colony to Britain, when they came hither for the Cornish tin.

(44) Domesday Book.
C. The signature between the feet of the Cerne Giant, from Hutchins, 1774.

D. "Thornebark, ragadies, racha" (cf. ἄρχος, a thorn-bush). *Raja clavata.*

Showing the recurved hooks by which the tail was fastened to the frocks of the monks.
'Tis not to be supposed that it was made in his time, but afterwards in commemoration of him, when the Britons may have had a notion of the later Theban Hercules, by whose virtue and magnanimity so many monsters of men and beasts were subdued.

Our Phœnician Hercules was a different person, or of different qualifications, educated in the politest part of the Asiatic world, of whom Lucian gives us this picture; a man in years, bald before, learned and eloquent. And so, indeed, we may deem such a person to be, who could so far prevail over and influence his associates as to venture out into the great ocean, and fix an habitation in Britain.

'Tis natural to suppose their first settlements were made on the southern coasts of this island, and the infinite number of barrows (which the Doctor deems to be theirs), spread universally over the whole of those delightful downs in Dorsetshire, show them to have been a great and numerous people.

'Twas here, he says, they celebrated their religious Panegyres, or public sacrifices; accompanied with publick games of horse-racing and chariot-racing, whereat our British coins were the prizes given to the victors.

So grand and magnificent, he thinks, was the celebration of the games here that one might imagine Homer hence took his notion of the gods going to visit the inculpabiles Ethiopes on the occasion. If Homer was not a Phœnician (of which the Doctor professes some suspicion), he acquired, however, from them his literary knowledge; and 'tis more likely, he thinks, he should be informed of, and instructed in, the solemnities we speak of in Britain than those of Ethiopia properly so called. By Ethiopia, the Doctor says, we are to understand Arabia, so meant by the ancients, and 'tis from Arabia our first Britons came. These were of the same patriarchal religion as the Arabian Magi, or, properly, the Druids, who went to worship our infant Saviour. As 'tis to small purpose, the Doctor observes, to gather up the scattered and disjointed fragments of antiquity, unless by comparing and connecting them with other parts of history, we can form them into some regular and consistent account; this, there-
fore, is what the Doctor has laboured in the preceding and following conjectures.

The great British King Eli, surnamed Maur, and the Just, father of Imanuensis, King of the Trinobantes, and of Cassavelan, who headed the Confederate Britons to oppose Caesar in his invasion of Britain, is intimated, the Doctor thinks, in this figure of the Giant at Cerne Abbas, to which the people there give the name of Helis. He conjectures this enormous figure might be cut by the Britons in compliment to King Eli on his expelling the Belgae from that country and driving them to Ireland, where they took possession of the south part of it under the name of Firbolgs; and that it might be cut when he was present at their Anniversary Midsummer Games, a name still retained in Yorkshire from the oldest times.

The Doctor, at the same time, explained three old British coins he has engraved relating to these games, struck by Eli, being prizes for the victors.
IN venturing to submit to the members of the Dorset Field Club a few somewhat superficial notes on some of the baronial, knightly, and manorial families, whose memory is preserved through their names being associated with many ancient manors in Dorset, I must candidly admit that my object is to stimulate enquiry into this subject with a view to obtaining supplementary information rather than to attempt a series of original memoirs.

Perhaps I should at starting apologise for the unusual and unattractive word that appears at the head of this paper. In self-defence, I can only say that it was no choice of mine, but seemed to be the only term that offered to convey in one word the meaning intended, for, if some such coined word as "Name-giving" were substituted, too much would be implied by it, since the quality we wish to indicate is that of name-adding rather than name-forming.

The families in question were probably all, in some sense, "Baronial," ranging from the very minor baron, with no status beyond his own manor, like the "Lairds" of the North, to those opulent and powerful nobles who, like the Nevilles, could make and unmake kings.
But the term "Baron," after a vigorous and influential existence, has lost force with lapse of years, and a short biography of this historic title may not be out of place!

**Baronies by Tenure.**

The designation "Baron" or "Man" (the Norman equivalent of "Vir") in its widest sense was applicable to every lord of a manor holding directly from the King, as it was a policy of necessity for the King to retain in touch with himself all those "King's Men" who, in their own persons, or that of their ancestors, had helped to found the Feudal Norman Monarchy in this country.

All dignities were, after the Conquest, attached to certain lands, which were held of the King upon condition of performing certain services; each of these estates was called a "Feudum Nobile," and constituted the holder a person of consideration, distinguishing him from the common herd of contemptible Saxon folk, and making him, in the technical sense, a "Man."

This use of the word baron has been perpetuated in heraldry in relation to the conjoined arms of husband and wife, in which connection the husband's portion of the shield is called the Baron's, the sinister side being called the Femme's.

These Barons were, however, of two classes—those who held by Knight's service and those who held by Grand Sergeantry, the Knight's service obliging the holder to attend the King in war, while Grand Sergeantry, being (says Littleton) a greater and more worthy service, carried with it the duty of attending the King not only in war, but in his Court at the three great festivals of the year and at other times when summoned.

These last were the Greater Barons, and, as such, exercised in their "Courts Baron" full jurisdiction in both civil and criminal causes, while the Lesser Barons had only jurisdiction over their own vassals.*

In causes, therefore, of first importance it behoved the Minor Baron to attend the Court of his superior, and to act as his

* Nicholas' Historic Peerage.
assessor; and, in a corresponding manner, it was incumbent upon the Greater Barons to attend the Parliament or great Court Baron of the Realm, as one of the King's Peers, in obedience to a "Writ of Summons."

As time went on, and the attendance on the King in Parliament came to be regarded as a valued privilege rather than a troublesome necessity, the Writ of Summons formed the touchstone by which the claims of an aspirant to the dignity of a peerage were tested. To what Parliament was his ancestor, or, it might be, his wife's ancestor, summoned, and in relation to what Barony?

By the transmission of these feudal relations through the female line, the title became the permanent factor, whereas the family name was subject to frequent changes, whenever the heiress of the fief married into another family. Thus the title and fief of St. John of Basing, after being held by St. Johns and Poynings, either passed out of existence under the family name of Browne, or, more probably, is still in abeyance among possible claimants belonging to collateral branches; of whom perhaps the descendants, if any, of the Dorset Bonvils might have a slightly superior claim.

In this connection it should perhaps be noted that of the vast number of our countrymen and women who believe themselves descended in the male line from companions of the Conqueror, possibly one in a thousand may have grounds for that belief, and perhaps one in a million may be able to prove the fact. On the other hand, we may all lay this flatteringunction to our souls that the ancestors of each member of this gathering, if in England at the time, must have been present in some numbers at the battle of Hastings, as will become obvious from the following brief calculation:—

Each individual having two parents, four grandparents, eight great-grandparents, and an ancestry increasing in the same ratio with each generation, it is clear, on allowing the usual thirty years to a generation (a sufficiently liberal allowance for that stage of imperfect civilisation), that the number of the male
ancestors of each of us, living at the date of the Norman invasion would amount to over fifty-two millions; and, if we deduct two-thirds for the frequent meeting of the lines in common ancestry, there yet remain seventeen millions of departed sires, and to re-embody this spectral host requires the absorption of the entire civil population and the occupants of both hostile camps.

Hence we see that the pretension which any person may put forward to Norman, or even to Saxon or British ancestry, may, with some modifications, be readily admitted; assuming the validity of succession on the distaff side; while, on the other hand, continuous male descent from so remote a period may in some instances be assumed, but only in very exceptional cases can be substantiated.

It was during this first and most perfect period of the Baronial system, that the Dorset families, De Aquila, Amarle, Baieux, Bardolf, Mandeville, and some others made their first appearance in England.

All schemes, of whatever nature, that aim at centralisation require of necessity a strong central force, and so, as long as the autocracy of the Norman kings was undisputed, the Baronial system held co-ordinate sway; but it soon became apparent in this, as it has in other systems, that, when the human element is overlooked in the theory, it is apt to become uncomfortably prominent in the practice, and thus, under a weak and divided administration, the essential chain of subordination became a tangle of insubordination between those who claimed authority and those who owed obedience.

Thus it happened that, during the troublous period of the first Plantagenet Kings, the frequent rebellions, and unsettled state of affairs, so reduced the power of the great tenants of the Crown, that many were brought to poverty; others alienated large portions of their possessions, while others, suffering from the misfortune of reputed wealth, were so amerced with fines, for real or pretended offences, with aids, reliefs, and other feudal exactions, that it is not surprising that the great baronial tenures began to be broken up. Henceforward licences for alienation of Crown tenures
became frequent, and were easily obtained, as by that course the Crown was doubly benefited, for, while the customary fees replenished the King's exchequer, the power of the great vassals, a constant menace to the Throne, was effectually curbed.∗

It is to this later period of modified feudalism that the creation of most of the manors of Dorset are probably to be attributed. When the dignity of the baronage became personal, instead of territorial, dependent upon Writs of Summons to the King's Parliament rather than on the possession of baronial lands, there was no longer the same inducement to keep large estates together, and the policy of subdivision initiated by the Sovereign was readily adopted by many of the nobles for similar reasons. These transfers were further facilitated by the surrender, on the part of the overlord, of his seigneurial rights affecting the alienated property, of which the purchaser thus became the manorial lord, and, as an independent subject, acquired the baronial right of carrying his grievances to the King's Courts of Law.

ANKETELL.

The Anketells or Ansketells, for the name is very variously spelt, owned the Manor of Anketell's Place, Shaftesbury, for many generations.

The name was originally a personal one, and is said to be derived from Norse Mythology. The Domesday Book names nineteen holders of land bearing this Christian name, but only one in Dorset, where "Anschetil fitz Ammeline" held lands in Tyneham.†

* Ibid.
† There is a hint in Domesday that this worthy's own account of his tenure is not thought quite trustworthy by the King's Commissioners, and that he is suspected of trying to "do" his Sovereign out of his just claims, for it is recorded that "Arcitilluss de Carisburgo has two farms, and a virgate and a half in Tingeham, that he is known among the Franes as Anschitil fitz Ammeline," and that he holds this from the Queen, as he says; but upon her death he did not ask the King for it."

O Arcitilluss fitz Ammeline de Carisburgo, ethical ancestor of all jugglers with their Income Tax, shirkers of the dog licence, and delayers of their promised payments; longer far longer even than thy portentous name is the list of thy moral descendants; never shall thy posterity decrease, nor thy valued example lack due observance!
The name became a surname before 1300, and at that date it was known as such in the counties of Yorkshire, Norfolk, Lincolnshire, Bucks, and Berks, as well as Dorset, but shortly after that date it is found in Dorset only.

This family seems to have been one of considerable importance locally, owning several manors in the county of Dorset, but, fortunately for themselves perhaps, little known at Court or beyond the boundary of the county; though we must suppose that the name was not unknown at Westminster in the 14th Century, since five of this name were returned to Parliament as representing Shaftesbury, during that period, beginning in 1306. Prior to this, Roger Anketil was verderer of Gillingham Forest from 1244 to 1258.

In 1347 William Anketil obtained licence to have an oratory in his mansion house, which perhaps implies that his retinue was at that time too large to be accommodated in the adjacent parish church.

The year 1369 finds the family still located at Shaftesbury in circumstances apparently unchanged.

But the Wars of the Roses seem to have given them the opportunity for which so many years of increasing wealth had qualified them, and there are indications that that tempestuous time that brought to wreck so many great houses and fortunes, only brought more prosperity into the backwater of their quiet lives. In 1390 Wm. Anketill, who had married a daughter of the great landowner, Wm. Filiol, is engaged in a law suit concerning lands in East Almer, and apparently his suit was successful, for the close of the disturbed period finds his grandson in possession of the whole of that manor.

We can imagine that the rich lands on the sunny slopes of Shaftesbury Hill, with fairs and market so close, and the near neighbourhood of so excellent a customer as the convent, brought many Rose nobles and Angels to the iron-bound coffer in Anketell's Place; and what better investment could be found than mortgages on the lands of neighbours who were less thrifty or more anxious to ingratiate themselves with the sovereign of
their choice? So the storms of State served to strengthen the hold of this ancient stem upon the land it occupied, while its proprietorial roots spread and reappeared in many distant spots.

It is interesting to note that, had the quiescent traditions of the family been adhered to, the name might now rank among the foremost in this county, but the next time that civil war raged through Dorset very few of the county families escaped the contagion, and King and Parliament faced each other in the vales of Stour and Frome with almost equal forces. The Anketells threw in their lot on the side of the King, taking up the cause with an energy that showed that the family was far from effete. One may believe that it was owing to the sacrifices which the King's cause imposed upon the Royalists that it became necessary for this family to sell their ancestral home. Certain it is that Christopher Anketell, in concert with his son of the same name, parted with this ancient estate about this time, and, while one son was thus consenting to surrender his proud position in the county, another was a colonel in the Royal forces, and, though in Priest's Orders and a Doctor of Divinity, was holding the appointment of Military Governor of Corfe Castle.

Some compensation was made to the family by the grant of lands in co. Monaghan, in Ireland, to the grandson of the younger Christopher Anketell, and there they founded a family that has since divided into several branches, while the original grant remains in their possession under the name of "Anketell's Grove."

A junior branch retained possession of the Stour Provost estate until 1733, when Francis Anketell, the last of this line, died at Taunton, leaving his lands to his wife and sisters, and thus came to an end, as regards this county, a notable and most worthy family after being connected with it for 500 years.*

Antioch of Tarent Antioch.
The name of Antioch is crowded with so many diverse associations that it stands alone in its strange suggestiveness.

*Arms of Anketell Argent a saltire raguly vert.
Probably no word carried with it so many associated ideas of such opposite characters, beginning with the Macedonian King of Syria, founder of the line so prominent through the history of the Maccabees, and of the city that invented the name of Christian. Perhaps the Dorset family derived their name from some ancestor who took part in the Crusader’s battle of Antioch, where, according to the legend, St. George appeared in person and rallied the wavering bands of Christians, eventually leading them to victory in the year A.D. 1098; or, as that city remained in Christian hands for 170 years, there was ample time for the name to become permanently connected with a family that had lived or even traded there; or, again, as Antioch was finally lost in 1268, and this family is first mentioned in Dorset in 1299, it is not impossible that their founder may have been a refugee who had the good fortune to escape from the doomed city. At any rate, the family held land in Dorset in the latter part of the 13th century from Wm. de Gouis on the curious tenure of enclosing a perch every third year about Gouis’ Park at Duntish and paying 8d. a year.*

In 1316 Nicholas Antioch was certified by the Sheriff as “Lord of the township of Tarant Antioch.”† In 1409 John Antioche held lands in Bakebere, Cheping-Blandford, Auntycheston, all in the County of Dorset.‡

In Henry VI.’s reign the heiress of the family conveyed the estates away by her marriage to John Lovel. The Manor of Antiocheston, or Tarent Antioch, is now incorporated with Tarent Rawson, and has been so for a long time. Coker, however, maintains that they were formerly distinct places.

There is also a Manor of Antioch in Stalbridge, once the property of a family of that name, but it is not certain that they were related to those of Tarent Antioch. Their seals are different. Those of Tarent bear argent a chevron between three ermine spots, the lower one reversed, whereas the Stalbridge

* Escheats’ Wm. de Gouis.
† Nom. Villarum.
‡ Calend. 357.
Antiochs bear a cross rayonnant, but there is no record of the tinctures.*

**AUDMARLE.**

The name of Aumerle, or Aumarle, is a variant of the title Albemarle, which was borne by Eudo of Blois, Count of Champagne, who married Adeliza, a half-sister of William the Conqueror, and accompanied him in the invasion of England. He owned the Castle of Albemarle, in Normandy, and derived his title from that fief, † not deeming it necessary or dignified to lower himself to the level of the Saxon lords by taking an earldom in their conquered country; and it is somewhat curious to reflect that all the later revivals of this peerage have been qualified by this haughty Count’s disdainful estimate of an English title.

There is some difficulty in identifying the precise branch that gave name to “Ham Aumerle,” now probably “Long Ham,” since, as in addition to other difficulties, the characterising epithet has long fallen into disuse; but it seems most likely that the family to which Sir Geoffrey de Aubermarle belonged was the eponymous family in this case. This knight’s name occurs in a Roll of Arms of the date (approximately) of 1313 among the armorial gentry of Dorset and Somerset; for the two counties, being then under the same Sheriff, were in many respects reckoned as one. Nothing of importance is known of this personage; he was not recorded as present at the Siege of Caerlaveroch in 1300, and his connection with the Counts of Albermarle of the original stock—which became extinct about 1273—is difficult to trace.‡

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* Hutchins, III., 676.
† Sir Harris Nicholas’ “Historic Peerage of England.”
‡ If he is to be regarded as the real eponymous personage a different shield of arms should be attributed to this name than that which, on the strength of the Historian of Dorset’s well-known accuracy, has been allotted to him in the accompanying plate, and it may be noticed that Sir Geoffrey’s arms were not remarkable for the simplicity which generally characterises an ancient coat, being Gules, crusilly of or, a bend mascaly of ermine, an achievement that perhaps may be depicted in an appendix to this series should there be any need for such an addition. Arms of the Counts of Aumarle, Party per befs azure and gules, 3 crescents argo.
Baieux.

It is uncertain when the first "De Baieux," or "De Baiocis," arrived in England, but it seems probable that this name was attached to some follower of the turbulent Eudo, Bishop of Baieux, and brother of the Conqueror. With Ranulph de Baieux, however, of the time of Henry I., we pass from the region of conjecture into the realm of substantial fact. This Ranulph had a son, Hugh de Baieux, who was living in the 12th year of Henry II., and still alive in the 8th of Rich. II. Hugh's son John, succeeded to the estate, and, being childless, founded a chantry at Waybaioux (now Upwey) in the 28th year of Henry III., but died without children five years afterwards, leaving his brother, Stephen, his heir.*

This Stephen was in high favour with King Henry III., who remitted the payments due upon succession; but Stephen appears to have made an unfortunate choice of a son-in-law for his elder daughter, Maud, in the person of Elias de Rabayne, or Rabel, who, having married one of the co-heiresses to the Waybaioux estate, had the effrontery, after the death probably of his father-in-law, to carry off both his wife and her only sister, Joan, beyond the sea, "with the intention of defrauding his lord the King" (of the profits of wardship and control of her property) and "of seizing her inheritance for himself."† The nearness of France and the remoteness of the County of Dorset from the capital, may have led him to think he could escape unnoticed, but the King heard of these proceedings and at once ordered the Sheriff to seize the Manor of Waybaioux on behalf of the King, who then granted part of it to Stephen de Boys, while another part went to enrich some quite new people, Henry de Beaumont, called a "cousin of the King," and his sister, Isabel, who was married to John de Vesci, Lord of Alnwick. King Edward, however, relented in course of time, and, upon the marriage of Matilda, niece to Stephen de Boys, with

* This pedigree from Nicholas Hist. Peer.
† Hutchins II., 4.
Edward de Rabayne, son of Elias, he asked that the forfeited property might be restored, and this seems to have been done. Moreover, the energetic Matilda de Rabayne petitioned King Edward II. for the reversion of that part which had gone to the De Vescis, and apparently with success, for her son, Peter de Rabayne, in the next generation is found in possession of the manor: his aunt, Joan, having been disposed of by her marriage in France to a foreign subject, Pierre Bandral, of Poitou, and thereby disqualified from holding land in England.

Thus passed away the line of de Baieux, whose estate, though small in size, was nevertheless held direct of the Crown as a Barony by Tenure. One is rather tempted to suspect that some near but unacknowledged relationship to the royal house secured for this family the honour of a barony, while on the other hand their questionable fidelity may have made it impolitic to place them in a position of great influence. But whatever the cause may have been, the remarkable fact is noteworthy, that so small an estate should have constituted its owner a peer of the King and an actual equal of the most powerful subjects of that period.

BARDOLF, OF BARDOLFETON.

The family of Bardolf was one of some importance; four of this name are mentioned in the Roll of Arms temp. Edwd. II., and from the strong resemblance of their armorial bearings one may suppose them to have been of the same family. In the still earlier Roll of Caerlaverock of June, 1300, there is mention of Hugh Bardolf. This nobleman, and several knights of the same surname, belonged to the county of Norfolk, where great possessions had come to them through the marriage of Doun Bardolf, great grandfather of Hugh, with Beatrix, daughter and heiress of the great Baronial family of de Warren. Hugh’s father, William, had married Julian, daughter and heiress of Hugh de Gourney, and died in 1290, leaving to his son large estates in Norfolk and Suffolk, with the Barony by Tenure of Wirmegay in the former county. Hugh Bardolf was thus one of the most opulent nobles of the east of England, and
apparently well fitted for the times he lived in. His life was not without incident. In 1294 he accompanied King Ed. I. to Gascony, and was taken prisoner at the siege of Risunce, but was soon released, and after the Gascon campaign he attended the King in his expedition to Scotland, 29 Edw. I., and was present at the siege of Caerlaverock in 1300. He married Isabel, daughter and heiress of Robert de Aquilon, with whom he acquired estates in the south of England, at Emsworth and Warbledon. He died in the 32nd of Edward I., leaving two sons, of whom probably William the younger succeeded to his mother's south country estates,* in addition to those which the heiress of the Dorset family of Damory had brought to his grandfather, and became the ancestor of the Bardolfs of Dorset. The Barony, by writ, of Bardolf continued in the line of the elder brother, Thomas, until the reign of Henry IV., when it was forfeited by attainder.

Perhaps the contempt felt for a disgraced baron is reflected in Shakespeare's disparaging use of this name as that of one of Falstaff's companions.

Supposing the above suggestion to be correct as to the disposal of Hugh Lord Bardolf's property, Drogo de Bardolf, of Baadolfeston, would probably be a grandson of the said Hugh, and, as he with his wife gave a house, mill, and lands to the Abbey of Hyde in Winchester, it would seem that they retained their interests in Hampshire that they had derived from the De Aquilon heiress. It is noticeable, too, that their estate of Burdolfeston was held under the Prior of a Hampshire religious house, that of Twynham, now Christchurch.

It may be noted also that, of the four recorded shields of the east country Bardolfs, no two are identical, but all have three charges, like the coat of the Dorset family. None of them, however, had reached that pitch of audacious disregard of heraldic rules, which distinguishes the shield of the Dorset Bardolfs, who bore on a silver shield three gold cups, a

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* Roll of Caerlaverock.
metal upon a metal! As Dogberry might say, "This is flat perjury."

**Baret, of Lidlinch Baret.**

We have very few records of this family; and such as there are already inscribed in Hutchins' History of Dorset. The family seem to have been small landowners and manorial lords for about 200 years.

They first appear in Dorset about 1280, and a few years after are found as part owners of one knight's fee in Bere Hacket, which had recently belonged to Robt. de Compton and Henry de Bere. A John Baret in 1487 witnessed a charter relating to the refounding of almshouses at Sherborne, and appears again in the same capacity in relation to another deed in 1489.

Coker (p. 94) says that Perry (? Barry) Court at Sturminster was once the seat of William Barrett, of Lidlinch.

**Beaumont, of Beaumont's Lands.**

The family of Beaumont, owners of the Manor of Little Puddle, to part of which the name of "Beaumont's Lands" was afterwards given, has some points of special interest; being of somewhat different character to those hitherto mentioned, in that it starts into history fully equipped with baronial honours.

The name is often Latinised as De Bellomonte, but the family now under our notice should not be confounded with the earlier one of Bellomont, Earls of Leicester and Mellent, which died out in the person of Robert fitz Parnell de Bellomont in 1204; whereas the eponymous family now in view owe their origin to a certain Henry Beaumont, who first appears in 1307, when he is styled the "Blood relation of the King," and is summoned to Parliament by writ from 1309 to 1339, by which summons the Barony of Beaumont, still extant, was created. His origin is, perhaps, sufficiently indicated, in heraldic cryptogram, by his bearing the first quarter of the Royal Arms of England, charged with a lion rampant and abated with a baton.
The connection of this family with Dorset was short of duration; it is not certain that it lasted longer than one generation, but it seems impossible that so short a time would have sufficed to stamp their name upon the place.

It appears that the paternal estates of the Elias de Rabayne, that over-crafty baron, were partly in the Manor of Little Puddle, and that he was punished for his disregard of Feudal Law by the transfer of his estates to Isabel Beaumont, the wife, by some accounts, but more probably the sister, of Henry, the first Lord Beaumont. She was married to John de Vesci, Lord of Alnwick, so it is the more remarkable that the estate should be labelled with her previous name.

Perhaps we may account for this by supposing that her brother had an interest in the property and that this interest was retained by his heirs after Isabel's life tenancy expired.

This Henry, the first Baron Beaumont, married Alice, niece, and ultimately heir of John Comyn, Earl of Buchan, and, in consequence of this alliance, he was summoned to the Parliament of 1339 as "Comes de Boghan." This title, however, was not continued by the second Baron Beaumont, and remained on the far side of the Border, where, it will be remembered, the aged Countess of Buchan placed the Crown of Scotland on the head of Robert Bruce. But who this Countess of Buchan was, in what way related to the Red Comyn, or in what degree associated with our remote Dorset village, is beyond the purpose of these notes to enquire.

The barony continued in the male line of the Beaumonts for a century and a quarter, when it was augmented to a viscounty, which title, however, became extinct in the succeeding generation, and the barony fell into abeyance in 1507.

Beaushine.

This name is probably outside our field of enquiry, as it is likely this was a place-name originally, i.e., Beau Eschine—"the fair ridge." There were, however, Bewshines at or near Beauchin from 1439 to 1593, and at the latter date the Manor of
Beauchin was granted by Margaret, widow of Anthony Bewshine, to Sir William Eye, Knt.*

**Belet.**

William Belot, or Belet, deserves more than a passing notice, for he was a person of some consequence in the country, and was, in some respects, considerably in advance of his time. He had a full share of the energy, resourcefulness, and adaptability that characterised the Norman immigrants, as is shown by his masterly management of his estates.

At Lyme (Regis) he seems to have annexed the entire guild of salt-makers, inducing them (14 in number) by his promise of protection to consider themselves his tenants of the foreshore.†

At Frome he kept up an ox gang in excess of the requirements of his own estate, and, whereas on other estates in this county the team power was, as a rule, inadequate, he was in a position either to fill up his own occasional vacancies, or to let out his spare team to his less provident neighbours.‡

One does not expect to find a humorous situation in the severely practical pages of Domesday, but Wm. Belet’s name introduces a rather comic incident in connection with his Hampshire estate of Woodcote (“Odecote”).

It is believed that the Domesday Commissioners were nearly all foreigners, and chiefly Italians, who consequently found themselves in the unsatisfactory position of receiving answers they did not understand from people who, on their part, did not understand the questions asked. So we can picture to ourselves the scene as the King’s Commissioners approached the house of the peasant who farmed Lord Belet’s lands, and at the door is a little girl. “Who holds this farm, my child,” asks the Commissioner. “Vaterlein” (*i.e.* Little Father), answers the girl. “And you?” asks the visitor. “His daughter, reverend

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* Further information as to this family of Bewshine, would be welcome.
† Eyton’s Dorset Domesday, p. 141.
‡ Eyton on Dorset Domesday, p. 58.
lord,” replies the child. “Bene Fauciulla,” says the questioner, relieved to have so ready an answer, and to his scribe, “Write then brother ‘Willielmus Belet, tenet, Odecote et Federlin de eo, ‘cum filia sua.’”

And so for eight hundred years this odd mistake, as it seems to be, has lain frozen in the austere columns of the great “Record,” for, of course, to William Belet’s lively brain it was far too good a joke against those prying Commissioners to be spoilt by giving it too much publicity.

These estates seem to have been held by “Petty Sergeantry” and Belet for a certain portion of the year was in personal attendance on the King. It is difficult to say in what capacity, but it is probable that his office was connected with the royal cellars, since the last of his descendants of whom there is any record officiated as butler to Henry III.

This was, as we know, a post of great responsibility, usually hereditary, and only held by a man of undoubted fidelity; for the coarse, thick wine of the Middle Ages was an admirable vehicle for poison, and every hall had its credence table, where both food and drink were publicly tasted before being placed before the company.

In the history of this family we have some interesting typical incidents that reflect vividly the social aspect of the feudal system.

Robert Belet, who lived temp. Henry II. and Richard I., made an investment of a kind that in those days was often very remunerative, but which is now seldom quoted. He gave the King 1,000 marks, and so purchased the wardship of Roger de Newburgh, the infant son of a neighbouring ’squire, lately dead, whose estates during the child’s minority would be administered by the judicious Belet.

But in the next generation the case is reversed, and Wimand de Ralegh for 100 marks obtains from the King the wardship of the heiress apparent of this interesting family. This was perhaps a “cheap lot,” but the speculator does not seem to have

*Exchequer Domesday, 48. 6. 2.
profited much by his bargain, for the poor young lady seems to have died before she was of an age to be sold in marriage to one of her guardian's friends; and the land, with the feudal obligations, went back to an uncle or cousin, in whose family it continued for probably three generations, ending with the Michael Belet, who officiated as butler to Henry III.: but nothing is known of his descendants.

The iniquitous trafficking in wardships and heiresses, instances of which we have here before us, marks the measure of contempt for humanity which the feudal system implied. The pretension of the Over-Lord to control the most intimate relations of life, in respect to those beneath him, was found intolerable in practice; and, being only defensible in theory, by the necessities of military organisation, it lost its moral force, when the contests for sovereignty destroyed the effectiveness of that organisation. In France it led to the Jacquerie, and ultimately to the Revolution, and in Germany to the dissolution into its constituent atoms of a once powerful empire. In England the decomposition of the feudal system, though final and complete, was neither explosive as in the one case, nor sporadic as in the other. The partisan warfare of York and Lancaster obliged the barons in order to increase their retinue to enfranchise their "farm hands" (villani), who before that, had been irremovable from the land. Thus was created a new rural class, to become eventually yeomen and tenant farmers.

Bingham.

I cannot but approach this item in our programme with the greatest diffidence, sensible as I am that the loss which the county has sustained in the departure from its borders of the last of its mediæval families, must be to many a cause for much more than a sentimental regret, though from that standpoint the cessation of a line so long distinguished for learning and gallantry cannot be recorded with indifference.

It seems probable that the original founder of this line was a certain companion of the Conqueror, named Buisil or Brusli,
who received from his leader the Manor of Bingham, in Nottinghamshire, and that his descendants, taking the name "De Bingham," established themselves at Sutton, in Somersetshire, afterwards known as "Sutton Bingham." About the year 1243 Robert de Bingham, younger brother of Sir William Bingham, of Sutton, acquired by his marriage with Lucy Turberville the Manor of Stafford, together with that of Melcomb. The name of "Bingham" thus became affixed both to the lands in Stafford and to the estate that has been the property of this ancient family for 600 years.

It is impossible to deal adequately with each generation of this typical English house, whose members sought honour rather than wealth, and of whose reputation, both as soldiers and as scholars, their county may well be proud.

A monument in Westminster Abbey attests the military fame of Sir Richard Bingham, temp. Elizabeth. Another member of the family in the Parliamentary wars held the town of Poole for the King, and assisted at the final reduction of Corfe Castle. In later times another soldier, after a distinguished career in the Peninsula, was selected to convey the ex-Emperor Napoleon to St. Helena.

Another Bingham represented his county in Parliament, while others distinguished themselves at the University of Oxford.

By marriage they were connected with most of the notable families of this county—Martins, Trenchards, Chaldecotts, Strodes, Willoughbys, and Paulets.* Two junior branches have been elevated to the peerage, but, except knighthood, titles have never rested on the parental stem.

Truly, such a stock is, in a sense, immortal. It may die, but can never be forgotten—at any rate, in its own county.

**Bonvil.**

Little is known of the Bonvils during the time they were in occupation of Bonvil's Bridy, chiefly owing to the very scanty chronicles of that period and to their further reduction through lapse of time; but we find one of them, William Bonvil, in 1244,
paying a fine to the King to obtain re-possession of his lands. They had left Bonvil's Bridy, however, before 20 Edward III. (1347), at which date this estate is occupied by another owner. In 1404 another William Bonvil inherited considerable estates in Purbeck and elsewhere from Walter Romesey. Forty-five years later one of that name is summoned to Parliament as a baron by the name of William Bonvile, Lord Bonvile and de Chuton,* and on his death in 1460, his great granddaughter, Cecily Bonvile, becomes heiress to the title, which shortly after she conveyed by marriage to Thomas Grey, Marquis of Dorset, in which Marquisate, united to the Dukedom of Suffolk, it remained merged until the attainder of Henry Grey, Duke of Suffolk, in 1554, when it became forfeited.

**Boson, Bosom, or Bozun.**

The Bosons, whose name is so variously spelt, were a widely-distributed family during the reigns of the early Norman and Plantagenet Kings. Sir Peres Bosoun is named in the Roll of Arms temp. Edward II., and his descent is assumed from Herbert Bozun, to whom the Conqueror gave the Manor of Wissingsett, in Norfolk. His Arms are identical with those of a Devonshire family of this name, and with those of Dorset, being three bosons, or birdbolts, in allusion to the name. These bolts, says Hutchins, are arrows tipped with a ball of lead. Coker relates that the heiress of the Dorset Bosums married Ash, of Ash, and that so the names became united, and, in default of another explanation, this may perhaps be accepted, though it is somewhat unusual for an heiress' name to become attached to a property she derives from her husband. The lady in question may have been the daughter of Harry Bosum, who gave lands in 1463 "to be disposed to the land and honour of St. George in the church of Poole." He also enriched with lands the brotherhood of St. James in Poole, whose buildings stood near the present quay, and are now turned to secular uses.

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* Nicholas Hist. Peer. It is not certain that the Chuton Bonvills were of the same stock; they bore different Arms.
Botilers.

The Botilers seem to have acquired their name from their office, for we find that in the reign of Henry I. Ralph Botiler, called Radulphus Pincerna de Legrecestriā, was butler to Robert, Earl of Leicester, and had settled at Oversley, co. Warwick. It is probable, though not certain, that the Dorset Botilers belonged to this family, but not to the senior branch. There is some difficulty in identifying the manorial lords of Langton Botiler with the Botilers, barons by tenure and subsequently by writ.

The Dorset Botilers had considerable possessions in the county, and in 1197 Alan Botiler gave up his claim to the Manor of Handford (no doubt, for a consideration), and again, in 1231, John Botiler effected an exchange of property with the King—Edward I.—whereby John Botiler became the tenant in chief of Long Blandford, in Dorset, and Wymering, in Hampshire, and gave up to the King the Manor of Ringwood—which perhaps was inconveniently near the Royal Forest—and six pounds in land besides.

This John Botiler died in 1330 in possession of these estates, but they did not remain much longer in his family, for before 1347 a son of the above, being also a John Botiler, had sold them to Henry le Gulden, retaining only the Manor of Wymering.

Possibly John Botiler was induced to take this step by finding his feudal obligations a little too onerous; and his father's assessment had shown a sprightly activity, which may have alarmed him; in 1297 John Botiler, the father, was judged to have an income from land of £20 a year, and was ordered to parade with horses and arms against the Scots; three years later he was similarly summoned on an assessment raised to £40—to a prudent housekeeper a very unwelcome change.

Boys.

Chaldon Boys, or West Chaldon, was held by the family of Boys, or De Boseo, in conjunction with the De Lincolns, and afterwards with the Gouises.
Hutchins says the De Boseos held under the De Lincolns, but this does not seem to be borne out by his further statement that Robert De Boseo gave to the Abbey of Abbotsbury 5s. from the fee of Alured de Lincoln, which surely must mean that De Boseo paid that sum out of rent received from De Lincoln. This grant was made in 1239, the 25th of Hen. III., and it would be interesting to know how long this payment continued to be made to the abbots and to their successors in the title.

Twice in the following reign, 1278 and 1281, the De Boseos come again into view as landholders in Dorset in the Manor of Chilfrome one under the Mohuns, Lords of Dunster; and it is not unlikely that they also retained their holding at Chaldon, though on this point we are without information.

The De Boscos, or Du Bois, were a widely-distributed family, if indeed there was any tie of kinship between them, which the variation of their shields makes one doubt. One of the name is mentioned in "Glover's Roll of Arms" of Henry III.'s reign, and three in that of Edward II., and their bearings, though differing from one another, are all dissimilar from those given by Hutchins as borne by the Boys of Chaldon, viz., Argent a chevron gules between three leaves vert.

BRYAN OF HASELBURY.

What brought the Bryans into this county is not quite clear, but it is probable that a marriage with a Dorset heiress was the cause of their changing their residence from their isolated, beleaguered castle in Wales to the peaceful agricultural estate of Haselbury.

The records relating to this manor are vague and confused, owing to there being another Haselbury in Somerset and to the two counties of Dorset and Somerset being under one sheriff, and being, to a great extent, regarded as one county, so that facts related of one place have been erroneously attributed to the other, with the consequence that the history of both is disjointed and contradictory. Subject to correction, however, it seems that a certain Roger Speke left two daughters co-heiresses. One
named Lucy was married to Sir Richard Acton, of Haselbury, but, dying childless and a widow, was able to leave her late husband’s estate to her sister Alice, wife of Guy de Bryan, and thus the Bryans step into the possessions held for several generations by the Acton family at Haselbury.

This Guy de Bryan became a baron by writ of summons in 1350, and died in 1390, leaving his granddaughters his co-heirs; and in 1456, on the decease of the last known descendant, this barony is believed to have become extinct.

The Bryans were already a family of distinction before their connection with Dorset began and before the creation of their barony, which may, indeed, have been given them in tardy recognition of the valuable services of this family for many generations against the Welsh.

On the estuary of the River Taf there still stand the massive ruins of the castle of Tal Llacharn, now Laugharne, which a Guido de Bryan re-built after its destruction by Llewellyn ap Iorwerth in 1215, and in the church is a set of priest’s robes given by one of that name, said to be the same person. Many successive Guidos de Bryan held this mediaeval “blockhouse,” holding back the turbulent Welsh and guarding the river and the port against piratical invaders; and many were the letters of advice from head-quarters cautioning them not to allow their dependants to become too friendly with plausible and designing natives.

The particular Guy de Bryan to whom Haselbury owes its distinctive name was well worthy of his soldierly ancestry, and became one of the most distinguished among the warriors and diplomatists of his day. He served in three campaigns in France and one in Ireland, and twice went as envoy to the Papal Court. For these eminent services he was made a Knight of the Garter, having already been dubbed a Knight Banneret, and was appointed Admiral of the King’s fleet; in addition to his creation of Baron by writ of summons already mentioned. A strong man in a strenuous age, he commended himself specially to his king by his gallantry at Calais, and in Dorset he is notable as the builder of Woodsford Castle.
BUBB OR BOBBE.

Very little is known of this family, which seems to have been of rather humble social position, and possibly of Saxon or even earlier origin. They do not seem to have been of armorial rank, but they held property in Dorset at an early date, as in 12 Henry II. (1166) Peter Bubb and Walter Bubb owned between them two knights' fees in Dorset, and in 1283 one of their name feoffed Alan de Plunkenet, of the hamlet of Melbury.

It would be interesting to know more of this family name, which is believed by at least one able antiquary to be of Roman origin on the ground that "Bubba" was the name of a family during the later period of the Roman Empire. If the name happened to be a shortened form of "Bubulcus," the ox ploughman, there would, at least, have been some appropriateness in its connection with old Dorset, where the ox plough, representing the "Caruca" of Domesday, has survived up to recent years.

CARENT OF CARENT'S COURT.

The ancient family of Carent owned the Manor of Carent's Court, in the Isle of Purbeck, for several generations; but William Carent is the first to whom we can give a precise date; he died in 1346, and his widow, Johanna Carent, then married a Thomas Thornhall.

The son of this William and Johanna Carent was another William Carent, who lived at Carent's Court, and was a man of some wealth and standing in the county; he was for some time one of the Knights of the Shire for Dorset, taking his seat in 1421.

He married Alice, the heiress of the Toomers, of Toomer, in Somerset, and his son (also William) had similar good fortune in marrying Catherine, heiress of the Pains, of Painshay. This William Carent held the lucrative post of King's Escheator for the county, and was High Sheriff of Dorset, and at another time member of Parliament for Somerset. He died in 1476 at Toomer, in Henstridge, where he erected in his lifetime a handsome tomb to himself and his wife, who was probably a
Stourton, in his parish church of Henstridge about the year 1460.

His son, John Carent, was probably the last of the family resident in Dorset, for which county he sat as M.P. He married the daughter of Thomas Brooke, the first Lord Cobham of that surname, and step-son to Sir John Oldcastle. Their son, William Carent, took up his residence at Toomer, and there his descendants remained, gradually discontinuing their connection with Dorset.

In the year 1463 the Bishop of Bath and Wells granted an indulgence of forty days "to all true penitents who should go to the tomb of that worthy man, William Carent, Esq., erected in the prebendal church of Henstridge, and devoutly repeat a Pater Noster and Ave for the welfare of the said William Carent and of the venerable Mr. Nicholas Carent and John Carent, sen., his brothers, and John Carent, his son, and for the soul of Margaret Carent, deceased, wife of the said William Carent, and the souls of the other persons here named after their deaths."*

The scope of this very comprehensive benediction is surely rather remarkable, and one is tempted to surmise that these good wishes were intended to confirm, as much as to commend, the orthodoxy of some members of this family.

The fact that the heir had married a kinswoman of Sir John Oldcastle seems to suggest that the elders may have been on intimate terms with some of the Lollard leaders, whose influence it was thought desirable to neutralise; and it was politic to try to win back waverers with the ready currency of benevolent expressions in cases where stronger measures would be inexpedient.

Another family, named Carrant, seems to have been a younger branch of the above; its members bore arms that, like their name, differed very slightly from those shown here, being Argent, three hurts charged with two chevronels, gules, in other words; the roundels were blue instead of red, and the markings red instead of gold.

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* Harleian MS., 6966 F108, "Bekington."
CHAMPAYNE OF SHAPWICK.

"Radulphus de Campania of Sepwic" was living in the eighth year of Henry III. (1224), and in the same reign Henry de Champaigne and Ralph de Champaigne held a knight's fee in "Sapwic" which had belonged to the Countess Petronilla. In 12 Edward I. (1307) Hugh de la Hyde held lands here of Peter Champayne and Nicholas Richmond.

The name of Roger Champayne occurs on a deed of the date 1327. This Roger Champayne is said to have been the son of the above-named Peter and to have been the grandfather of Mary Champayne, the heiress of this property, by whom it was conveyed in marriage to Sir William Tourney, of Lincolnshire.

The Arms of Champaine—Argent a fess sable—have been borne by another Dorset family since the decease of the Champaignes.

CHENEY OF LYTTON.

It seems probable, though not certain, that the Cheneys were never the tenants-in-chief of Lytton Cheney, which belonged first to the family of De Vivonia and afterwards to the Windsors and the Bonvilles; but the Cheneys, though perhaps only tenants for a long term, were, nevertheless, in evidence at this place, whereas the other families named above were not living here, but resided chiefly at their principal manor of Chuton, to which this was an appendage.

In 1401 Sir Ralph Cheyne, Knight, was seized of a moiety of the Manor and Advowson of Lytton. Sir Ralph's grandson Edmund was the last male representative of the Cheneys of Lytton. He left a widow, who presented to the living in 1445, and three daughters, who seem to have died without children.

The Arms attributed to the family of Cheney vary considerably. Those here represented are the simplest, and therefore presumably the oldest bearings. They are found in the church at Beaminster; but a shield ascribed to this family in one of the windows in St. Peter's Church, Dorchester, bears "Ermine on a bend sable, three martlets or;" whereas Hutchins states positively that the Cheneys of Lytton bore "Gules on five
lozenges between three plates, three cross croslets sable." This blazon, however, fails to locate the cross croslets with the requisite clearness. It may be noticed also that all these Arms are but variants of those given in the Roll of Arms temp. Edward II., viz., "De argent a une fesse de goules a iij merelos en le chef de goules."

**CHIDEOCK.**

There is room for some doubt whether the family of Chideock properly belongs to the class that we are considering, and whether it should not be thought to have taken a name from the place, rather than to have bestowed one upon it; but the fact seems to be that the Chideocks act in a double capacity, and, having borrowed their name from one local habitation, have subsequently lent it to another.

John Gervase, a merchant of Bridport in the early part of the reign of Edward I., obtained possession of the Manor of Chydiok from the Mandevilles for £20 per annum, with fixity of tenure to him and his heirs; but the Mandevilles expressly reserved the rights of heirship and wardship.

John Gervase's son assumed the name of Chidiock on succeeding to his father's estate in 1310, and two years later, while Sheriff of the counties of Dorset and Somerset, he was given the custody of the lands of the Knight's Templars in those counties during the king's pleasure. Three years later he was Knight of the Shire of Dorset, and again, two years after that, he is certified by the sheriff to be lord of the township of Chidyok, in Dorset.*

It was part of the High Sheriff's duty in those days to administer the county funds and to pay certain wages to the members attending Parliament; but John Chideock during his shrievalty seems to have disapproved of this practice, and, at any rate, he omitted that part of his functions, for in 1318 an execution was levied upon his lands, houses, and goods for the

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*Nom. villarum.*
amount of wages which he had received on behalf of certain knights of the shire, but had not paid to them.

This questionable conduct does not seem to have lost him the favour of his Sovereign, for the next year, 1319, the King confirms to John de Chidiocke the Manor of Chideock at the same rate as originally granted (to his father) by Geoffry de Mandeville, and some years later (1328) he employs him on a mission to Flanders on royal business.

About the same time there was living a Sir John Chideock belonging to one of the northern counties, Northumberland or Cumberland, whose Arms are entered on the Roll of Arms temp. Edward. II., but it is impossible to say if he was the Dorset 'squire the subject of our quest. We should, perhaps, be inclined to believe that, if anything was to be gained by an inaccurate statement of this nature, he would probably be ready either to make it or accept it, for he seems to have been a pushing and successful man, not overburdened with conscientious scruples.

He was, perhaps, concerned in securing for his son, John Chideock, the hand and fortune of Isabel, the only daughter and heiress of the wealthy baron, Robert Fitzpayne of Okeford about 1345.

The Chideocks survived in the male line till 1450, when Sir John Chideock died, leaving two daughters co-heiresses, Katharine and Margaret, who were married to Lord Stourton and Sir John Arundell respectively, and both left descendants.

It is difficult to say why the title of Fitzpayne was not borne by the Chideocks after the Fitzpayne heiress had been absorbed into their family; but they do not seem to have assumed it.* Burke conjectures that the barony was suspended, but gives no ground for this opinion, though so unusual a measure would probably be recorded somewhere, and now that all State papers are being so thoroughly examined one may perhaps hope that the record will be discovered, if such a one exists.

* Dormant extinct Peerages, "Fitzpayne."
Child—Childhay.

Childhay is stated by the historian of Dorset to have belonged anciently to the family of Child, but at an early date it passed by the marriage of an heiress to John de Cruckern. Unfortunately, there is the same lack of history respecting the apparently allied manor of Child-Ockford; which is believed by some to be so named upon similar grounds; but there seems to be even less reason for this conjecture, though on the other hand it is far from improbable.

A reflection that may occur to some one familiar with mediæval ballads is that "Child" was commonly a term applied to a Knight, as, for example, "Child Morrice," "Child Waters," but here again we are met by want of evidence.

The Dorset family of Child, which may or may not have given a name to Childhay and Okeford, owned land at Newton for certainly four generations, up to 1623, as is proved by the Heralds Visitation of Dorset of that date; and the Parish Register shews that some of the name remained there fifty years later.

Any reliable evidence of the early history and shewing the continuity, of this family, would be most welcome, but is still to seek.
Report on Observations of the First Appearances of Birds, Insects, &c., and the First Flowering of Plants in Dorset during 1900.

By NELSON M. RICHARDSON, B.A., F.E.S.

The names of those who have this year sent in returns are as follows; they are denoted in the Report by initials:—

(J. C. M.-P.) J. C. Mansel-Pleydell, Whatcombe, near Blandford.
(N. M. R.) Nelson M. Richardson, Montevideo, near Weymouth.
(O. P. C.) Rev. O. P. Cambridge, Bloxworth Rectory.
(E. S. R.) E. S. Rodd, Chardstock House, Chard.
(G. H.) G. Hibbs, Bere Regis.
(D. C.) D. Curme, Childe Okeford, near Blandford.
(S. C.) S. Creed, Coombe Farm, Sherborne.
(W. H. D.) Rev. W. Hughes D'Aeth, Buckhorn Weston Rectory, Wincanton. (Notes only.)
I have this year sent out a good many new lists in the hope of getting some fresh observers in parts of the county not now represented.

**Notes on Rare and Other Birds in 1900.**

Rare birds seem to have deserted this county, or, at least, to have escaped the notice of our observers, as nothing out of the common has been recorded either in 1899 or 1900.

The following notes on birds have been sent besides those mentioned in the list of first appearances:—

**Chiff-chaff (**Phylloscopus collybita**).—These were seen fairly often in the garden at Montevideo, Chickerell, but rarely heard, though in most years they are very noisy throughout the summer. (N. M. R.)

Rev. W. Hughes D'Aeth says "The absence of many small birds and the scarcity of many others is noticeable. I have seen only two Chiff-chaffs, of which we usually have several." (Buckhorn Weston.)

**Greater Spotted Woodpecker (**Dendrocopus major**).—Mr. Hibbs kept one under observation for about 15 minutes in Bere Wood on May 4th.

**Red-backed Shrike (**Lanius collurio**).—First seen May 10 at Childe Okeford. (D. C.)

**Partridge (**Perdix cinerea**).—Partridges paired Jan. 20. (S. C.), Sherborne.

Mr. Rodd writes:—"After 28 years of careful observation at Chardstock, Dorset, and the district around, I am delighted to quote without doubt that the Nightingale, Stock Dove, and Turtle Dove have all increased in the neighbourhood of late years, where all breed freely and commonly.

The Nuthatch, usually a shy bird, has a nest in a hole of a buttress of Chardstock House. Corncrakes have become very scarce of late years."

Mr. Creed writes:—June 25, rode to West Bradley, Somerset; saw a young cuckoo, heard a corncrake and goatsucker, and saw, on return journey, glow-worms.
Blackbirds and thrushes sang through December just as if it was a spring month." (Sherborne.)

Rev. W. Hughes D’Aeth (Buckhorn Weston) writes:—“I heard a Cuckoo on October 10 singing as merrily as in May three or four times. There was also a great scarcity of Cuckoos, I think, in the neighbourhood.

The last week of December there was a nest of young Starlings in a tree in my churchyard, and Rooks were busy building—not only patching up their old nests, but building new ones.”

Imitations of the cuckoo’s note being often so excellent, it would be more satisfactory if the bird could be seen when heard at these unusual seasons, but this cannot generally be managed, and, in the absence of some such confirmation, observations of this sort on the cuckoo, nightingale, &c., seem necessarily open to a certain amount of doubt.

Mr. Rodd suggests the omission of the rook, blackbird, and skylark from the list. It would seem, however, important to keep the list intact, without change, for as long a period as possible for purposes of comparison, and the blackbird and rook are specially convenient birds to observe as regards their nesting and eggs, and the skylark as regards its song, which begins early in the year. Out of nine observers there are five observations on the blackbird, two on the rook, and five on the skylark, whereas several birds in the list are less noticed.

Botanical Notes.—“Dec. 7, dandelion, thistle, and cam- pion in blossom. Between April 15 and 22 the trees came into leaf like magic.” (D. C.), Childe Okeford.

Mr. Rodd (Chardstock) writes:—“A remarkably good flowering year for trees (stone fruit especially), shrubs, and wild flowers generally everywhere. The great and abundant flower- ing of the apple and cherry, the blackthorn and hawthorn, the elm, the laurel, &c., was remarkable in this district, and I attribute it greatly to the sun and heat of last summer ripening the wood which conveys the sap to the flowers. A good fruit season, but apples were small and scarce in some districts.”
SHERBORNE.—June 21, first observed wheat ears; June 24, first barley ears; July 2, first oat ears. (S. C.) Mr. Creed states also that honeysuckle is generally the first plant to show leaf, *e.g.*, on Dec. 15, 1899. He suggests its addition on this account to the list.

(BUCKHORN WESTON).—Rev. W. Hughes D'Aeth writes:—

"I suppose I am not singular in saying that no fruit has kept properly."

**NOTES ON INSECTS, &c.**

**CLOUDED YELLOW BUTTERFLY** (*Colias edusa*).—Numerous Aug. 31st. (D. C.), CHILDE OKEFORD.

A few seen. One was brought to me on Nov. 26 quite lively. (N. M. R.), CHICKERELL.

The season will long be remembered for its abundance in August and September. (E. R. B.), CORFE CASTLE.

**DEATH'S HEAD MOTH** (*Acherontia atropos*).—Larvae abundant. (W. H. D.), BUCKHORN WESTON.

Larvae abundant in August and September. (E. R. B.), CORFE CASTLE.

**HUMMING BIRD HAWK MOTH** (*Macroglossa stellatarum*).—One flying about very briskly in the garden (Montevideo, Chickerell), at about 1 p.m. on Feb. 18, sucking snowdrops and red hellebore. It looked in very good condition. Another on April 15.

**PALE CLOUDED YELLOW BUTTERFLY** (*Colias hyale*).—It is worthy of mention that of this species, which had previously been very rarely met with in Dorset, though occasionally common in the counties lying further east, twenty-two specimens were secured by two collectors alone, one working in the north-east and the other in the extreme south of the county. (E. R. B.)

Mr. E. R. Bankes also sends the following note:—"The year 1900 was a remarkably good one for Lepidoptera (Butterflies and moths) as regards both quality and quantity in Dorset, as well as throughout the county, for not only were common kinds in profusion and various uncommon ones in better numbers
than usual, but a few exceptionally rare species, including one or two that are new to the Dorset list, were also taken.

Mr. E. S. Rodd sends the following general note on the year:—"Deep snow fell on Feb. 2, and we had some hard frosts at this time. The week of Feb. 11-17 was very remarkable for excessive and sudden changes. Feb. 11-12, deep snow fell and snow drifts, and a N.W. gale on the 11th. The 12th was lovely and bright and still, with hard frost. Clouds came up from the S.W. about 5 p.m., and we had heavy and continuous rain in torrents all that night and next day (13th), causing very high floods, such as had not been known for over thirty years, the deep snow, the ground iron-bound in hard frost, and the sudden torrents of continuous rain accelerating the floods. Great damage throughout England was caused by them. A very cold, sunless March and backward spring succeeded. The eclipse (partial in England) was seen well from Chardstock. I took several observations through smoked glass about 4 p.m. The day (May 28) was bright and clear. A dry summer and autumn up to November. A wet and mild November and December, with a great storm of wind and rain on December 27th and 29th. Hardly any frost, and no snow up to Christmas, and the year 1900 ended in mild wet weather.

The lists of first appearances, &c., are appended:—
### Earliest Dorset Records of Plants in Flower in 1900

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<tbody>
<tr>
<td>Lesser Celandine</td>
<td>Flower</td>
<td>Feb. 21</td>
<td>Jan. 19</td>
<td>Mar. 27</td>
<td>Mar. 10</td>
<td>Mar. 25</td>
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<td>Herb Robert</td>
<td>Mar. 28</td>
<td>Mar. 28</td>
<td>Mar. 28</td>
<td>May 11</td>
<td>May 16</td>
<td>May 3</td>
<td>May 4</td>
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<tr>
<td>Bush Vetch</td>
<td>Flower</td>
<td>Ap. 4</td>
<td>May 15</td>
<td>May 6</td>
<td>Apr. 14</td>
<td>Apr. 4</td>
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<tr>
<td>Blackthorn</td>
<td>Leaf</td>
<td>Apr. 14</td>
<td>May 18</td>
<td>May 5</td>
<td>May 14</td>
<td>May 9</td>
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<tr>
<td>Haworth</td>
<td>Flower</td>
<td>Feb. 24 (3)</td>
<td>May 1</td>
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<td>May 14</td>
<td>May 18</td>
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<td>Ivy</td>
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<td>May 18</td>
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<td>Dogwood</td>
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<td>May 6</td>
<td>May 23</td>
<td>May 17</td>
<td>May 18</td>
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<tr>
<td>Elder</td>
<td>Flower</td>
<td>May 20</td>
<td>June 8</td>
<td>June 15</td>
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<td>Wild Teasel</td>
<td>Leaf</td>
<td>June 20</td>
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<tr>
<td>Devil's Bit</td>
<td>Flower</td>
<td>July 20</td>
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**Earliest Dorset Records of Plants in Flower in 1900 (continued).**

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<tbody>
<tr>
<td>Knapweed</td>
<td>Leaf</td>
<td>June 15</td>
<td>June 15</td>
<td>June 22</td>
<td>June 17</td>
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<td>July 1</td>
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<tr>
<td>Field Thistle</td>
<td>Leaf, Flower</td>
<td>June 9</td>
<td>June 9</td>
<td>June 10</td>
<td>July 5</td>
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<td>July 5</td>
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<td>Coltsfoot</td>
<td>Flower, Ripe Fruit</td>
<td>May 7</td>
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<td>Mar. 13</td>
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<td>Yarrow</td>
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<td>June 21</td>
<td>June 24</td>
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<td>June 21</td>
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<td>Ox-eye Daisy</td>
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<td>May 22</td>
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<td>Mouse-ear Hawkweed</td>
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<td>May 25</td>
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<td>July 8</td>
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<td>Harebell</td>
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<td>Greater Bindweed</td>
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<td>June 8</td>
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<td>July 6</td>
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<td>Water Mint</td>
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<td>Aug. 15</td>
<td>Aug. 15</td>
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<td>Feb. 21</td>
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<tr>
<td>Ground Ivy</td>
<td>Leaf, Flower</td>
<td>Feb. 21</td>
<td>Mar. 19</td>
<td>Apr. 18</td>
<td>Ap. 24</td>
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<td>Feb. 21</td>
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<tr>
<td>Hazel (Red Female Flower)</td>
<td>Jan. 1</td>
<td>Jan. 1 (1)</td>
<td>Jan. 1 (1)</td>
<td>Apr. 16</td>
<td>Ap. 15</td>
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<td>Feb. 28</td>
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<tr>
<td>Cowslip</td>
<td></td>
<td>Mar. 23</td>
<td>May 3</td>
<td>May 9</td>
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<td>Feb. 12</td>
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<tr>
<td>Spotted Orchis</td>
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<td>May 3</td>
<td>May 9</td>
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<td>Feb. 7</td>
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<td>Bluebell</td>
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<td>Apr. 19</td>
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<td>Apr. 24</td>
<td>May 1</td>
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<td>Apr. 21</td>
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(1) Hazel in flower all the winter (N. M. R.). (2) Marsh Marigold at Stoborough, Purbeck (E. R. B.). (3) Several small plants in lanes observed in leaf before the flower.

(4) **BLOXWORTH.—Horse Chestnut in leaf Ap. 10 (O. P. C.).**
<table>
<thead>
<tr>
<th>Parish</th>
<th>Eggs</th>
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<tbody>
<tr>
<td>Dhulston</td>
<td>May 22 s.</td>
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<tr>
<td>Chichester</td>
<td>May 5</td>
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<td>Cromebe Pram</td>
<td>Ap. 15</td>
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<tr>
<td>Chichester</td>
<td>May 23 s. Ap. 18 s.</td>
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<td>D C</td>
<td>Ap. 10</td>
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<td>Here Hedges</td>
<td>May 15</td>
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<td>Charted</td>
<td>Ap. 20</td>
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<td>E S R</td>
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<td>Blaxworth</td>
<td>Ap. 14</td>
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<td>O P C</td>
<td>Ap. 18</td>
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<td>Catle Canute</td>
<td>Ap. 14</td>
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<td>W. R</td>
<td>Ap. 15</td>
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<tr>
<td>Weymouth</td>
<td>Ap. 15</td>
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<td>X. P R</td>
<td>Ap. 8</td>
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<td>W H. R.</td>
<td>Ap. 15</td>
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<td>Dorset</td>
<td>Ap. 20</td>
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**Notes:**
- **Egg Nesting:**
  - E. Egg Nesting, S. Egg Nesting
  - N. Nesting
- **Egg Numbers:**
  - 1st egg, 2nd egg, 3rd egg, 4th egg, 5th egg
- **Birds:**
  - Wren, Robin, Blackbird, Chaffinch, Nightingale, Nuthatch, Cuckoo, Cetti's Warbler, Sand Martin, Nightjar, Turtle Dove
- **Dates:**
  - May 1st, May 2nd, May 3rd, etc.

**Additional Information:**
- **Winter Birds:**
  - House Martin seen April 25th, B.B.
  - Thrush beginning to build March 2nd
  - Another nest with eggs March 9th

**References:**
- (1) At Lavington Matravers.
- (2) At Yateley, Hampshire.
- (3) Dole.
- (4) Egg Nesting.
- (5) Nesting.
- (6) Young very small; only one seen.
- (7) Nesting.
- (8) Nesting.
- (9) Nesting.
- (10) Nesting.
- (11) Nesting.
- (12) Nesting.
- (13) Nesting.
- (14) Nesting.
- (15) Nesting.
- (16) Nesting.
- (17) Nesting.
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<td><strong>Occurred</strong></td>
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<td>May 12</td>
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<td><strong>First Appearance</strong></td>
<td>June 10</td>
<td>June 29</td>
<td>Mar. 14</td>
<td>May 6</td>
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<td><strong>Marine</strong></td>
<td>May 18</td>
<td>June 12</td>
<td>Apr. 17</td>
<td>May 1</td>
<td>May 6</td>
<td>May 14</td>
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<td><strong>Land</strong></td>
<td>May 20</td>
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<td><strong>Marine</strong></td>
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1. Hibernated.
2. Queens very common in spring, but workers scarce.
3. Fresh specimens not detected.
5. Very scarce; only seen once.
6. A few flying by night.
7. No other butterfly of any variety observed until Ap. 10.

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