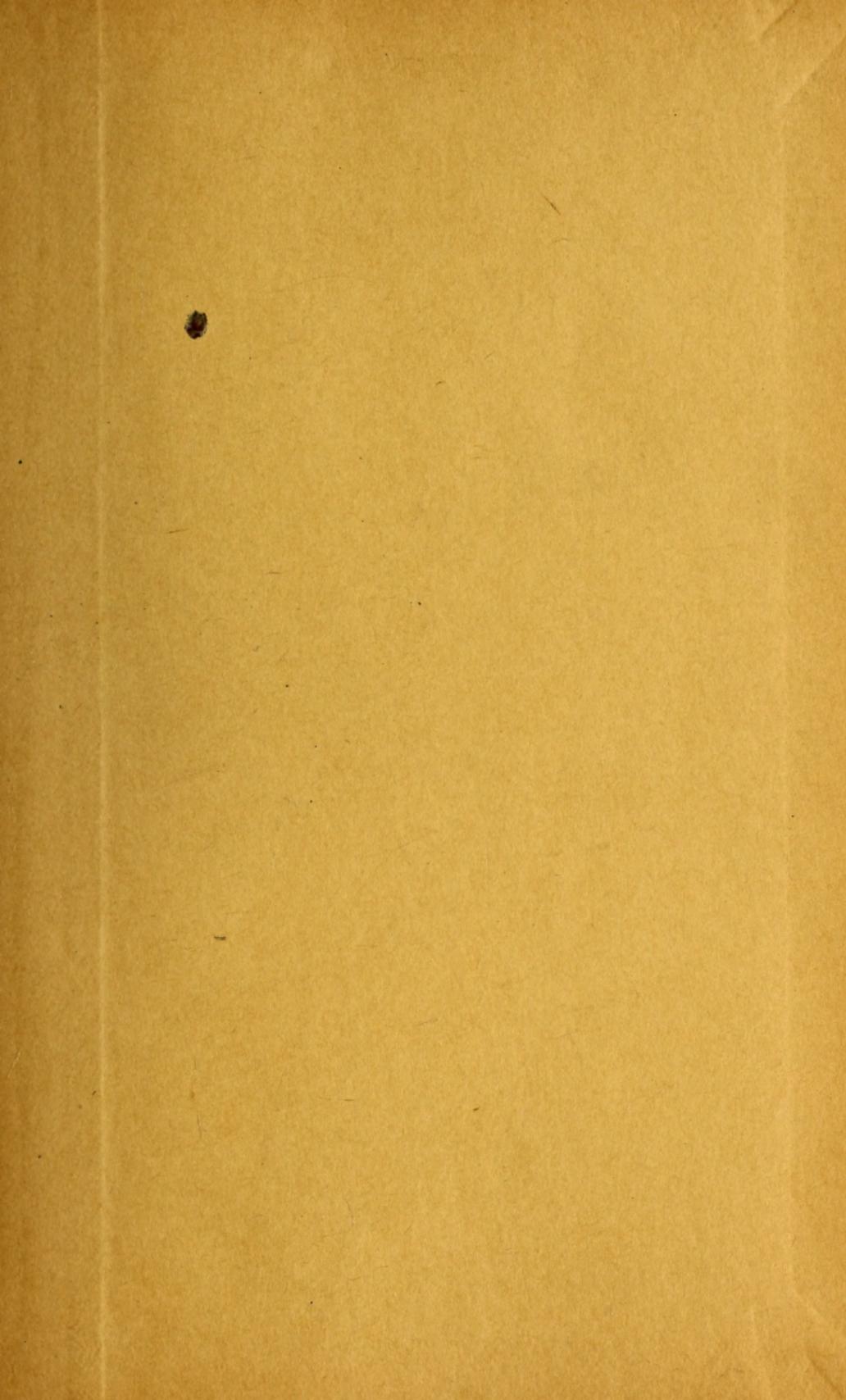


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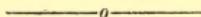
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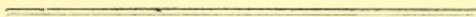
SOCIETY OF NATURAL SCIENCE

AND

LOCAL RESEARCH.



VOLUME VI.—1909-1912.



Guernsey :

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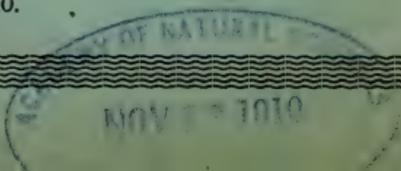
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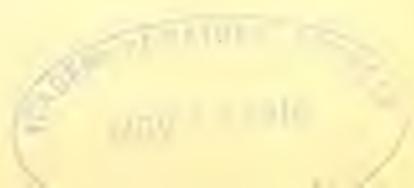


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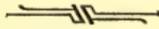


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TRANSACTIONS OF THE SOCIETY.



THE Sixth Annual Soirée of the Society was held in the Guille-Allès Lecture Hall on the 9th of February, 1909. Following the course adopted at all these popular and much-appreciated entertainments, a series of short lectures were delivered, illustrated by means of the Electric Lantern, interspersed with songs and musical selections admirably rendered by several ladies and gentlemen to whom the Society is indebted for this kindly help. For the musical portion of the programme grateful acknowledgments are due to Miss Shaw, Miss Edmonds, Mr. H. F. M. Morres, and the members of the Elizabeth College choir. The thanks of the Society are also due to Mr. F. L. Tanner who so successfully carried out the duties of organising director of the evening's entertainment.

The Bailiff of Guernsey, Mr. William Carey, as President of the Society, said it gave him the greatest pleasure to be present, because these soirées of the Society always proved both entertaining and instructive. He wished to thank those who had come forward to help them that evening, and also those who had come to listen. The Society was doing excellent work and deserved every support. It was placing on record for future students a vast amount of useful information in all departments of natural science and archæology, matters of entirely local interest, which would otherwise have been quite unrecognised and forgotten. But the publication of a volume of *Transactions* each year was a heavy drain upon their resources, and so he would like to see the roll of members largely increased. If those who were present would induce their friends to join, the Society would be able to do even more than in the past.

The first Lecture, by Mr. W. Sharp, Principal of the Intermediate School, was entitled "A bit of very ancient Guernsey History." As suggested by the title the subject dealt with was the traces of the early habitation of this island by Neolithic man. One of the most remarkable of ancient monuments was to be seen to-day on the top of the hill on Lanresse common. Its preservation was due to the fact that it was only discovered in comparatively recent times, because a large number of others which once existed had been destroyed. The lecturer described these Dolmens

and what they were erected for, so far as we can gather from the remains found in them. In Guernsey a good deal of ancient pottery has been found, as well as stone implements which show by the degree of wear and tear they have undergone that they have done real work. It was very interesting to compare the dolmens found in Guernsey with those of Brittany and Cornwall, and other places.

The second lecture, by Mr. E. Scott, B.Sc., dealt with the subject of "The Solar Spectrum." From the earliest times speculation had been rife as to the composition of the heavenly bodies, and only in the 19th century had the spectroscope settled the question. White light, that is sunlight, is split up by the prism into coloured bands called the *spectrum*. Gaseous hot bodies give spectra of colour on a dark background. A dark line across a bright spectrum indicates that white light has passed through a certain vapour. Comparison of this line with the spectra of known vapours shows the substance which has produced it. The sun is surrounded by a gaseous envelope or chromosphere, and the dark lines in the sun's spectrum show the vapours in this chromosphere—and consequently what substances are found in the sun—and in the same way with various other heavenly bodies.

The third Lecture, by Dr. Aikman, was entitled "A fragment of Lilliputian biography." The lecturer briefly sketched the life-history of the minute parasite which produces the deadly sleeping sickness, the terror of Central Africa. This disease originally develops in the blood of crocodiles, whence through the agency of the Tsetse Fly it is transferred to the blood of domesticated animals, in which sooner or later it causes death. The disease is more prevalent among negroes than white men, but we have the sad instance of Lieut. Tulloch, of the Army Medical Corps, who was infected at Uganda, and succumbed to sleeping sickness after his return to England. That the disease may be spread has been proved by experiments, but it has also been ascertained that some negroes may be infected without afterwards developing the disease. Several months or even a year or two may elapse before the symptoms are manifest, and it seems the disease does not develop until the parasite has gained access to the fluid which surrounds the brain and spinal cord.

The evening's entertainment, which was very enjoyable, attracted a large and appreciative audience, and the sum of £7 7s. 6d. was realised by the sale of tickets.

Monthly Meeting held on March 17th, 1909, Mr. Frank Carey in the chair.

Mr. H. E. Marquand, Editor of the *Star*, read a very interesting paper consisting mainly of old Guernsey stories and superstitions. The lecturer gave an account of the arrival of the first steamboat in Guernsey, the *Medina*, from Southampton, in June, 1823, and her subsequent voyage to Jersey, where the inhabitants, seeing smoke issuing from the funnel, thought she was on fire. An old woodcut of this steam-packet, and also one of the last of the sailing mail packets, were exhibited. Several amusing tales of ghosts and witchcraft followed, including the account of a certain "treasure trove" discovered at the Vale, the legend of "La Rocque Balan," a singular "death warning," and several other diverting episodes belonging to "le bouan viar tems."

Monthly Meeting held on April 21st, 1909, Mr. F. L. Tanner, L.D.S., in the chair.

Mr. G. Derrick, Hon. Secretary of the Society, read notes relating to the series of lectures recently delivered at the Ladies' College by members of the Society, all the subjects relating to these islands. He next read a paper on a supposed Dolmen stone discovered some years ago at L'Islet. Particulars were given of its present size and appearance, and it was suggested that it should be scientifically examined and reported on by members of this Society.

Mr. B. T. Rowswell read a paper on the great meteor as observed here, and Mr. Collenette added some remarks on the subject. Mr. Rowswell's paper is printed in the current number of the *Transactions*.

The Hon. Secretary exhibited a cast prepared by Mr. J. Sinel of the Cuckoo Ray recently captured off this coast by Mr. C. Ferguson. It is the first occurrence of this fish in Guernsey waters.

Monthly Meeting held on October 20th, 1909, Lieut.-Colonel T. W. De Guévin in the chair.

Mr. R. P. Spencer was unanimously elected a member of the Society.

The chairman exhibited a flint knife and three arrow-heads found by him on the small islets near Grandes Rocques. Also a small flint scraper found in his garden.

Mr. H. E. Marquand exhibited a quantity of quicksilver found two feet below the surface in virgin soil in Park Street. Mr. Collenette said quicksilver did not occur in this region, nor was it found in its liquid condition. The present find was probably the contents of a jar which had been broken and the metal had percolated into the soil, where it might well remain for a very long period.

Mr. W. A. Luff, F.E.S., exhibited three species of Fleas new to Guernsey found on the new Field Vole (*Microtus sarnius*). One species was remarkably large, and usually attacked Voles and Moles.

A paper on the new Guernsey Vole and its habits, from the pen of Mr. R. H. Bunting, of the British Museum, was read and will be found in the following pages of these *Transactions*.

Mr. Derrick read a paper (printed further on) on the Peat beds of the Channel Islands, written by Mr. J. Sinel, of Jersey. The chairman thought that if the sea was at one time 200 or 300 miles further away than it is now, as suggested in Mr. Sinel's paper, it was difficult to understand how the limpet shells found in the cromlechs had got there.

Mr. E. D. Marquand, A.L.S., read a paper on "The Vegetation of Small Islets," which is printed in the current *Transactions*. The chairman regretted that the lateness of the hour would not allow of discussion upon many points raised in this interesting paper.

Monthly Meeting held on November 17th, 1909, Mr. William Carey, President, in the chair.

Miss I. Standen was unanimously elected a member of the Society.

Mr. Eric Sharp exhibited a number of rare marine animals lately found by him.

Mr. Derrick read notes on the occurrence of the Grey Lag Goose in Guernsey and the Glossy Ibis in Sark; both birds being additions to our fauna. Particulars will be found in the Ornithological Report for the present year.

A note was read, taken from the *Evening Press* of June 8, 1909, reporting that a seal was seen in Creux Harbour, Sark, the previous week.

Col. T. W. De Guérin then read a paper on "Feudalism in Guernsey," and another entitled "A fight for our Privileges," both of which are printed in these *Transactions*.

The Twenty-seventh Annual Meeting of the Society was held on December 15th, 1909, Lieut.-Colonel T. W. De Guérin in the chair.

Mrs. Kelson exhibited a branch of Canadian Poplar from Germany, showing cottony fruit.

Mr. W. A. Luff exhibited specimens of a new Gall (*Cynips calicis*) growing on acorns. It is not British, though found on the Continent. Mr. Luff also read a paper on the genus *Pezomachus*, and one on "Additions to the Insects of Sark," and then Mr. F. L. Tanner read a paper by Mr. Eric Sharp on the Marine Zoology of Alderney. All the above papers are printed in the present *Transactions*.

Mr. A. Collenette reported that the bones found at Vazon were undoubtedly human. They consisted of portion of a skull which unfortunately had been thrown away by the workmen, and some fragments of thigh bones which he had secured for the Museum. They were in the peat under the sand, but in his opinion they belonged to a later date than the other Guernsey peat bones, probably the same period as the Alderney skulls.

The annual Sectional Reports, embodying the work of the year in various branches, were read as follows:—

Botany, by Mr. E. D. Marquand.

Entomology, by Mr. W. A. Luff.

Geology, by Mr. C. G. De La Mare.

Marine Zoology, by Mr. F. L. Tanner.

Ornithology, by Mr. E. D. Marquand.

The Hon. Secretary next read the Annual Report of the Council, and the Hon. Treasurer presented his statement of account showing a balance in hand of £15 11s. 2d.

Proceeding then to the election of officers, the Secretary (Mr. G. T. Derrick) and the Treasurer (Mr. W. A. Luff) were re-elected by acclamation, with many expressions of thanks for their services; and as no new member was proposed for the Committee the old Committee was re-elected *en bloc*.

Monthly Meeting held on January 26th, 1910, Lieut.-Colonel T. W. De Guérin in the chair.

Mr. A. Collenette, F.C.S., read his annual Report on the Sunshine and Rainfall of the past year, and Mr. B. Rowswell's Weather Reports for Alderney and Sark. Both papers are published in the current *Transactions*. A large

series of comparative tables and diagrams, illustrating the subject, were shown on the screen.

The Chairman announced that the Annual Soirée of the Society would take place on the 8th of February.

Report of the Council.

The Council are pleased to put before the members the record of most important and interesting work done during the year 1909 in connection with subjects in which this Society is concerned.

The Lukis Collection of objects of the utmost antiquarian value, a large proportion of which were discovered during the exploration of our local prehistoric monuments, has been accepted by the States as a gift under the will of the late Capt. F. Lukis. The States have also acquired the Lukis Mansion in the Grange and have fitted it up as a Museum ; so that this unique collection of ancient relics is secured to the Island for ever, and is open to inspection of students and the public. Guernsey may well be proud of being numbered among the few places which retain in their possession nearly all the objects discovered in their megalithic monuments.

While this new Institution will be of great assistance to students of local antiquities, it is well to point out that another Institution, the Guille-Allès Museum, also contains a collection of objects of antiquarian interest, including many bronze implements from Alderney ; in fact it is the only collection of the bronze period found in the Channel Islands. This Museum has been thoroughly re-arranged and classified during the last few years, and is very rich in local Natural History, especially Shells, Fishes and Birds.

In January it was reported that a "dug-out" canoe had been discovered at the Coutanchez, but as doubts have been expressed as to its real character, it is desirable that further excavations should be carried out in order to settle this point, for the existence of a canoe at this spot would be most weighty evidence in connection with the discussion of changes of elevation in this district, and the relative ages of certain superficial deposits.

From the Sectional Reports, as well as the papers read at the monthly meetings, it will be seen that the general work of the Society is being vigorously carried on, showing that there is still scope for earnest research in every department. The continued appreciation of the Society's work is shown by the large attendance at the indoor meetings, and especially at

the Soirée on February 9, which was a decided success in every way. The Council desire to return their best thanks to all those who assisted on that occasion.

The number of members belonging to the Society is fairly well maintained, and the finances are in a satisfactory condition.

The Society is deeply indebted to the Council of the Guille-Allès Library for the gratuitous use of a room in which to hold their meetings, for the use of the Electric Lantern at the Soirée, and for permission to make use of the Reference Library.

During the year the following books and publications have been received in exchange for our *Transactions*. All books are kept in the Society's Library, which is at all times accessible to members on application to the Secretary.

Philadelphia :—

Academy of Natural Science, Vol. 60, Parts II. and III. Vol. 61, Part I.

Washington :—

Library of Congress : Buildings and Grounds.

Smithsonian Institution : Annual Report, 1907 ; do., 1908.

Lloyd's Library : Botany, &c., Reproduction, Series 7.

Boston :—

Society of Natural History : Fauna of New England ; Lists of Pisces, Araneida and Phalangida. Vol. 34, Parts I., II., III., IV.

Brooklyn :—

Institute of Arts and Sciences : Fresh Water Cyclops of Long Island.

Jersey :—

Société Jersiaise : Journal de Jean Chevalier, 3ème Fascicule ; Bulletin 34 ; Actes des Etats, 1761 to 1770.

British Museum :—

General Guide.

Botany, History of Plant Classification.

Memorial of Linneus.

Great Game Animals.

Mammals not Ungulates.

Weapons of War and Chase.

Guides to Anthropology, Elephants (recent and fossil), Horse Family, Domesticated Animals, Whales, Fishes and Insects.
Introduction to Study of Rocks.
Synopsis of British Basidiomycetes.

Horniman's Museum :—

Annual Report, 1907.

Portici :—

Bulletin of the Zoological Laboratory, Vol. III.

Concarneau :—

Bulletin of the Zoological Laboratory.

Wisconsin :—

Academy of Sciences, Arts and Letters : Vols. 3 for 1875-6 ; 4 for 1876-7 ; 5 for 1877-81 ; 6 for 1881-83 ; 7 for 1883-87 ; 8 for 1888-91 ; 9 (Parts I. and II.) for 1892-93 ; 10 for 1894-5 ; 16 (Part I.), Nos. 1, 2, 3, 4, 5 and 6.

Abstract of the Treasurer's Accounts

From 1st of January to 31st of December, 1909.

Dr.		Cr.	
	£ s. d.		£ s. d.
Balance of last year's Account.....	21 13 4	Expenses connected with Soirée.....	1 18 5
Proceeds of Soirée.....	7 7 6	Star Publishing Company	1 17 4
Copies of <i>Transactions</i> sold.....	0 6 6	Cost of <i>Transactions</i>	38 15 2
Members' Subscriptions..	30 7 6	Collector collecting 50 Subscriptions	0 18 9
Interest at Bank.....	0 10 6	Donation to Caretaker ...	0 15 0
		Secretary's Expenses, Postages of <i>Transactions</i> , &c.	0 9 6
		Balance in hand.....	15 11 2
	<u>£60 5 4</u>		<u>£60 5 4</u>

Examined and found correct,

C. G. DE LA MARE, }
H. E. MARQUAND, } *Auditors.*

W. A. LUFF, *Hon. Treasurer.*

December 15th, 1909.

Report of the Botanical Section.

There are this year some interesting notes, but nothing very startling to report in this department of research. The indigenous vegetation of the Sarnian Islands has now been so thoroughly worked up, catalogued, and recorded, from the highest flowering plants to the lowest microscopical algæ, that one cannot expect any large increase to be made to the collective lists. The work of the future should be directed less towards the search for plants entirely new to our area, and more towards ascertaining the exact range of those already known to occur; because, as I have had occasion to state on many occasions, the islands differ from each other to a surprising degree.

Before dealing with matters of purely local interest, I wish to say a few words about the irreparable loss which science has sustained this year by the death of an illustrious Belgian botanist, whose latest work,—an exhaustive enumeration of the Seaweeds of the Channel Islands, was published only last year. I refer to my lamented friend Dr. Henri Van Heurck, Professor of Botany, and Director of the Botanical Gardens at Antwerp. Dr. Van Heurck, who died on the 19th of March last, at the age of seventy, was one of the most distinguished of European microscopists. He had made a speciality of the Diatomaceæ, on which he was an acknowledged authority. His great work, *Traité des Diatomées*, embellished with over 2,000 figures of recent and fossil species, with full descriptions and references, is a monument of critical acumen and laborious study, and it justly stands as a text book of the highest merit.

But Dr. Van Heurck was also a keen algologist. He devoted the last years of his life to the study of the seaweeds of Jersey, and the result of his researches was embodied in his *Prodrome de la Flore des Algues Marines des Iles Anglo-Normandes*. It was my privilege to assist him with voluminous notes and specimens collected by myself during the previous fifteen years in Guernsey and Alderney, thereby rendering Dr. Van Heurck's book, as he gratefully acknowledges in the preface, very much more comprehensive and complete than it would otherwise have been. Altogether nearly 500 seaweeds are recorded with their distribution not only in the Channel Islands, but along the whole north-western coast of France. In no other book will be found such an instructive bird's-eye view of the exceeding richness and variety of the marine flora of our shores.

As will be seen by the list which follows, additions have been made during the past twelve months to the records of no less than four of the Sarnian Islands, viz., Guernsey, Alderney, Sark and Jethou. Mr. Derrick has discovered an unrecorded fern in Sark, and another in Jethou. Several additional mosses and hepaticæ have been found in Guernsey, Alderney and Sark, by Mr. P. G. M. Rhodes, B.A., of Cambridge University, and among them there is one species (*Brachythecium velutinum*) not previously detected in the Channel Islands. Mr. Rhodes has also added four lichens to the Guernsey list.

My own share of the work is confined to Sark, where during a week's visit in the spring I found a new flowering plant, four new mosses, and an unrecorded seaweed. Sark is not at all an ideal collecting-ground for a seaweed collector; it is far inferior, from the nature of the coast, to Herm or Alderney. But the scanty list at present on record might be considerably enlarged with very little trouble.

A paper was recently read before the Society on the vegetation of some of the small islets on our coasts. Persons who are interested in the subject of plant distribution will find in it matter for some amount of attentive study and comparison.

Two rare Guernsey plants have been found in new stations that deserve notice. In May last the Rev. R. H. Tourtel sent me a fresh specimen of the Star of Bethlehem (*Ornithogalum umbellatum*) which had been found by Miss Tourtel growing in small quantity in a field quite on the edge of the Thielles cliffs. During the summer I noticed several small patches of the Heath Bedstraw (*Galium saxatile*) in flower on the cliffs above Saints Bay. This is one of our most local plants, hitherto only known to occur in two or three places at the extreme northern end of L'Ancrese Common.

GUERNSEY.

- Pottia viridifolia**, *Mitt.* Roadside bank, Varclin, St. Martin's (Rhodes).
Already recorded for Alderney.
- Weisia verticillata**, *Brid.* Under Fort George (Rhodes). Recorded for Alderney.
- Brachythecium velutinum**, *B. & S.* Roadside at St. Sampson's (Rhodes).
New to the Sarnian Islands.
- Collema melaenum**, *Ach.* Sea Wall, Fermain Bay (Rhodes).
- Ramalina breviuscula**, *Nyl. f. gracilescens*, *Cromb.* Hommet Benest (Rhodes).
- Parmelia prolixa**, *Nyl.* Under Doyle's Pillar, and at Grandes Rocques (Rhodes).
- Lecanora lobulata**, *Somm.* Hommet Benest (Rhodes).

ALDERNEY.

Grimmia subsquarrosa, *Wils.* La Tchue (Rhodes).

SARK.

Alisma ranunculoides, *L.* Grows sparingly in a small pool on Eperquerie Common (Marquand).

Blechnum boreale, *Sw.* Dixcart Valley, found by Mr. Cumber and subsequently by Mr. Derrick.

Polytrichum nanum, *Neck.* Banks at Dixcart (Marquand).

Funaria ericetorum, *Dix.* Banks, Little Dixcart, also on the edge of a small pool on Eperquerie Common (Marquand).

Brachythecium albicans, *B. & S.* On the ground, Dixcart Common (Marquand).

Eurhynchium pumilum, *Schp.* Dixcart Valley (Marquand).

Fossombronina angulosa, *Raddi.* Near Point Château (Rhodes).

Lejeunia cavifolia, *Lb.* Interior of Sark (Rhodes).

Lecanora erythrella, *Nyl.* Point Château (Rhodes).

Catenella Opuntia, *Grev.* Small cave in Creux Harbour (Marquand).

JETHOU.

Asplenium Adiantum-nigrum, *L.* Not hitherto noted for the main island of Jethou (Derrick).

E. D. MARQUAND, Sec. Bot. Sect.

Report of the Entomological Section.

The additions made to the lists of the Insect Fauna of Guernsey and Sark have been very numerous this year. Mr. E. D. Marquand has devoted much time to the collection of two or three special orders, and has been most successful.

A list of twenty-one species of *Pezomachus*, a genus of the *Ichneumonidæ*, will appear in the current *Transactions*.

Mr. Marquand paid a visit to Sark from April 20th to 27th, and added 82 species to the list of insects recorded for that island in our *Transactions* for 1906. This additional list will appear further on.

Among the *Lepidoptera* the Rev. F. E. Lowe reports the capture by his nephew, Mr. Stephen Fisher, of three specimens of the beautiful non-British *Polyphænis sericina* on rocks on the south coast of the island on August 11th, 12th and 13th. Mr. Lowe captured specimens of both broods of *Larentia viretata* at rest in his garden on May 18th and 22nd and on September 11th.

Catocala Nupta, the Red Underwing Moth, came to sugar at the end of August and beginning of September. *Mania Maura* has been excessively abundant at sugar; Mr. Lowe counted nineteen specimens in one evening. *Hybernia*

defoliaria was taken at light on November 8th. This is the second Guernsey example which has been met with. Mr. Lowe took it once before, as recorded in the *Transactions* twenty years ago. Two species of *Micro-Lepidoptera*, new to our list, have also been captured by Mr. Lowe; they are *Yponomeuta cognatellus*, Hb., on August 26th, and *Depressaria subpropinquella*, Stt., on August 30th.

Sphinx convolvuli, usually so abundant, has again been scarce. I only know of the capture of one specimen, which was taken at the top of George Road. Mr. E. D. Marquand has very industriously collected the Guernsey *Hemiptera-Heteroptera* and *Hemiptera-Homoptera* during the present year, and has added twenty-one species to the list. A large and very beautiful fly was captured on a skylight window in my workshop in the Bordage. It has been identified by the Rev. E. N. Bloomfield, F.E.S., as *Volucella Zonaria*, Botha, a species which does not occur in Great Britain. Three species of Fleas, taken on the new Guernsey Vole (*Microtus sarnius*) by Mr. R. H. Bunting, of the British Museum, and kindly given by him to Mr. Marquand, were sent to the Hon. Charles Rothschild, at the Tring Museum, for identification. They have been returned as *Hystrihopsylla talpæ*, Curt. (the Mole Flea), *Ctenophthalmum pentacanthus*, Roths., and *C. agyrtes*, Hellier.

Specimens of *Cynips calicis*, Bury, were gathered in Guernsey this season. This gall is known on the Continent as the "Knopper Gall." It is described and figured in Dr. Edward T. Connold's recent work on British Oak Galls, from Jersey specimens. It has not hitherto been discovered in Great Britain.

Mr. E. A. Butler, B.A., B.Sc., has kindly given me the names of three species of *Coleoptera* and one *Hemipteron* captured by himself in Jersey. These have not before been recorded for that island.

I have much pleasure in acknowledging the kind assistance rendered in identifying many of the species by Mr. Edward A. Butler, B.A., B.Sc., F.E.S.; Mr. Edward Saunders, F.R.S., F.E.S., &c.; Mr. G. C. Champion, F.Z.S., &c.; Rev. E. N. Bloomfield, M.A., F.E.S.; Hon. Charles Rothschild, M.A., F.L.S.; and Mr. Claude Morley, F.E.S.

ADDITIONS TO THE GUERNSEY LIST.

LEPIDOPTERA.

Yponomeuta cognatellus, Hb. Several specimens taken by the Rev. F. E. Lowe.

Depressaria subpropinquella, Stt. One, captured by Rev. F. E. Lowe.

HYMENOPTERA.

- Ponera contracta**, *Latr.* Three specimens of this very rare British ant were found by Mr. Marquand and his son under a stone in Moulin Huet Valley in the spring. No others were seen again.
- Cremnodes atricapillus**, *Grav.* This Ichneumon fly was taken at Saints Bay on the 8th and 24th of June.
- Cynips calicis**, *Burg.* Specimens of this curious gall were gathered this season by Miss Marquand in the Norgiots Valley at St. Andrew's, and also at Mount Durand. It occurs principally on *Quercus pedunculata*, but also on *Q. sessiliflora* and makes its appearance in May and June. It does not occur in Great Britain, but specimens from Jersey are figured in Dr. E. Connold's recent work on British oak galls.

HEMIPTERA-HETEROPTERA.

- Stygnus fuliginus**. May 14th, Saints Bay. May 6th, Jerbourg.
- Peritreehus gracilicornis**, *Put.* Corbière, May 7th.
- P. puncticeps**, *Thoms.* Corbière, May 7th. Jerbourg, May 6th.
- Scolopostethus neglectus**, *Edw.* Jerbourg, 6th May. July, at Icart Point.
- Nabis fesus**, *Lin.* St. Andrew's, May 11th.
- N. dorsalis**, *D. & S.* Petit Bot, May 5th.
- Salda littoralis**, *Lin.* On banks of a brackish pool at Pulias, Vale, on August 5th.
- Monalocoris filicis**, *Lin.* May 2nd at Petit Bo.
- Phytocoris ulmi**, *Lin.* July 30th, Moulin Huet.
- Atractotomus mali**, *Mey.* July 24th, Saints Bay.
- Oncognathus binotatus**, *Fab.* Several specimens at Icart, July 2nd. One at Petit Bo on August 27th.
- Lygus pabulinus**, *Lin.* 27th August, Fermain Bay.
- L. Kalmii**, *Lin.* July 30th, Moulin Huet.

HEMIPTERA-HOMOPTERA.

- Dieranotropsis hamata**, *Boh.* June 3rd, Saints Bay.
- Macropsis rubi**, *Boh.* August 25th, Petit Bo. 27th August, Fermain Bay.
- Athysanus plebejus**, *Fall.* July 5th, Fermain Bay.
- A. lineolatus**, *Brulle.* August 28th, Grande Mare, Vazon.
- Liburnia difficilis**, *Edw.* 26th June, Moulin Huet.
- L. fairmarei**, *Perris.* August 24th, Saints Bay.
- Eupteryx urticæ**, *F.* June 21st, Saints Bay.
- E. atropunctatus**, *Goeye.* June 16th, Icart.

DIPTERA.

- Hysterichopsylla talpæ**, *Curt.* Taken by Mr. R. H. Bunting on the new Guernsey Vole (*Microtus sarnius*). It is called the Mole Flea and is of very large size.
- Ctenophthalmus pentacanthus**, *Roths.* Taken on the Guernsey Vole (*Microtus sarnius*).
- C. agyrtes**, *Hellier.* Found on the Guernsey Vole (*Microtus sarnius*).
- Volucella Zonaria**, *Poda.* One specimen captured on a skylight window in the Bordage. It is a large and very beautiful fly, not found in Great Britain.

ADDITIONS TO THE JERSEY LIST.

COLEOPTERA.

Atemeles emarginatus, *Grav.* Taken by Mr. E. A. Butler, at Bouley Bay.

Cardiophorus asellus, *Ex.* Taken by Mr. E. A. Butler at Gorey.

Microzoum tibiale, *F.* Taken by Mr. E. A. Butler at Gorey.

HEMIPTERA.

Cydrus flavicornis. Taken at Gorey by Mr. E. A. Butler.

W. A. LUFF, F.E.S., Sec., Ent. Sect.

Report of the Geological Section.

1.—*Coutanchez Road, St. Peter-Port.*

In the early part of the year (January) it was reported that a canoe (commonly called a dug-out) had been cut through in excavating a boiler pit on Mr. Fletcher's property ("Selborne"). Some members of the Natural Science Society went to examine the spot, but there was little to see, the boiler pit having been completed and walled in with concrete. The materials removed from the excavation were seen, and some portions of the canoe were shown us. A further excavation in the ground immediately adjoining would have been desirable, but this was impracticable, owing to the presence of buildings, and the treacherous nature of the ground. We were informed the upper part of the canoe was 5 ft. 6 in. under the surface. Under about a foot of soil was found "souale" consisting of clay and sand irregularly mixed and penetrated by rootlets as usual. This passed into almost pure sand, in which deposit the canoe was found, but neither end of this canoe was exposed, and the wood was so sodden it was impossible to save any large pieces. The locality is about 20 feet above present high water level and half-a-mile inland. An ancient beach exists at the Roussaillerie on the margin of the same depression, so that there can be no doubt as to the marine origin of the deposit. When it was laid down, the land was evidently at a lower level than at present, and this depression must have taken place subsequently to the elevation above (and probably considerably above) the present level when the forests now submerged flourished. The raised beaches on the south side of the island are evidently ancient, and are overlaid by the loam and clay with angular pieces of stone commonly called head, but at Capelles and Noirmont, head is found under an ancient beach, so that there may have been two depressions,

separated by a considerable interval of time, the last one being probably within the human period. The souale would seem to be a mixture of clay washed down from the land, with the sand left by the retreating sea.

2.—*Mansell Street, St. Peter-Port.*

In excavating behind Mr. Wallis's shop, the rock was found to be diorite with intrusive veins of pegmatite. The diorite contained numerous crystals of orthoclase felspar, probably introduced by the intrusive veins.

3.—*Vazon Bay.*

In excavating the foundations of the new sea-wall at the Tower enclosure, the section exposed consisted of sand and gravel underlaid by a foot of peat, below which was found bluish sandy clay with rootlets; being a variety of "souale." This was only penetrated to a foot in depth. The peat layer was about 2 feet above mean sea level. The roots of a tree were found in the peat. In the sand above the peat some human bones were found which have been deposited in the Guille-Allès Museum. They presumably do not date back to the Neolithic period, but more probably form part of the remains of an individual belonging to the early centuries of our era.

C. G. DE LA MARE, Sec. Geol. Sect.

Report of Section for Marine Zoology.

In my report last year I had to bemoan the paucity of workers in this branch of our Society. There is no section in which more remains to be done, or in which there are more rewards in store for the systematic and painstaking searcher. In spite of this and notwithstanding the exceptional advantages which Guernsey and the neighbouring islands possess, practically all the work has been done by one member—Mr. E. W. Sharp.

Is it because shore-hunting is supposed to be undignified, or is it because the harmless enthusiast, who goes grovelling among the rocks and pools, does so simply because he has neither the energy to play golf, nor sufficient brains to play bridge? And yet some men, whose names loom large on the pages of science, have not thought this study beneath them.

As we wander along by the seashore and seek out and contemplate the wonders and beauties of nature, we experience the delightful emotions which the contemplation of unbounded beauty and beneficence ever calls up in the cultured mind, and

we begin to understand what Wordsworth meant when he spoke of

“Thoughts that do often lie too deep for tears.”

Let me then once again recommend the Marine Section more particularly to the younger members of our Society.

My report then this year is almost entirely a record of Mr. E. W. Sharp's work, which I think does him the greatest credit. In Guernsey Mr. Sharp has only one new “find,” *Hermoca dendritica*, a new sea-slug found at Cobo.

Last year I reported that I had found in Little Sark a small colony of lovely little emerald green anemones which I was, and still am, unable to get anyone to identify for me. On visiting the pool, in which they were, this summer, to my dismay I found them all gone, but upon searching the other pools in the vicinity, I discovered a colony of about the same size—about 20—only a few feet away in a pool in which I am certain there were none last year. Now the interesting point arises, did the colony found last year migrate “en masse” to their new quarters, which is hardly credible; or are these the offspring of the old colony which has disappeared? If the latter, it is remarkable that not a single specimen could be discovered in any of the other pools around.

Alderney has this year been the field of most of Mr. E. W. Sharp's work, and his detailed report is printed further on. This includes several rare species and two new finds:—that exquisite little Anemone—*Ballanophyllia regia* and *Lucernaria Campanulata*, both of which, though given in “Ansted” have not been otherwise reported.

Seeing that there is no record given in “Ansted” as to when or where many of the rarer species were found or by whom, or by whom they were identified, I think it is a question how far the lists given in that book should be accepted.

F. L. TANNER, Sec. Mar. Zool. Sect.

Report of the Ornithological Section.

It gives me great pleasure to be able this year to report the occurrence of four birds which have not hitherto been authentically included in the avifauna of the Sarnian Islands, viz., the Jay, the Brown Owl, the Grey Lag Goose and the Glossy Ibis. These are of course rare visitors, but additions to our local list can only be expected among species which from time to time straggle in our direction, or make a brief stay in these islands during their annual migrations. Including the four species now added, the total number of

birds recorded for Guernsey and the smaller Sarnian Islands amounts to 195 species, of which nineteen are additions to those enumerated in Smith's *Birds of Guernsey*. I have again to thank Mr. B. Rowswell for kindly handing me his carefully-kept notes on the movements of our summer birds of passage.

Brown Owl. Mr. G. E. Kinnersly informs me that two winters ago he shot in Guernsey a Brown or Wood Owl, and as the bird was only wounded in the wing, he kept it alive for a couple of months. This is the only known instance of the occurrence of this species in these islands.

Wheatear. I saw a solitary Wheatear on the cliffs at Icart on the 27th of March, which is earlier than I have ever observed the bird in Guernsey. On April 6 I noticed several on the Vale Coast near Fort Doyle. Wheatears remained with us until October; the latest were noted by Mr. Rowswell, who saw about a dozen at Rocquaine on the 11th, one at the Forest on the 14th, two at Petit Port on the 22nd, and the last on the 24th of October in the same locality.

Chiffchaff. Heard as early as March 27th by Mr. Rowswell on the Fermain Cliffs. During the first week in April I heard Chiffchaffs in various parts of the island. Last heard by me on October 12, and by Mr. Rowswell on the 14th, both at St. Martin's.

Willow Wren. Less common than usual this year. First heard by me on the 19th of April at Petit Bot.

Jay. The local patois name *Jai* applied in Guernsey to the Missel Thrush has given rise to the statement that the Jay is found here; but it does not occur, and has never yet been authentically recorded. Mr. G. E. Kinnersly lately told me that during the autumn of 1899 or 1900 he saw a couple of Jays (which he has often shot in England) in the shrubbery at the Vallon overlooking Moulin Huet. He had his gun with him at the time, but he spared them on account of their rarity.

Wryneck. Later than usual to arrive this year. The first I heard on April 8 at St. Peter's, and Mr. Rowswell on the 10th at Les Blanchés. The familiar call was heard pretty frequently up to the middle of July, Mr. Rowswell's latest dates being the 16th and 21st of that month.

Cuckoo. Heard by several people in different parts of St. Martin's on the 16th of April, and reported in the papers to have been heard in Alderney a day earlier. Mr. Rowswell heard the bird singing every day during July up to the 7th, and notes that on the 6th one was still in full song in the Vallon trees, as it called "cuckoo" forty-nine times without a break.

Kingfisher. I regret to have to record that on the 13th of November a specimen was exposed for sale in the market in a basketful of unfortunate blackbirds and thrushes. It seems incredible that anyone could be so heartless as to shoot a Kingfisher simply to gratify a craving for slaughter. It certainly is not the easiest of birds to kill on the wing, but surely a gunner with a spark of feeling might select something less beautiful to aim at.

Goatsucker. I have only seen one this year. It was flying along in the evening twilight near Les Meriennes on Sept. 27,—rather a late date for this summer migrant.

Swift. Arrived earlier than usual. I saw the first one in Sark on April 24, flying about near the Coupée; and Mr. Rowswell saw a couple circling round near Morley Chapel on April 29. By May 5 they were quite numerous here. Mr. Rowswell notes August 29 and Sept. 7 as his latest dates; but I saw at Icart a pair of Swifts flying about as late as the 11th of September.

Swallow. On the 6th of April I happened to be botanising on the exposed islet of Houmet Homtolle, at the extreme northern corner of Guernsey, and I was fortunate enough to observe three or four Swallows, one at a time, arriving from across the sea and heading straight for the land. There was a strong north-east wind blowing at the time, and the birds flew with the wind. Later in the day I saw several more at the Vale. On the following day I saw a few at the Forest, and on the 8th a couple at Perelle. Mr. Derrick observed several Swallows in Sark on April 8. Until the 19th of October these birds were numerous in Guernsey; afterwards only stragglers were seen up to the 24th when apparently the last one departed. Mr. Rowswell says he has never known Swallows disappear so completely at such an early date. On the 6th of November however, a fine sunny afternoon, my son and I watched for some time a solitary swallow flying about in the neighbourhood of our house at St. Martin's.

House Martin. On April 6 I watched a House Martin arriving over the sea at Fort Doyle from the north-east, and flying with the wind straight inland, and later on I saw another (or perhaps the same bird) flitting round a greenhouse at the Vale. Mr. Derrick noted House Martins in Sark on April 12. Both Mr. Rowswell and I agree, from independent observations, in fixing the 18th of October as the last date on which Martins were numerous in Guernsey; and neither of us saw any more until November 4, when I watched for some time a party of seven flying about together in Petit Bot Valley. Mr. Rowswell says that on November 13 several House Martins were seen by Mr. G. J. Tourtel, a reliable observer, flying about Moulin Huet Bay.

Sand Martin. Not having seen any Sand Martins in Guernsey for several years I was pleased to observe a single bird flying in the warm sunshine on April 8th on the coast at Perelle Bay. It was accompanied by two or three swallows. A saw a couple of others at the Corbière on the 7th of May, and again two on May 20 at the same place. I saw no more Sand Martins afterwards.

Corncrake. Heard by Mr. R. P. Spencer at Grande Mare on May 9, and by Mr. G. F. Allès in the field at the top of George Road on May 13. Two days later my wife heard a corncrake in the same field. Mr. Rowswell noted the bird three times during the year, on May 28 and 29, and on June 25, the last near the old Grantez Mill, at St. Saviour's. This bird is certainly becoming more rare than it used to be; I have not heard one in Guernsey for three years.

Glossy Ibis. This exceedingly rare and interesting visitor, a species belonging to northern Africa, is a fine addition to the list of Sarnian birds. On the 4th of October, Mr. Thomas De Carteret shot a specimen in fine plumage at Le Vauroque, Sark, and it was given to Mrs. E. Judkins, who sent it for preservation to the famous taxidermists, Rowland Ward & Co., of London. It is said that a Glossy Ibis was shot in Sark as far back as 1858.

Bar-tailed Godwit. Mr. R. P. Spencer saw four of these birds at Vazon on the 4th of October, one of which he shot.

Bittern. Mr. Kimmersly killed a Bittern at Grande Mare four winters ago, and says he found it very good eating. This was the specimen noted in my Report for 1906, but I did not then record who shot the bird. In the case of rare visitors like this it is well to have all the particulars possible.

Grey Lag Goose. Three specimens, out of a flock of eight birds, were shot at Grande Mare by Mr. Robin of St. Peter's on the 24th of October. Smith in his *Birds of Guernsey* says he is not aware that a Grey Lag Goose has ever been seen in these islands.

E. D. MARQUAND, Sec. Ornith. Sect.

THE SUBMERGED PEAT AND FOREST BEDS OF THE CHANNEL ISLANDS.

BY JOSEPH SINEL.

ALL who are acquainted with the physical aspects of the Channel Islands are aware that on many parts of their shores, and especially in their flat and sandy bays, there are, beneath the sand, large extents of firm black peaty soil, in which stumps of trees—some of large size—remain, still rooted, in the position in which they grew.

This forest bed has attracted the attention of writers of all times, and manifold and varied are the theories that have been propounded to account for it. The legends and traditions of the monks of St. Michel with regard to it are too well known to need repetition, and too evidently imaginary to need refutation. But serious historians have arrived at conclusions, and expressed opinions, upon the subject which are as far from fact as are the legends of the monks.

Even in a work so recent as twenty odd years ago, the Rev. Mons. Noury, in his *Géologie de Jersey*, considers a portion at least, of this same bed, to be the remains of a manorial estate in St. Ouen's Bay, which succumbed to the waves in the fourteenth century; and certain dues, still paid by residents in the parish for "*droits de porcage*" (right of feeding hogs) or "*de percage*" (right of way) are said to refer to the said ground.

Still further, antiquarians claim to have found implements of bronze and Roman coins in the peat of this forest. Now all this is error, but error based upon such grounds as to render it very pardonable, as we shall presently see.

A very remarkable fact, and an inexplicable one is, that of all who have written about this forest and well described it, there is not one who has noticed that *it is the lower of two distinct beds*, and that the section of the upper one is clearly visible nearly all along St. Ouen's bay, in the vertical sand-banks. The bed, which is conspicuously black, shows as a horizontal band 10 to 20 inches thick all along the white sand, and this at an elevation of from three to ten feet above the lower bed. The "upper peat," so familiar to well-sinkers and

builders all through the lower parts of St. Helier's and St. Ouen's, is an extension of the same bed; a layer of sand, gravel, clay and stone occurring between it and the lower one.

Dr. Dunlop, in a valuable and interesting article entitled "On Some Jersey Peat Beds," published in the Bulletin of the *Société Jersiaise* for 1896, describes the inland extension of both beds in detail, but does not mention the fact that the upper one is traceable in section upon the coast, and there bears the same relation to the lower bed as it does in the inland sections. I shall again have occasion to refer to Dr. Dunlop's paper, but will first describe my own observations.

Firstly, in the large excavation made for gas-works extension in Tunnel Street, there occurred the following strata counting from above downwards:—

- 1.—Vegetable soil and yellow clay, 4 to 5 feet.
- 2.—Brownish peat, mixed with sand, with remains of grasses, moss, &c., from 1 to 3 feet.
- 3.—Blue clay, sand gravel, shingle and bits of stone, 2 feet to 2 feet 6 inches.
- 4.—Firm black peat, with trunks of trees, rushes, hazel branches and hazel nuts in great quantity, 4 to 6 feet.
- 5.—Clay, sand, and angular fragments of stone (rubble drift).

(The excavation was 120 feet in diameter and about 15 feet in depth).

In the lower peat Dr. Dunlop found a Neolithic axe, and some fragments of Neolithic pottery; also teeth of a large ruminant, most likely *Bos longifrons*. In the blue clay, between the peat beds, Mr. Stanley Guiton found shells of *Purpura lapillus*, and of *Trochus umbilicatus*, molluscs still abundant on our shores, at the present time. And in the rubble drift, beneath the lower bed, I found a few (and Dr. Colson found many) flint clippings, evidently of Paleolithic age. Dr. Dunlop points out that the flint chips had evidently been deposited *after* the action of glaciers or of the sea (or of both) upon this drift, for their sharp edges were intact.

During the excavations for the foundations of St. Paul's Church, in New Street, I had frequent opportunities of seeing the sections, but unfortunately I took no measurements. All that I clearly remember is that two peat beds were cut through, and that in the lower one, which was very thick, there occurred what must have been the entire skeleton of an ox, doubtless *Bos longifrons*.

In the excavation for the New Market in Beresford Street, I took sketches and notes of the following layers from above downwards :—

- 1.—Rubble from old buildings and fine blown sand, 3 to 4 feet.
- 2.—Peat, mixed with sand, 1 foot.
- 3.—Stiff greyish clay, and fragments of stone, 3 feet.
- 4.—Firm black peat, hazel nuts, fragments of trees, and *Juncus conglomeratus*, abundant, 4 to 5 feet.
- 5.—Clay and stone.

In the lower peat Mr. Dancaster found a perfectly round stone about the size of a tennis ball ; it was blackened by the peat, and bore no marks of usage as an implement. This may have been a missile used by a Neolithic hunter.

In the excavation for the foundations of the Victoria Club, within fifty or sixty yards of the last, the strata were the same, except that the lower peat was absent.

Mr. Gilpin, a well-sinker of St. Helier's, has kindly given me the following description of the strata passed through in boring a well in Peter Street, about 200 yards eastward of the Victoria Club excavation :—

- 1.—Clay, 4 feet.
- 2.—Brown peat, 2 feet.
- 3.—Clay, gravel, and fragments of stone, 4 feet.
- 4.—Black peat, with wood and hazel nuts, 14 feet.
- 5.—Blue clay, gravel and stone fragments, 5 or 6 feet.
- 6.—Rock (Granite).

Dr. Dunlop, in the article to which I have referred above, gives details of four excavations and borings in the neighbourhood of the old North Pier, all at the margin of low-tide level. In these the order of the beds is the same ; the thicknesses of each varying in the same proportion as in the inland sections. The absence of the lower peat bed in the Victoria Club excavation, in close proximity to two sites where it is abundantly in evidence, is a point of importance to which I shall again have occasion to refer.

Of exposures that occur from time to time upon the coast by the removal of the overlying sand and shingle by the sea, the principal ones are as follows :—

At Grève d'Azette, about 200 yards due south of Grande Charrière. Here the exposure is frequent, and an oak tree, 20 feet in length by about 4 feet in diameter, which lies prostrate, but is still firmly rooted at one side, has been in that position to my personal knowledge for quite fifty years, and

although continually bombarded with shingle, and buffeted by the waves, it does not seem to have suffered to any extent during that period. In the peat near this tree Mr. Duprey, of St. Helier's, found two horn scoops or spoons, no doubt of Neolithic age.

Exposures occur occasionally at Grêve de Lecq, and at St. Brelade's; constantly in St. Ouen's Bay at high tide margin, between the banks of pebbles, and near La Pulente, in proximity to the sand-banks, where it is possible to stand upon the lower bed and examine the section of the upper one five feet above. But the most extensive and important exposures occur on the northern side of St. Ouen's Bay, although here the exposure is rather rare, the sand usually lying from five to ten feet thick above the peat.

In September, 1902, it was my good fortune to be spending a few days at the house of my friend Mr. Dancaster, close to the shore at this part of the coast, when the largest exposure that has probably occurred within the memory of anyone now living took place. On that day, for about half a mile parallel with the shore, and extending from high tide margin nearly to the distant low-water limit, the whole surface of the old forest was laid bare. Rooted stumps, oak and alder chiefly, stood there in profusion; some had rotted away, or were worn down, to the level of the peat, but hundreds stood in relief, ranging from one to four feet above the soil. In diameter the trees ranged from a few inches to two or three feet, and one large one (an oak) that I measured had a diameter of no less than 4 feet 6 inches at three feet and a half above the ground. I counted four hundred of these trees in the portion of the bay which was accessible to me. Fortunately I was able to obtain the loan of a good half-plate camera, and thus to secure a couple of photographs of this unusual scene. One of these photographs has been reproduced in the *Bulletin* of the *Société Jersiaise* for 1908, and an enlargement of the other is now hanging on the walls of the Museum of that Society. The outer portion of the trees is carbonized and breaks with a black crystalline fracture; but the interior portion is sound and hard, a condition which would lead many to doubt the extreme antiquity of these old trunks. But I may here mention that a naturalist friend of mine—an official of the British Museum (Mr. Bunting)—has just written me to say that with the remains of a young mammoth recently discovered below 25 feet of gravel in the north of London (October, 1909), there are some roots of willow "which cut, and make microscopical sections as if they were but dead of yesterday."

Of peat and forest bed exposures in the other Channel Islands, I have only seen the one at Vazon Bay, Guernsey. Here the lower bed coincides exactly with that of St. Ouen's Bay in Jersey, with the exception, that owing to a thinner covering of sand the attrition of shingle and pebble has worn the tree stumps down to the level of the peat. Exposures occur at L'Ancrese and Perelle Bay, in Guernsey; and I understand from Mr. Marquand that there is one of considerable extent on the north-east of Alderney at Longy Bay. As regards the animal remains that occur in this lower bed we have: Elytra of beetles, everywhere plentiful, and bones of *Bos longifrons* in all the openings of any extent in Jersey, while in Guernsey, besides *Bos longifrons*, there have been found remains of Red Deer, Wild Boar, Dog (or Wolf), and Kid (or Fawn).

Now as to the extension of this lower bed. We note it on the coasts of at least three of our islands: Jersey, Guernsey and Alderney, and also all along the adjacent shore of France. Its intermediate existence is borne out by the oyster dredgers working in from 10 to 15 fathoms of water north and east of Jersey, for here they frequently bring up in their dredges lumps of peat and fragments of wood. We also observe on the Admiralty Chart, in the description of the ground at some points of sounding, the words "rotten ground," which is obviously the same peaty soil, and Prof. Geikie reports it as occurring in the middle of the English Channel.

The *upper* peat bed, which has been so completely ignored by all who have dealt with the ancient history of the islands, differs in many respects from the lower one. The peat is chiefly brown or reddish-brown in colour, rarely black; no trees occur in it, at least in these islands, nor are the hazel nuts or beetle elytra which are so abundant in the lower one here represented. The large *Juncus conglomeratus* is replaced by rushes of smaller kinds, and sphagnum and grasses are plentiful. Of animal remains, all I have found are the little snails, *Helix caperata* and *H. hispida*, and in one portion, 10 feet below the soil in Mr. Dancaster's grounds, many shells of the little water snail, *Limnea peregra*.

I have described these beds at greater length than was my original intention, for my chief object was rather to trace their history. This portion of my task, thanks to the exhaustive treatment of similar phenomena on other shores in Professor Geikie's *Prehistoric Europe*, is an easy one. The lower of these beds dates far back into prehistoric times, and

has shared in several oscillations of the land in general. It is a portion of the great forest extension of immediate post-glacial times, for it corresponds in every detail, *stratigraphical*, *botanical* and *zoological*, with the lower post-glacial forest beds of the British and neighbouring continental coasts.

A remarkable feature of this bed is its apparently incongruous mixture of plants. Here we have grand old oaks, and a profusion of hazel, vegetation that would not grow in soft and boggy soil. Then amongst the remains of these we find *Juncus conglomeratus* and many other bog-loving species. This is not merely a local feature, but is one that is general throughout this vast forest extension, and of this Professor Geikie gives the following explanation:—

After the last great glacial epoch and the submergence of land which was coincident with it, there came a time of elevation, accompanied by a warm and generous climate. Vegetation thrived luxuriantly, and the vast plains, erstwhile at the bottom of a shallow sea, became clothed with trees; it was "The Age of Great Forests," and an abundant fauna flourished throughout. Neolithic man was there, and left abundant evidences of his presence. Ages passed. By degrees the climate changed and became cold and wet. Oak and hazel could no longer thrive, and little by little the majesty of the forest disappeared. The trees died and decayed *in situ*, rotting down to the level of the soil or near it; then bog plants grew over and between what remained of them. Land subsidence had again set in, and the great sand banks that had marked the sea margin spread by degrees over the plain, the sea following and depositing sand and silt, and as it neared the higher ground, clay and stone fragments to form that bed from 3 to 5 feet thick, which is so clearly shown in all the sections we have of the soil. Sometimes the sea tore up portions of the forest bed, laying bare the glacial rubble drift below, which accounts for our finding certain portions of the soil, as in the section for the foundations of the Victoria Club already mentioned, in which the "lower peat" is missing. Finally the sea covered the whole erstwhile forest land, and washing our cliffs and sloping shores, left that line of gravel, pebble and sand, that forms the "25 foot raised beach" so well marked all around our coasts.

Next we see another period of land *elevation*. The sand and silt, clay and stone spread by the sea became once more dry land. Vegetation again appeared and furnished the material for our *upper peat bed*. This is the period of Jersey's last continental connection. Jersey is united with France,

and Herm is again a part of Guernsey. Neolithic remains are no longer found on undisturbed land, nor are the bones of *Bos longifrons* and its congeners. We find at this level implements of bronze, and it is upon *this* bed, and not upon the lower one, that Roman coins have been discovered, unless of course these may have fallen to the lower one on such portions of the coast as have been denuded of the upper layer.

Then comes the final act in the drama. The land once more subsides and the sea encroaches, the river estuaries between the islands widen ; Jersey once more becomes insular, and Herm is parted from Guernsey. The manorial estate and its grounds in St. Ouen's Bay, which were situated on the upper bed, succumb to the waves, seaside villages on the French coast share the same fate, and the land has reached its present configuration. It is this *upper bed*, which legend, tradition and faulty history have confounded with the vastly more ancient, *in fact early post glacial bed*, which lay five feet beneath it.

As a rule it is only the lower bed which becomes exposed on our coasts, when the sea shifts from place to place the layers of sand and silt which it once laid upon it ; for the upper peat is not sufficiently compact, nor is its immediate sub-stratum sufficiently firm, to withstand wave action, so that it becomes broken up and mixed with the accompanying sand. We note, however, that in some places, as for instance, near the North Pier in Jersey, it has subsided beneath the low tide level without being disturbed.

A question that must occur to every reflective person that views the remains of the old forest exposed upon our coasts is, How long is it since these trees lived and flourished ? The answer is usually given in terms that convey no meaning at all to an unscientific person, and only a relative one to those who have a little knowledge of geology. It is said that they belong to "Post-glacial" or to "Neolithic" times. The need for something more definite has been felt by the masters of the science which deals with these things, and efforts have been made to estimate in *years* the antiquity of the Neolithic lake dwellings in Switzerland. The figures arrived at by different methods of computation give us a period varying from 4,000 to 7,000 years, which figures, even assuming that they refer to Neolithic man's *final* occupation, Professor Geikie considers far too low.

When I go down to Grève d'Azette and sit upon the same old oak stump that I sat upon fifty years ago, and note

no change in its aspect, although when it was a living tree the sea was far away, after which the whole land subsided until the waters covered the trunk to a depth of twenty-five or thirty feet and buried it under five feet of silt; when I remember that subsequently the land rose until it formed part of a plain on which another sort of vegetation grew; and that the land has yet again subsided, and the waves laid bare the same old dead tree, as far as soil is concerned, but covered it at high tide by thirty feet of water. Reviewing all this in my mind and remembering that "Nature does not move by bounds," I ask myself, How long is it since this tree was growing? Were a friend to suggest 30,000 years, I should not be able to discuss or to demonstrate, but I should *feel* that even his large claim was but too moderate.

Professor Geikie, who has treated of these subjects in such magnificent manner, suggests that considering the climatic as well as other changes that have occurred since those very remote times, it is rather to the physicist and the astronomer than to the geologist that we must look for that more precise chronology which we may hopefully expect to find some day established.

It is pleasant at times to lay aside the dry calculations of science and to let fancy take a flight and reconstruct as it were, to the imagination, the scenes that greeted the vision of the Neolithic man of these lands. When the curtain rises, say in the middle of the great forest period, probably 30,000 years ago, we observe a level or at most a slightly undulating plain stretching away for 300 miles to the west. This plain is densely wooded except for its two or three miles wide margin, which consists of marsh and blown sand. A line of great sand dunes forms its boundary and marks the edge of the Atlantic ocean. These islands, already shaped by the seas and carved by glacier and stream, have their present form, only somewhat more extended in height and in area. They stand as rocky elevations in the sea of forest. A large river, the *Greater Seine*, runs past the north of Guernsey, and on its far side the forest spreads as far as the shores of Cornwall. A stream, the *Greater Ay*, runs from the Cotentin, between the banks of *Les Bœufs* on the south, and the *Ecrehos*, *Dirouelles* and *Paternosters* on the north, and passes to the southward of Guernsey to join the Greater Seine. Between Jersey and the Minquier rocks runs the river *Titus* of Ptolemy, and a larger river, the *Greater Ronce*, flows between the Minquier rocks and the *Côtes du Nord*, to join the Greater Seine near its estuary.

Herds of red deer occupy hill and dale, and are stalked by man and coursed by wolf. Vast herds of the long-faced ox roam through the forest land, the wild boar has its lair in the hazel thickets, and the beaver its dam on the banks of the Titus; the otter has its home on the river banks, and the marten and the wild cat inhabit the woods. The great Irish elk and the brown bear are occasional visitors, and are no doubt tracked with eagerness by the more venturesome hunters.

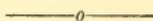
The skilled artizan grinds and polishes axes made of the stone of the islands, sometimes of the banded sandstone of Alderney, more frequently of the hard diabase of St. Sampson's; but his axes *de luxe* are fashioned with extra care out of the beautiful greenstone of the hermitage. He has an eye to ornament also, and drills and fashions beads of stone. Arrow heads he makes of flint, for he has not yet heard of metal, but these are barbed and finished with care, and are quite unlike the crude implements used by his long bygone prototype, that could be had for the gathering on the moorlands and in the rock grottoes. Neolithic man makes pottery from the blue glacial clay, but does not bake it well; it is only cooked half through and is therefore fragile. His larder is well stocked, for beef and venison abound, and hazel nuts for dessert are to be had in profusion. He is probably an epicure and his horn spoons suggest soups. He dwells in tents or wooden huts, for no stone habitation marks his presence, nor does he appear to have occupied the cave dwellings in the cliffs, for only paleolithic implements have been found there. "We can picture to ourselves," as Professor Geikie says, "the little round-headed people coiled up under their skin tents, or squatting round their fires toasting fishes and roasting bones, very much as certain tribes do at the present day."

The earliest sun-worshippers are now erecting their rough temples of great stones with skilful orientation and no mean engineering skill. It is the beginning of the megalithic period, the age of monuments to the great dead, the period of the most ancient of the antiquarian's "Long Barrows."

Thus ages roll on, and although each generation marks no perceptible change, the relentless sea with its vanguard of sand dunes is slowly annexing the land, and the climate is changing for the worse. In course of time the sea washes the shores of these islands at the level of our 25 foot raised beach, and the curtain has fallen on Neolithic man.

THE GUERNSEY VOLE.

(*Microtus sarnius*, MILLER.)



It is only within the last year or two that the smaller mammalia indigenous to the Channel Islands have been attentively studied by expert zoologists; and although a great deal still remains before an absolutely exhaustive list of our mammalian fauna can be compiled, enough has been done to encourage and stimulate further research. It is now ascertained that Jersey possesses a distinct species of Bank Vole (*Evotomys caesarius*) described last year as new to science; and this year Professor Gerrit S. Miller has determined the common Field Vole of Guernsey to be an undescribed species to which he has given the name of *Microtus sarnius*.

In addition to these two extremely interesting new species, Prof. Miller finds that the common Shrew of Jersey belongs to an entirely new race, and he describes it in the *Annals and Magazine of Natural History* for May, 1909, as *Sorex araneus*, sub-species *fretalis*. As far as is known at present it appears that the two new Jersey forms, and the new Guernsey one, are confined to their respective islands, which, to say the least, is very remarkable.

The experts at the British Museum have for the last two years been keenly interested in these new Channel Island mammals, and it is to one of their staff, Mr. R. H. Bunting, that the credit is due of obtaining the necessary materials for the purpose of examination and study. Both this year and last, Mr. Bunting has visited the islands and worked with enthusiasm and energy in collecting specimens and observing their habits; consequently he has acquired a better knowledge than any one else of their ways and mode of life. In response to a request for notes and particulars on the subject of the Guernsey Vole, Mr. Bunting has very kindly forwarded the following observations which are of the greatest value and interest, and for his doing so this Society desires to record its grateful acknowledgments.

[1909.]

Writing from the Natural History Museum, South Kensington, under date of October 11th, 1909, Mr. Bunting says :

“My short stay in Guernsey gave me such little opportunity to study the habits of its mammalia, that I fear any notes of mine on the subject must be somewhat indefinite, especially since my object was merely to procure specimens ; lack of time compelling me to leave for local naturalists the interesting advantage of working out their life-story. However, there are some facts about *Microtus sarnius* which I can safely give.

“Like the common Field Vole (*Microtus agrestis*) it is gregarious, but unlike that animal, which lives in rough, uncultivated grass-land, the Guernsey Vole (or at least it was so with all those which I took) inhabits the earth banks of hedges dividing fields under cultivation, preferably those which are not near a roadway or houses. Traps laid in likely places, such as waste furze ground, amongst the cliffs, and those set in open fields yielded nothing but the Common Rat (*Mus decumanus*) and the long-tailed Field Mouse (*M. sylvaticus*) ; on this side of the Channel in such localities one might reasonably expect to find Field Voles. The runs used by the voles are well marked not only by the earth being well trodden, but also by the over-arching of such grasses and plants as grow in front of them. That the voles have themselves made these runs seems probable, since they are often too small to have been previously made by rats, and generally too high in the hedge and too exposed to be old mole tracks. They are also used by the Continental Shrew (*Crocidura russula*) which seems very common in all the hedges. Such vole holes as I examined penetrated a good way into the bank, and became too complicated for me to examine further without incurring the displeasure of the farmer who works the land.

“Some of the female specimens taken at the latter end of June contained well developed foeti, others were in a state of lactation ; but breeding must commence earlier than that, since immature specimens were procured at the same time ; indeed it is probable that young are produced all through the warmer months of the year, as some quite small ones were sent me in August of last year.

“I did not examine critically the contents of the stomach, but my traps were baited with oatmeal, biscuit, bread, cheese or bacon ; the last bait is the only one I cannot positively remember to have been taken by the voles, which may prove on closer observation not to be strict vegetarians. Traps visited at dusk as well as in the early morning sometimes contained voles, which consequently must be diurnal as well as nocturnal in their habit of feeding. They were also taken during heavy rain.

“The average measurements of my specimens are as follows:—

“Head and body 108·5 mm., tail 37·4 mm., hindfoot 17·2 mm.; this is a low average, including as it does many specimens not fully grown. The type measures:—H. and b. 118 mm., tl. 42 mm., h. ft. 18·5 mm. Males and females showed no difference in size.

“As to the frequency of the Guernsey Vole I have but little data to offer. They appeared fairly common in certain hedges at St. Martin’s (the only parish in which I was able to trap) and seemed to be well known (as “mulots”) by the neighbouring farmers. Plagues of field voles have been recorded in ancient times and have occurred fairly recently both in Great Britain and on the continent; but I have not heard of such an unhappy event ever having taken place in Guernsey. Possibly the fact that the Island is under such an intense state of cultivation, together with the predilection which cats share with stoats and many of the rapacious birds as kestrels and owls for vole flesh, prevents a too rapid increase in modern times.

“As Mr. Sinel has conclusively proved Guernsey to be so much older as an island than Jersey, it may be wondered that *Microtus sarnius* is not found in the latter island as well. But the presence of a Bank Vole (*Evotomys caesarius*) in Jersey may account for its absence, in the same way that the introduction of the common Grey Rat explains the disappearance of the old Black Rat in haunts where once it was common. Millais in his book on British Mammals seems to give colour to this theory when—writing of the common bank vole (*Evotomys glareolus*)—he says ‘if caught in a trap with the field vole, the latter has no chance, it is killed and eaten without ceremony.’

“To obtain a more precise account of the Guernsey Vole, it is necessary to stay in its vicinity for some time; traps should be laid all through the year to note changes of peltage, times of breeding, and variation. Its habits should be recorded from specimens kept in captivity (they may easily be taken alive in ordinary box-traps, and form most entertaining pets, which have the additional qualification of giving but little trouble). If members of the Guernsey Natural Science Society could be induced to take this trouble they would obtain much useful knowledge for all interested in the subject.

“There are also other small mammals in Guernsey of which but little is known. The local Stoat is likely to prove new to science, and only awaits the confirmation afforded by a few other adult specimens, to be described as such. The Bat fauna is very indifferently known, and—considering the proximity of continental species—new records would not be a

surprising result, if likely hibernating quarters such as caves, cellars, lofts, old trees, &c., were searched during the coming winter. The Water-Vole might turn up if such localities as the marshes at Rocquaine and Vazon Bays were trapped. L'Ancrese Common offers a fine field for trapping also. The large yellow-necked variety of the Long-tailed Field Mouse (*Mus sylvaticus* var. *flavicollis*), although its presence does not seem probable, has yet to be definitely listed as absent from Guernsey. And then the neighbouring islands of the Bailiwick have still to be worked. I wish sufficient enthusiasm could be aroused amongst the Guernsey naturalists to settle these interesting problems. If they could be influenced in this way (and surely the discovery of *Microtus sarnius* as a new species should awaken some local interest), I feel sure the Island will reward them for their trouble. Has the Society a Committee or section devoted to Mammals? In any case I am enclosing directions for the preservation of small skins in the hope that they may be of use to someone, and I shall be glad to do anything I can to help. If skins or specimens in the flesh are sent to me I will get them critically determined. Mr. Sinel sent me, a few days ago, part of a stoat's skull from St. Ouen's, which is interesting from the fact that it has never had its full complement of upper adult molars—no doubt an abnormality. I want stoats badly from all the islands.

"The foregoing remarks on *Microtus sarnius* are, I am afraid, hardly in a fit state for publication, but if of any use they are quite at the service of the Society."

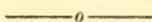
It may be well to append to Mr. Bunting's interesting notes the original description of the Guernsey Vole, as given by Prof. Miller in the An. & Mag. of Nat. Hist. for May, 1909, omitting some of the technical details which would not be of much use to a non-specialist.

Microtus sarnius, sp. n.

Type collected at St. Martin's, Guernsey, July 23, 1908, by R. H. Bunting. Like the large forms of *Microtus agrestis* but middle upper molar with second inner triangle absent. Colour above essentially as in *M. agrestis*, though somewhat less dark and reddish; underparts a strongly contrasted light grey. Measurements: Head and body 118 mm.; tail 42; hind foot 18.5; condylo-basal length of skull 27.8. Eight specimens examined, all from Guernsey. While its external and cranial characters show that this species is a member of the *Microtus agrestis* group, the pattern of its enamel folding is exactly similar to that of *M. arvalis*. . . . The eight specimens, though representing all ages from less than half-grown young to fully adult, show no noteworthy variation in colour or in teeth.

THE VEGETATION OF SMALL ISLETS.

BY E. D. MARQUAND, A.L.S.



IF we clear a piece of land, dig the soil and turn it over, a multitude of seedling plants immediately spring up and cover the ground; and then commences a struggle for existence. Those individuals which are more vigorous than the others, or in some way better fitted for their surroundings, thrive and develop rapidly; the remainder are crowded out and perish. When the area in which this contest takes place is limited, and has already become fairly well stocked with vegetation, new forms wedge themselves into the crowd at the expense of the older and less vigorous ones. In this case the competition is severe, the intruder has quite enough to do to maintain its own ground, and is hardly able to increase in numbers to any large extent.

The majority of wild flowers produce an abundance of seed; and myriads of seeds of all kinds are blown about and scattered far and wide over the face of the country year after year. Yet it is strange that the average quantity of any particular kind of flowering plant appears to remain pretty constant in a locality. Certain species predominate by reason of the profuse abundance of individuals; they form, so to speak, the groundwork of the vegetation, and determine its general character as a whole. Other species, although extremely common in the same locality, are always much less numerous when you count the specimens. Take for example two plants which may be described as abundant—the Daisy and the Ragwort. They grow in the same kind of situations, they belong to the same natural order, and they each produce a large quantity of seed. Yet the daisy plants immensely outnumber the ragwort plants, probably in the proportion of quite a hundred to one. It is clear therefore that some influence must be at work to check the multiplication of the ragwort while it favours the increase of the daisy, because the relative number of specimens of each kind growing in a given locality does not perceptibly vary, even in the course of many years. “If we ask ourselves,” says Darwin, in his *Origin of*

[1909.]

Species, "why this or that species is rare, we answer that something is unfavorable in its conditions of life; but what that something is, we can hardly ever tell." And elsewhere in the same classical work the author points out how "under nature, the slightest difference of structure or constitution may well turn the nicely balanced scale in the struggle for life, and so be preserved."

In the case of a small islet, situated at some distance from the land, the struggle for existence among the plants which clothe its surface must be greatly intensified, and the chance of some particular species being ultimately crowded out and disappearing altogether must be enormously increased. The extermination of a plant, which would be only temporary when the locality was part of a large area, would be permanent if it occurred upon a small island. Where there is a continuous land area, the occurrence of some unusual climatic condition, such for example as prolonged drought, might produce a serious result locally; but in all probability it would not alter the character of the flora of that region as a whole, because in course of time the plants would spread from the adjoining country unaffected by the drought, and so replenish the devastated area. But in an islet such a drought would cause the permanent extirpation of all the weaker forms, and their place would be at once occupied by the sturdier tenants of the soil which had survived the rainless period. Those plants which were capable of withstanding drought would multiply and spread, and those that could not would disappear. Many other hostile agencies are continually at work besides drought, such as the violence of wind and waves, and the destruction caused by small predatory creatures inhabiting the islet.

In various ways, then, an isolated spot of this kind would gradually be stripped of a number of plants which had formed part of its natural flora when it was still united to the mainland. One by one all the species that from some cause or other were unable to withstand such hardships as might occasionally assail the islet would slowly die out, and at last only the hardiest and strongest would survive as the champions of vegetation. The more limited the area of conflict, that is to say, the smaller the islet, the more severe would be the struggle for existence.

It has repeatedly been demonstrated that small and restricted areas, such as the little islets we are about to consider, will support the largest possible amount of plant life when they are occupied by very diverse forms.

Darwin found that a piece of turf less than four feet square, which had been exposed for many years to exactly the same conditions, supported 20 species of plants, and these 20 species were found to belong to 18 genera and 8 orders : which shows how much the plants differed from each other. As we shall see presently the forms occupying a very small and sharply defined space often belong to as many genera as there are species.

In this little archipelago of ours there are to be found green islets of various sizes. Some of them are nothing more than mere rocks capped with a modicum of vegetation. Others are comparatively large, like Lihou on the west coast of Guernsey, and Brechou, close to Sark ; each of which possesses several acres of cultivated and pasture land, besides of course, a large extent of rocky, infertile ground. Whenever land is brought under cultivation, a new element is introduced which modifies and alters the character of a flora. Among the farmer's crops agricultural weeds spring up, the tilled soil favours their growth, they increase and spread with astonishing rapidity, and as a natural result in a very short time a number of plants quite alien to the region flourish among the truly native inhabitants of the soil. The residence of a single family for even a twelvemonth upon some hitherto uninhabited islet—assuming that a portion of the land is worked and planted, and a few fowls and small domestic animals are kept—is quite sufficient to effect a complete change in its aspect, by the unintentional introduction of numbers of agrarian weeds. I shall have occasion to give a striking instance of this in speaking of the islet of Burhou. But an expert botanist can always, or almost always, tell with certainty by glancing at the plants that grow on a deserted island whether it has in times past been inhabited or not.

Many of the little verdure-capped rocks in our seas are practically inaccessible. Sometimes the powerful current and swell of the waves is too strong to permit of the approach of a boat except on rare occasions ; sometimes the smooth walls of rock that rise vertically out of the water afford no foothold for an adventurous climber ; sometimes the landing appears too hazardous to tempt even an enthusiastic botanist. Several of the green islets within our area, however, can be reached without much difficulty ; and they afford plenty of material for study to those who feel interested in this line of investigation.

Ever since I first began, some twenty years ago, to pay any attention to the botany of the Sarnian Islands,

I have felt a special interest in these isolated specks of vegetation. However tiny and insignificant they may be, however sparse and scanty the verdure, there is always something to be learnt from them. On these exposed shores one sees familiar plants dwarfed and starved almost beyond recognition, and yet, strange to say, each one of them "bearing seed after his kind," and thus filling its place and doing its work in the economy of nature. So whenever the opportunity has presented itself I have made it a point of carefully cataloguing the plants found in such places. And as my notes and lists have gradually accumulated, my interest in the work has increased, because almost every one of these detached bits of land, even the very smallest, presents some feature which was quite unexpected, some unlooked-for surprise. Very often islets, which are in other respects similar, exhibit an astonishing disparity in their vegetable productions; and more often still it happens that some of the common shore plants which abound on the coast close by, are, strangely enough, entirely wanting. So far as we can see nothing is missing which is favourable to their growth, and plenty of seed is bound to be blown across each year from the shore opposite, or carried by birds, and yet the plants refuse to grow there. Something is wanting, but, as Darwin remarked, what it is we do not know.

Although every endeavour has been made to render the lists as complete as possible, I cannot claim that they are absolutely exhaustive in every instance, because it has been impossible for me to pay a second visit to some of the distant islets. But it may be stated that a pretty accurate and critical knowledge of the flora of the Channel Islands has enabled me to search with special care for certain species which I considered most likely to occur, and their absence from certain islets is quite as great a surprise to me as it will be to any botanist who studies and compares these lists.

I propose now to enumerate all the flowering plants and ferns occurring on each of the islets and rocks which have been examined, beginning with those that support the largest number of species. The botanical names and classification are those used in my *Flora of Guernsey and the Lesser Channel Islands*, and exactly the same order is followed in all the lists, so that it will be easy to compare one with another.

A catalogue of the plants of Lihou Island will be found on page 471 of my *Flora*, and therefore it is not necessary to reproduce it here. In the same work also there is given a

list of the flora of Jethou, to which five species have been added subsequently. The plants of Brechou, or Ile aux Marchands, on the western side of Sark, were carefully studied by Mr. Cecil Hurst in 1902, and a full catalogue of them, together with much interesting information about the island, was published in the *Transactions* of this Society for that year. These three islands are of larger size than any of those we are about to consider; but for the purpose of comparison it may be stated that the total number of flowering plants and ferns recorded for each is as follows:—

Brechou	199 species.
Jethou	191 „
Lihou	99 „

Houmet Paradis. This is the central one of three islets which lie almost in a line off the Vale coast, between Bordeaux Harbour and Fort Doyle. It is situated about one-fifth of a mile from the shore, and is accessible at half-tide by a slightly raised natural causeway of shingle and pebbles. Although of sufficiently large extent, for it measures roughly about 200 yards by 70, it does not appear that Houmet Paradis was ever permanently inhabited; but at the eastern end there is an abandoned quarry of considerable size, and on the opposite side of the islet there are still standing the ruined walls of some building which probably served as a shelter for the quarrymen. The vegetation, especially in the central portion, is rich and luxuriant, and consists of an unusually large number of species; so that it differs altogether from Lihou, a much larger but less productive island off the western coast of Guernsey. The following 107 plants comprise all the species I have been able to discover during repeated visits to this extremely interesting islet.

Ranunculus acris.	Lotus major.
repens.	hispidus.
Glaucium luteum.	Vicia sativa.
Fumaria confusa.	angustifolia.
Cochlearia danica.	Arthrolobium ebracteatum.
Raphanus maritimus.	Potentilla Tormentilla.
Polygala vulgaris.	Rubus cæsius.
Silene maritima.	sp.
Lychnis diurna.	Sedum anglicum.
Sagina procumbens.	Cotyledon umbilicus.
ciliata.	Crithmum maritimum.
maritima.	Daucus gummifer.
Cerastium triviale.	Lonicera Periclymenum.
tetrandrum.	Galium Aparine.
Lepigonum rupestre.	mollugo.
Hypericum humifusum.	verum.
Geranium molle.	Bellis perennis.
Ulex Europæus.	Achillea Millefolium.
Trifolium pratense.	Anthemis nobilis.
arvense.	Matricaria inodora.
subterraneum.	Senecio Jacobæa.
repens.	Carduus lanceolatus.
procumbens.	arvensis.
minus.	Hypochoëris radicata.
Lotus corniculatus.	Thrinicia hirta.

Leontodon autumnale.	Urtica dioica.
Taraxacum officinale.	Romulea Columnæ.
Sonchus oleraceus.	Scilla autumnalis.
asper.	Endymion nutans.
Crepis virens.	Luzula campestris.
Hieracium umbellatum.	multiflora.
Jasione montana.	Carex arenaria.
Calluna vulgaris.	præcox.
Erica cinerea.	Anthoxanthum odoratum.
Erythræa Centaurium.	Agrostis vulgaris.
Sonchus arvensis.	alba.
Solanum Dulcamara.	Holcus lanatus.
Orobanche minor.	Aira caryophyllea.
Pedicularis sylvatica.	Poa annua.
Eufragia viscosa.	trivialis.
Euphrasia officinalis.	pratensis.
Teucrium Scorodonia.	Sclerochloa loliacea.
Anagallis arvensis.	Dactylis glomerata.
Armeria maritima.	Festuca sciuroides.
Plantago Coronopus.	ovina.
lanceolata.	rubra.
Chenopodium album.	Serrafalcus mollis.
murale.	Triticum repens.
Beta maritima.	pungens.
Atriplex deltoidea.	Hordeum murinum.
Rumex crispus.	Lolium perenne.
Acetosa.	Asplenium Adiantum-nigrum.
Acetosella.	Pteris aquilina.
Parietaria diffusa.	

Houmet Benest. Situated about 200 yards from the extremity of the northern arm of Bordeaux Harbour, across a rough shingly beach which is open during the greater part of each tide. In shape this islet is narrowly triangular, with irregularly indented sides; its greatest length being approximately 80 yards, and its width at the base or eastern end, about 50 yards. Scattered masses of rock protrude here and there over the whole surface, which slopes gently on all sides, from about the middle. Within this small area no less than sixty-nine plants occur, as enumerated below. There is another green islet of much smaller size on the south-west side, separated from the present one by a wide and deep channel; but it is not properly entitled to rank with those described in this paper, as it is never completely surrounded by the sea.

Ranunculus Ficaria.	Trifolium pratense.
repens.	arvense.
Fumaria confusa.	repens.
Cardamine hirsuta.	minus.
Cochlearia danica.	Lotus corniculatus.
Raphanus maritimus.	Vicia lathyroides.
Silene anglica.	Ornithopus perpusillus.
maritima.	Potentilla Tormentilla.
Stellaria media.	Rubus sp.
Cerastium triviale.	Sedum anglicum.
tetrandrum.	Cotyledon umbilicus.
Polycarpon tetraphyllum.	Crithmum maritimum.
Lepigonum rupestre.	Daucus gummifer.
Geranium molle.	Galium verum.
Erodium cicutarium.	Bellis perennis.
Linum angustifolium.	Achillea Millefolium.
Ulex europæus.	Senecio vulgaris.

Senecio sylvaticus.	Rumex Acetosella.
Jacobæa.	Spiranthes autumnalis.
Carduus lanceolatus.	Romulea columnæ.
Hypochæris radicata.	Scilla autumnalis.
Thrinacia hirta.	Luzula campestris.
Taraxacum officinale.	Carex arenaria.
Sonchus oleraceus.	Anthoxanthum odoratum.
Crepis virens.	Agrostis alba.
Jasione montana.	Holcus lanatus.
Erica cinerea.	Aira caryophyllea.
Erythræa centaurium.	Triodia decumbens.
Myosotis collina.	Sclerochloa loliacea.
Teucrium scorodonia.	Dactylis glomerata.
Anagallis arvensis.	Festuca ovina.
Armeria maritima.	Serrafalcus mollis.
Plantago coronopus.	Triticum pungens.
lanceolata.	Asplenium lanceolatum.
Rumex Acetosa.	

Crevichon. A conical beacon-crowned rock lying off the northern end of Jethou, from which it may be reached on foot at low water. It is said to measure about three acres in extent, and from certain points of view is very picturesque. There is an old quarry on one side from which a large quantity of granite was taken many years ago. Two or three of the flowering plants growing on Crevichon have not been found in Jethou; and the number of ferns is rather remarkable, considering their scarcity in the latter island. Crevichon possesses an additional feature of interest to an English botanist, from the fact that it was visited in 1838 by the late Professor C. Cardale Babington, author of the *Flora Sarnica*. Forty-five plants, including six ferns, have been found on the rocky slopes of this islet.

Cakile maritima.	Solanum Dulcamara.
Viola Riviniana.	Nepeta Glechoma.
Silene maritima.	Teucrium Scorodonia.
Sagina procumbens.	Anagallis arvensis.
Ulex europæus.	Armeria maritima.
Lotus corniculatus.	Rumex crispus.
hispidus.	Atriplex patula.
Vicia angustifolia.	Euphorbia amygdaloides.
Rubus sp.	portlandica.
Sedum anglicum.	Urtica dioica.
Cotyledon umbilicus.	Iris foetidissima.
Conium maculatum.	Ruscus aculeatus.
Hedera Helix.	Endymion nutans.
Sambucus nigra.	Juncus acutus.
Lonicera Periclymenum.	Holcus lanatus.
Carlina vulgaris.	Dactylis glomerata.
Arctium minus.	Polypodium vulgare.
Carduus lanceolatus.	Lastrea Filix-mas,
Thrinacia hirta.	Asplenium lanceolatum.
Leontodon hispidum.	adiantum-nigrum.
Sonchus asper.	marinum.
Erythræa centaurium.	Pteris aquilina.
Myosotis versicolor.	

Chapelle Dom Hue. A tiny islet rising like a little green hillock in the middle of L'Érée Bay, at a distance of about 300 yards from the shore, accessible at half-tide. It is nearly square in shape, about twenty yards across, and fairly level, with but few projecting points of rock. On the side nearest the land may still

be seen the ruins of an ancient chapel, from which the place takes its name. Towards the north a shallow gully separates the islet from a much smaller one, a mere rocky mass only scantily clothed with vegetation, and bounded on the seaward side by a huge bulwark of rocks, which break the force of the mighty Atlantic billows that dash upon this exposed coast. Visits in early and late summer have yielded me the following twenty plants.

Cochlearia danica.	Sonchus oleraceus.
Silene maritima.	Anagallis arvensis.
Sagina maritima.	Armeria maritima.
Stellaria media.	Plantago coronopus.
Lepigonum rupestre.	lanceolata.
Geranium molle.	Beta maritima.
Lotus corniculatus.	Sclerochloa loliacea.
Crithmum maritimum.	Dactylis glomerata.
Daucus gummifer.	Festuca rubra.
Thrinacia hirta.	Serrafaleus mollis.

Burhou. This is the most desolate and lonely of all the islands in our archipelago, situated as it is, almost in the middle of the English Channel, about two miles west of Alderney, between it and the perilous reef known as the Casquet Rocks. Burhou is over half a mile in length, with a width of between 200 and 300 yards; but it lies low, and the highest point hardly reaches forty feet above high water level. Stupendous masses of rock are piled up in picturesque groups all over the island, and everything about the place looks wild, rugged and storm-beaten, like the relic of a prehistoric age. A small stone-built house provides shelter for shipwrecked sailors, as well as for fishermen who may be driven to land there by stress of weather, or when suddenly overtaken by a dense fog, as happened to me on my first visit ten years ago, when I was forced to pass the night on the island. Until quite recently its only permanent inhabitants were seabirds and rabbits. The extraordinary feature about Burhou is that almost the whole of the vegetation which covers the island consists of only four plants, namely, *Lepigonum rupestre*, *Silene maritima*, *Endymion nutans* and *Pteris aquilina*. All the other species form quite an inconspicuous portion of the general mass. The complete absence of grasses of every kind, and also of the commonest of composites, is most remarkable. In 1900 the cottage was rented by some French people who went to live there, and they took with them a few pigs, goats and fowls. They only remained there a twelvemonth or so, but during that short time several new plants were introduced, no doubt among the food used for their animals. When I paid my last visit to Burhou in 1902, I immediately noticed that four alien plants had already obtained a firm footing and were growing luxuriantly in the neighbourhood of the cottage; they had thoroughly established themselves and were spreading rapidly. These aliens were *Urtica dioica*, *Poa annua*, *Solanum nigrum* and *Rumex acetosella*. Among the eighteen plants which composed the entire flora of the island before its occupation, there are two or three which are certainly not indigenous; and the probability is that they were introduced during the time the cottage was built. A fuller account of Burhou and its plants will be found in the *Flora of Guernsey*.

Cochlearia danica.	Crithmum maritimum.
Silene maritima.	Lycopsis arvensis.
Sagina maritima.	Myosotis arvensis.
Cerastium tetrandrum.	Glaux maritima.
Lepigonum rupestre.	Anagallis arvensis.
Erodium maritimum.	Atriplex deltoidea.
Cotyledon umbilicus.	Rumex crispus.

Endymion nutans.
Scirpus maritimus.

Lastrea Filix-mas.
Pteris aquilina.

Plat Houmet. A green islet situated about 350 yards from the north-western point of Herm. It can only be reached on foot at low water during the lowest spring tides, and the channel which separates it from the main island is extremely dangerous to cross when the tide is rising. As nearly as I could estimate the islet is about 70 to 80 yards long and one quarter as wide. The top is level and profusely stocked with vegetation, but a careful investigation only revealed seventeen plants, a very small number considering the size of the islet and its proximity to the main island of Herm.

Cochlearia danica.
Silene maritima.
Sagina ciliata.
Cerastium triviale.
tetrandrum.
Lepigonum rupestre.
Trifolium repens
Lotus corniculatus.
Solanum Dulcamara.

Armeria maritima
Plantago coronopus.
Beta maritima.
Rumex Acetosella.
Poa pratensis.
Sclerochloa loliacea.
Dactylis glomerata.
Festuca rubra.

Houmet Homtolle. Lies off the northernmost point of Guernsey, about a quarter of a mile from the shore, and nearly half a mile from Houmet Paradis. Its area as nearly as possible is 60 yards by 40. The surface is level, hardly at all rocky, and densely covered with grasses and low plants which do not present much variety. I have repeatedly visited the spot at different seasons and at intervals of several years, hoping to increase the list, but I have not succeeded in detecting more than the following sixteen species. The meagreness of this flora is the more surprising because of the richness in plants of the two sister islets, Houmet Paradis and Houmet Benest, both of which lie off the same coast within a distance of scarcely more than a mile.

Cochlearia danica.
Silene maritima.
Sagina maritima.
Lepigonum rupestre.
Trifolium repens.
Lotus corniculatus.
Daucus gummifer.
Thrinacia hirta.

Sonchus oleraceus.
Armeria maritima.
Plantago coronopus.
Beta maritima.
Agrostis alba.
Sclerochloa loliacea.
Festuca rubra.
Lepturus filiformis.

Galeux. This is one of the numerous small islets and rocks that lie scattered about in the open sea to the northward of Herm, and are known collectively to the local fishermen as "the Humps," a corruption of their French name *Amphres*. The four principal islets, all of which bear vegetation, are called respectively Anfroque, Godaine, Longue Pierre and Galeux. The last-named is the nearest one to Guernsey, being situated about four miles east of St. Sampson's; but it requires some skilful navigation to reach it, owing to the number of submerged rocks which abound in its immediate vicinity. Galeux is a raised mound, surrounded by sloping beaches of large boulders and pebbles, interspersed with gigantic rock-masses; the area of vegetation is small, and much resorted to by sea birds during the nesting season. The following fifteen plants were all I could discover during a somewhat hurried search. The most interesting species is the Tree Mallow, which occurs in considerable plenty; the specimens however are quite dwarf and stunted, although they were flowering freely at the time of my visit at the end of May.

Silene maritima.
Lepigonum rupestre.
Lavatera arborea.
Lotus corniculatus.
Crithmum maritimum.
Daucus gummifer.
Galium aparine.
Sonchus oleraceus.

Armeria maritima.
Plantago coronopus.
Beta maritima.
Sclerochloa loliacea.
Dactylis glomerata.
Festuca rubra.
Triticum junceum.

Longue Pierre. This is another of the scattered rocky islets known as "the Humps." It is situated half a mile or so to the north-east of Galeux, and consists mainly of a pyramid of rock and boulders, among which there are patches of vegetation. At the eastern extremity of the islet there rises a solitary column of rock, square and massive, some 30 or 40 feet in height, which when looked at from Guernsey has much the appearance of a lighthouse. As one approaches Longue Pierre it seems to be densely covered with shrubs, but on a nearer view these are seen to be nothing else but a thick growth, a miniature forest in fact, of the Tree Mallow, which grows here in profusion, but only attains a height of some three or four feet. Everywhere except the extreme top of the islet, which forms a narrow ledge, the surface of the ground slopes sharply down, broken only by projecting masses of rock and detached stones. Multitudes of sea birds breed here, as well as on the other islets, so that as a natural consequence the plants which grow in the loose, rich soil are more luxuriant than is usual on the coast. Curiously enough, the number of plants which I catalogued on Longue Pierre is exactly the same as on Galeux, but four of them were found on one islet only.

Silene maritima.
Lepigonum rupestre.
Lavatera arborea.
Lotus corniculatus.
Crithmum maritimum.
Armeria maritima.
Plantago coronopus.
Chenopodium album.

Beta maritima.
Endymion nutans.
Holcus lanatus.
Poa annua.
Sclerochloa loliacea.
Dactylis glomerata.
Festuca rubra.

One of the most noticeable points in the lists given above is that the variety of the flora, by which I mean the number of species that compose it, does not always bear anything like a proportionate relation to the size of the islet on which it occurs. In all cases it is impossible to guess beforehand with any accuracy, at a distance of say a hundred yards, how many different kinds of plants actually grow on any particular one of these verdant spots. Some of the smaller ones are rich in species, while one or two, which in comparison may be called large, are surprisingly poor. If this depended upon the degree of exposure, or the distance from land, or the depth and quality of the soil, one could account for these differences; but apparently it is not so.

Look at two of the islets that lie off the north point of Guernsey, Houmet Benest and Houmet Homtolle. Both are situated on the eastern side of the coast, and possess, roughly speaking, about the same area of vegetation. Yet Houmet

Benest produces more than four times as many plants as Houmet Homtolle. Or take Burhou, an island of considerably greater land area than Lihou, but not yielding even one-fifth of the number of species. It is true that Lihou stands much closer to Guernsey than Burhou does to Alderney, and moreover has been inhabited by man from ancient times, but making every allowance for introduced plants, and having regard simply to species which are truly indigenous, there is no comparison between the two islands from a botanical point of view.

The singular absence of certain common shore plants from particular islets is a curious circumstance which it is not easy to account for. Samphire, for example, is one of our typical maritime plants, growing in profusion on every rocky cliffside and sandy shore throughout the Channel Islands. But it does not occur at all either on Houmet Homtolle or on Plat Houmet, and it is exceedingly scarce on Galeux and Longue Pierre. The large and important order of Compositæ appears to be always scantily represented or even wanting altogether on very small islets. There are no plants at all belonging to this order on Plat Houmet, Longue Pierre, or Burhou; and five years ago when I went to Galeux there was but one single plant on the islet, a fine vigorous specimen of *Sonchus oleraceus*, flowering abundantly. I have often wondered since then whether this species had succeeded in securing a permanent footing in its windswept rocky home.

Take another instance of restricted distribution. The common Bracken Fern grows in the greatest profusion over a large portion of Houmet Paradis, yet strange to say, not a single frond of it is to be found on either of its sister islets, Houmet Benest and Houmet Homtolle, which lie on the right and left only a few hundred yards away. For ages past every autumnal gale that has swept over this region must have carried across to these two islets clouds of spores, for this fern is abundant on the adjacent coast of Guernsey as well as on the central islet, and yet they have not been able to find there the conditions required for their germination and development.

But the most remarkable instance of absentee plants is met with in the comparatively large island of Burhou. The whole of it is so plentifully stocked with herbage that when seen from the heights of Alderney on a clear summer morning it may be accurately described as an emerald isle set in a sapphire sea. Therefore it is all the more extraordinary that throughout its entire length and breadth there should not be found the smallest vestige of such abundant and universally

distributed shore plants as *Armeria*, or *Plantago*, or *Beta*, or *Daucus*, or *Lotus*, or a single composite plant of any kind. But more astonishing still is the total absence of the ubiquitous tribe of Grasses, for which I made a fruitless search during my repeated visits. And yet there are over twenty different species of this order which are quite plentiful on that portion of the coast of Alderney which directly faces this barren islet, so that seeds in abundance cannot fail to be blown across during the prevalence of strong easterly and south-easterly winds. Owing to its deficiencies Burhou is, in my opinion, by far the most remarkable of all the Channel Islands.

Some years ago Mr. Lester-Garland, of Jersey, favoured me with a list of the flowering plants he had observed on the Ecrehos Rocks; a reef situated midway between Jersey and France. I cannot speak of these solitary islets from personal knowledge as I never landed there, but I have passed close by on the way from Carteret to Jersey. The group includes three main islands, of which the largest is about two-thirds of a mile long and a quarter of a mile wide; the second is about one-fourth less in size, and the third smaller but loftier. Except for the occurrence of an *Orchis*, and also of *Chærophyllum sylvestris*, a rare plant in all this region except Alderney, there is nothing specially noteworthy about the flora of this detached group of rocks.

Ecrehos Rocks. Mr. Lester-Garland describes these as forming "a long reef lying midway between the north-east corner of Jersey and the coast of France, about eight miles distant from each. They run nearly N. and S. and the whole group is about two miles in length. At high water there are three islets: the largest, which is known as Maitre Ile, contains the remains of old monastic buildings and disused fishermen's huts, and the other two which are connected at low water by a beach of shingle, possess a cottage and several huts which are inhabited by fishermen during the summer." Mr. Lester-Garland goes on to say: "The traces of ancient cultivation interested me greatly. My present list is certainly not exhaustive; a visit at a different time of the year (I went in June) would probably produce many other species."

Sinapis arvensis.
Cochlearia danica.
Capsella Bursa-pastoris.
Silene maritima.
Sagina apetala.
Cerastium tetrandrum.
Lepigonum rupestre.
Lavatera arborea.
Trifolium arvense.
 procumbens.
Lotus hispidus.
Vicia angustifolia.

Rubus sp.
Sedum anglicum.
Cotyledon umbilicus.
Crithmum maritimum.
Chærophyllum sylvestre.
Carduus tenuiflorus.
 lanceolatus.
Taraxacum officinale.
Sonchus oleraceus.
 asper.
 arvensis.
Erythraea centaurium.

Myosotis collina.	Iris foetidissima.
Anagallis arvensis.	Scilla autumnalis.
Armeria maritima.	Juncus maritimus.
Plantago coronopus	Luzula sp. (leaves).
lanceolata.	Carex arenaria.
Beta maritima.	Holcus lanatus.
Atriplex hastata.	Dactylis glomerata.
Rumex crispus.	Festuca ovina.
Euphorbia Helioscopia.	rubra.
portlandica.	Lolium perenne.
Orchis sp. (leaves).	

In speaking of the Channel Islands one is very apt to lose sight of a group of small islets which geographically form part of the main archipelago, although by a strange anomaly they appertain, not to England, but to another country: I refer to the Chausey Islands, which belong to France. They are not perhaps of much importance politically or commercially, but from a botanical point of view they should not be disregarded when treating of the Channel Islands as a whole. It will not be inappropriate therefore to conclude this paper with a list of the plants which have been noted for the Chausey Islands by two competent and reliable observers: first, a French botanist, Monsieur Louis Crié, Professor at the College of Rennes, who published in 1877 "Un Essai sur la végétation de l'Archipel Chausey," and secondly, my venerable friend Mr. John Piquet, the well-known Jersey botanist, who in company with his son, Mr. F. G. Piquet, paid three visits to the islands during 1903 and 1904 for the purpose of studying the flora. I am indebted to Mr. Piquet for kindly sending me a copy of his list, which I believe has not hitherto been published.

In the following pages Mons. Crié's list is given intact, and the additions made to it by Mr. Piquet are distinguished by a star. It will be seen that the flora of these rocky islets is a very rich and varied one, comprising about 275 flowering plants and ferns. It gives me pleasure to be able to furnish such a list for our *Transactions*, because so far as I am aware, nothing approaching so comprehensive a catalogue of Chausey plants has ever yet appeared in any English publication.

Chausey Islands. This little archipelago consists of a number of rocks and islets spread over an area of about seven miles by five. It is situated at a distance of some twenty-five miles south-east of Jersey, and nine miles from Granville. The largest and most important island of the group, called La Grande Ile, is of very irregular shape and measures a mile or so in length, and not more than a quarter of a mile in its greatest width. A certain amount of land is under cultivation, but the greater portion of the island is wild and rocky. Formerly the population was much larger than it is now; at the present day there are hardly more than fifty permanent inhabitants, but the number is much increased during the summer season.

- Papaver Rhœas*.*
Glaucium luteum.
Fumaria Boræi.*
Sinapis arvensis.*
Diplotaxis tenuifolia.
Alyssum maritimum.
Cochlearia danica.
Lepidium Smithii.
Capsella Bursa-pastoris.*
Senebiera coronopus.
 didyma.
Cakile maritima.
Crambe maritima.
Raphanus Raphanistrum.*
 maritimus.
Reseda Luteola.
Silene nutans.
 maritima.
Sagina procumbens.
 maritima.
 subulata.
Honkeneja peploides.
Polycarpon tetraphyllum.
Lepigonum rupestre.
Scleranthus annuus.*
Malva moschata.
 sylvestris.*
 rotundifolia.
Lavatera arborea.
Hypericum perforatum.*
 linarifolium.
 pulchrum.*
Acer Pseudo-platanus.*
Geranium sanguineum.
 molle.*
 rotundifolium.
 Robertianum.*
Erodium cicutarium.
 malacoides, *Willd.*
 maritimum.
Linum catharticum.
Ulex europæus.
 nanus.
 Galii.
Sarothamnus scoparius.*
Medicago sativa.*
 lupulina.*
Trifolium pratense.*
 arvense.
 repens.*
 fragiferum.*
 procumbens.*
 filiforme.*
Lotus corniculatus.
 major.*
 angustissimus.
 hispidus.
Vicia angustifolia.*
Prunus spinosa.
Potentilla argentea.
- Potentilla Tormentilla*.*
Rubus sp.
Rosa spinosissima.
Tamarix anglica.*
Sedum album.
 anglicum.
 acre.
 sexangulare.
Cotyledon umbilicus.*
Saxifraga tridactylites.
Eryngium maritimum.
 campestre.
Petroselinum sativum.
Ægopodium Podagraria.*
Cenanthe Lachenalii.*
Æthusa cynapium.
Fœniculum officinale.*
Crithmum maritimum.
Daucus gummifer.
Scandix Pecten-veneris.
Conium maculatum.
Smyrniolum olusatrum.
Hedera Helix.
Sambucus nigra.*
Lonicera Periclymenum.
Galium mollugo.
 verum.
Rubia peregrina.
Centranthus ruber.*
Dipsacus sylvestris.
Petasites fragrans.
Erigeron acre.
 canadense.
Bellis perennis.*
Inula conyza.
Filago germanica.*
Achillea millefolium.
Anthemis cotula.
Matricaria inodora.
 (*maritima*).
Senecio vulgaris.
 Jacobæa.
Carlina vulgaris.
Centaurea nigra.
 Calcitrapa.
Onopordium Acanthium.
Carduus tenuiflorus.
 lanceolatus.*
Silybum Marianum.
Hypochaeris radicata.
Leontodon hispidum.
 autumnale.*
Picris hieracioides.*
Helminthia echioides.*
Taraxacum officinale.
Sonchus oleraceus.
 asper.*
Crepis virens.*
Hieracium Pilosella.
 umbellatum.*

- Jasione montana*
Calluna vulgaris.
Erica cinerea.
 vagans.
Ligustrum vulgare.
Fraxinus excelsior.*
Vinca major.
Erythræa centaureum.
Convolvulus arvensis.
 sepium.*
 soldanella.*
Cuscuta epithymum.
Cynoglossum officinale.
Borago officinalis.
Anchusa sempervirens.*
Lycopsis arvensis.
Echium vulgare.
 plantagineum.*
Lithospermum arvense.
Myosotis collina.
Solanum nigrum.
Atropa Belladonna.
Hyoscyamus niger.
Datura stramonium.
Orobanche amethystea.*
Verbascum Thapsus.
 nigrum.*
 Blattaria.
Digitalis purpurea.
Antirrhinum Orontium.
Linaria vulgaris.
Scrophularia scorodonia.
Euphrasia officinalis.
Veronica arvensis.
 agrestis.
 Buxbaumii.
 hederifolia.
Mentha rotundifolia.
 alopecuroides.*
Salvia Verbenaca.
Thymus serpyllum.
Calamintha clinopodium.
Melissa officinalis.
Prunella vulgaris.
Nepeta Glechoma.
Lamium amplexicaule.
 purpureum.
Leonurus cardiaca.
Stachys Betonica.
 sylvatica.
 arvensis.
Ballota foetida.*
Marrubium vulgare.
Teucrium scorodonia.
Verbena officinalis.
Glaux maritima.
Anagallis arvensis.
Samolus Valerandi.*
Statice Limonium.
 occidentalis.
- Statice Dodartii*.
 lychnidifolia.
Armeria maritima.
Plantago coronopus.
 maritima.
 lanceolata.
 major.
Euxolus viridis.
Suaeda fruticosa.
 maritima.
Chenopodium Vulvaria.
 album.
 murale.
 glaucum.
Beta maritima.
Salicornia fruticosa.
 herbacea.
Atriplex littoralis.
 patula.
 hastata.
Obione portulacoides.*
Rumex conglomeratus.
 acutus.*
 crispus.*
 acetosa.
 acetosella.*
Polygonum Persicaria.
 Hydropiper.
 aviculare.
 maritimum.
Euphorbia Peplis.
 Helioscopia.
 amygdaloides.
 Paralias.
 portlandica.
 Peplus.
Mercurialis annua.*
Urtica urens.
 dioica.
Ulmus campestris.*
Salix vitellina.
 cinerea.
Populus tremula.
Fagus sylvatica.*
Corylus avellana.
Orchis mascula.
Spiranthes autumnalis.
Iris foetidissima.
Triglochin maritimum.*
Ruscus aculeatus.*
Scilla autumnalis.
Allium vineale.
Endymion nutans.
Juncus maritimus.
 glaucus.
 Gerardi.
 bufonius.
Arum maculatum.
Lemna minor.
Zostera marina.

- Zostera nana.*
Scirpus Rothii, *Hoppe.*
 Savii.
Carex arenaria.
 præcox.
 glauca.
Mibora minima.
Anthoxanthum odoratum.
Alopecurus pratensis.
 agrestis.
Psamma arenaria.
*Agrostis vulgaris.**
Holcus lanatus.
*Poa annua.**
 trivialis.
 pratensis.
Sclerochloa loliacea.
Cynosurus cristatus.
- Dactylis glomerata.*
Bromus sterilis.
Serrafalcus mollis.
 hordeaceus.
Triticum repens.
 junceum.
Elymus arenarius.
Hordeum murinum.
 maritimum.
Lepturus incurvatus.
Lolium perenne.
*Polypodium vulgare.**
Lastrea Filix-mas
*Asplenium Adiantum-nigrum.**
 Trichomanes.
 marinum.
Pteris aquilina.

ADDITIONS TO THE INSECTS OF SARK.

BY W. A. LUFF, F.E.S.

THE following insects were captured in Sark by Mr. E. D. Marquand, A.L.S., and his young son, from April 20th to 27th of this year, and are additions to the list I published in these *Transactions* in 1906.

Four specimens of *Carabus nemoralis* were found crushed on the footpaths in the early mornings. It is a large species which has not been found in Guernsey or Alderney, nor is it recorded for Jersey. One specimen of the large black burying beetle, *Necrophorus humator*, was picked up crushed, near the school house. This species does not occur in Guernsey, but several specimens were taken in Alderney some years ago. *Halyzia sedecimpunctata*, a conspicuous little beetle, was beaten out of bushes in Dixcart Valley by Master Cecil Marquand. This species is quite new to the Channel Islands. A very pretty *Cassida* (*C. oblonga*) was beaten out of hedges at the Seigneurie. This is also new to the Channel Island list.

Eighty-two species are now for the first time recorded for Sark, and therefore the list is rendered much more complete. Up to the present no collecting had been done in Sark during the early months of spring and summer, and if regular work could be carried out throughout the year, in the same way as was done in Alderney, I have no doubt many interesting discoveries would be made.

COLEOPTERA.

GEODEPHAGA.

Carabus nemoralis, *Mull.* Four specimens picked up crushed on footpaths. This species is evidently not rare in Sark.

Nebria brevicollis, *F.* Two specimens.

Pterostichus cupreus, *L.* Three.

Amara continua, *Thoms.* One.

A. similata, *Gyll.* Two.

Bembidium lampros, *Herbst.*

Dromius linearis, *Ol.* Common.

D. melanocephalus, *Dej.*

[1909.]

PALPICORNIA.

Hydrobius fuscipes, *L.*

BRACHELYTRA.

Astilbus canaliculatus, *F.*

Leistotrophus murinus, *L.* Two.

Philonthus trossulus, *Nord.*

Stenus annulatus, *Crotch.*

S. brunnipes, *Steph.*

Philorhinum humile, *Er.*

CLAVICORNIA.

Necrophorus humator, *F.* One crushed specimen picked up on a foot-path near the Schoolhouse.

Halyzia sedecimpunctata, *L.* One beaten out of bushes by Master C. Marquand in Dixcart Valley.

Omosita discoidea, *F.* Plentiful on old bones in two or three places.

Cryptophagus lycoperdi, *Herbst.*

Micrambe vini, *Panz.*

LAMELLICORNIA.

Onthophagus fraeticornis, *Preyss.*

Aphodius inquinatus, *F.*

A. punctato-sulcatus, *Stm.*

A. pusillus, *Herbst.*

Geotrupes typhæus, *L.*

G. stercorarius, *L.*

G. vernalis, *L.*

STERNOXI.

Agriotes pallidulus, *Ill.*

Athous hæmorrhoidalis, *F.*

PHYTOPHAGA.

Cassida oblonga, *Ill.* Three specimens beaten out of a hedge at the Seigneurie.

C. hemisphærica, *Herbst.* One captured in Sark by Mr. George Derrick.

HETEROMERA.

Opatrum sabulosum, *Gyll.* Common under stones at the Eperquerie.

Meloe brevicollis, *Panz.*

M. proscarabæus, *L.*

RHYNCHOPHORA.

Apion striatum, *Kirby.*

A. trifolii, *L.*

A. nigritarse, *Kirby.*

Sitones tibialis, *Herbst.*

S. sulcifrons, *Thumb.*

Otiorrhynchus atroapterus, *De G.*

Phyllobius pyri, *L.*

Hypera plantaginis, *De G.*

HYMENOPTERA.

HETEROGYNA.

Lasius flavus, *De G.* Common.

L. niger, *race alienus*, *Forst.* Common.

Leptothorax tuberum, *race Nylanderii*, *Först.* One specimen of this minute species taken at the Seigneurie.

ANTHOPHILA.

Haliectus albipes, *Kirb.*

H. punctatissimus, *Schk*

Andrena thoracica, *F.*

A. cineraria, *L.*

A. Gwynana, *Kirb.*

A. angustior, *Kirb.*

A. rosæ (trimmerana), *Kirb.*

A. fulva, *Schr.*

Nomada succincta, *Fz.*

N. ruficornis, *L.*

ICHNEUMONIDÆ.

Phæogenes optalmicus.

Microcryptus abdominator, *Grav.*

Pezomachus modestus, *Först.*

P. cautus, *Först.*

Spiloeryptus abbreviator, *Fab.*

Pimpla instigator, *Fab.*

P. turionellæ, *Fab.*

Paniscus ocellaris, *Thoms.*

Pyeno-cryptus peregrinator.

BRACONIDÆ.

Rhogas circumscriptus, *Nees.*

TENTHREDINÆ.

Tenthredopsis coqueberta.

Dolerus gonogra.

HEMIPTERA-HETEROPTERA.

Pentatoma vernalis.

Berytus minor, *Schf.*

Henestaris laticeps, *Curt.*

Ichno-coris angustulus, *Boh.*

Stygnus fuliginus.

Peritrechus luniger, *Schill.*

Aphanus quadratus, *Fab.*

Nabis dorsalis, *D. & C.*

Lygus pratensis, *Fab.*

Velia currens, *Fab.*

DIPTERA.

Ptychoptera albimans.

Limnobia nubeculosa.

Empis livida, L.

Scatophaga lutaria, L.

Anthomyia pluvialis, L.

FEUDALISM IN GUERNSEY.*

BY LIEUT.-COLONEL T. W. M. DE GUÉRIN.

THE history of feudalism in Guernsey begins early in the 11th century, at which date we find the island divided into two great fiefs; one held by Nigel, Vicomte du Cotentin, comprising the parishes of St. Peter-Port, St. Sampson's, St. Martin's, the Forest, St. Andrew's and Torteval; and the other consisting of the parishes of the Vale, the Castel, St. Saviour's and St. Peter-in-the-Wood, held by Anchetil, Vicomte du Bessin.

For some cause unknown to us Duke Robert of Normandy deprived the Vicomte du Bessin of his lands in Guernsey, and gave them, along with certain dues called "melagia," on the other portion of the island, held by Nigel, Vicomte du Cotentin, to the famous Abbey of Mont Saint Michel by charter sometime between the years 1028 and 1034.† These lands did not long remain in the possession of the Abbey at this period, for William the Conqueror by a charter of about the year 1042‡ restored them to Ranulph, Vicomte du Bessin, son of Anchetil, and gave the Abbey the islands of Alderney and Serk in exchange. Sometime later Mont Saint Michel again became possessed of one-half of the Guernsey fief of the Vicomtes du Bessin, but no record exists to show how this came about.

Nigel II., Vicomte du Cotentin, son of the above mentioned Nigel, was one of the chiefs of the conspiracy against William the Conqueror, which was crushed at the famous battle of Val es Dunes. He escaped from the battle field, and took refuge in Brittany, and his fief in Guernsey was forfeited, and the advowsons of his six parishes, and two carucates of land, were given by the Conqueror to the great Abbey of Marmoutier, near Tours. Nigel received pardon some years later, and by several charters he and his children confirmed to the Abbey the gifts made by Duke William.

* Lecture delivered in the Ladies' College, February 25th, 1909.

† Calendar of Documents in France. H. Round, p. 251.

‡ Calendar of Documents in France. H. Round, p. 281.

Some writers have supposed that Nigel never recovered possession of his lands in Guernsey, but this is not correct, as we find another Nigel, his son or grandson, confirming, about 1090, certain gifts made by his tenants in Guernsey to the Abbey of St. Sauveur-le-Vicomte, Normandy, which had been founded by the Vicomtes du Cotentin under the shadow of their great castle. It is therefore probable that the Vicomtes du Cotentin continued in peaceful possession of their Guernsey manors until the commencement of the reign of Stephen.

The Vicomtes du Bessin also remained in possession of their portion of the island down to the same period, for a Bull of Pope Alexander, dated 1178, mentions the churches, lands, etc., belonging to the Abbey of Mont St. Michel, in Guernsey, including certain dues (called *melagia*) on the lands of *Earl Ranulph* ("*terra comitis Ranulphi*") showing that Ranulph II., Vicomte du Bessin, was still possessed of them after he had been created Earl of Chester by Henry I. in 1120, and though in 1178 he had long been dead, and his Guernsey lands had been in other hands for two generations, yet the name "*terra comitis Ranulphi*" still clung to his fief, and still clings to that portion of it known to us as "*le fief du Comte.*"

Up to the end of the reign of Henry I. we find only two great lay fiefs existing in Guernsey, out of which two ecclesiastical fiefs had been dismembered by William the Conqueror, those of the Abbeys of Mont St. Michel, and Marmoutier.

We may here glance at the condition of the island at this period. The population must have been small and chiefly engaged in fishing, the chief industry and wealth of the people during the next two centuries. The town, if it yet existed, can only have consisted of a few houses straggling along the sea shore. Our parishes known by their present names already existed early in the century. The Duke of Normandy owned no lands in the island, which was divided, as we have seen, into two great fiefs, but these were already subdivided into arrear fiefs held by persons of sufficient wealth to make considerable gifts to religious establishments in Normandy. Some of these seigneurs may have been resident in the island, but the bulk of them were owners of property, and lived in Normandy.

Our two viscounts were the representatives of a class of hereditary officials possessed of great powers. When the Normans overran Neustria in the tenth century, they conformed to the Frankish administration they found already in existence, and mapped out their new domain into counties

and viscounties, the latter granted to prominent chiefs of the Norman host. These viscounts, if not from the first hereditary, soon became so, and by the eleventh century were the representatives of the duke in the provinces committed to their charge. To them the abbots and bishops looked for help from the oppressions of the barons. We have no reason to suppose that the administrative and judicial powers of our two viscounts over the tenants of their fiefs in Guernsey were not as full and complete as those they possessed on the main land. Their courts, composed as were similar feudal courts in Normandy, of a seneschal or bailli, sitting as president, with their suitors or chief tenants, as judges, would have judged all causes of their tenants, have held pleas of the sword as well as pleas of land and chattels.* The few cases reserved for the duke's judgment would not have been sufficient to warrant the assumption that anything approaching a permanent local ducal court was in existence in the island at this period. Assault in the duke's court, or on the way to or from it, offences committed in the host, or within a week or its setting forth or its return, offences against pilgrims, and violations of coinage, being the only causes reserved for the duke's judgment by the "Consuetudines et Justii" of William the Conqueror 1091.†

The reign of Stephen probably ushered in a new era of our history. Stephen was the chosen king of both the English and Norman barons who hated the Angevin Geoffrey. The latter's first attempt to conquer Normandy, to establish his wife Matilda's claims, failed conspicuously, and it required two years of Stephen's mis-rule to pave the way for his second and successful attempt in 1138. Both our overlords were partisans of Stephen. Ranulph, Earl of Chester, was a strong supporter of his up to 1140, though he afterwards changed sides frequently during the civil wars, as occasions offered for his own advantage. Roger, Vicomte du Cotentin, was one of Stephen's justiciars, and chief supporters in Normandy, and was killed in an ambushade by the partisans of Geoffrey of Anjou, in 1138. The result when Geoffrey became master of our island must have been the forfeiture of their fiefs, which probably may account for the altered condition of the island when we next hear of it under Henry II.

* Pollock & Maitland's *History of English Law*, Vol. I., p. 72, and F. M. Powicke's *Angevin Administration of Normandy*.—*English Historical Review*, October, 1906, pp. 635-645-647.

† *English Historical Review*, July 1908, p. 503.

The Norman Consuetudines et Justii of William the Conqueror, Professor C. H. Haskins.

We have no documentary evidence of these forfeitures, but about the year 1168 we find that the Fief du Comte had passed from the Earls of Chester and had already been for two generations in the hands of the Wakes, for at that date Hugh Wake gives to the Abbey of Longues, which he had recently founded in Normandy, certain lands, on his fief in Guernsey, still called "Le Fief de Longues," at St. Saviour's, formerly belonging to his father, Geoffrey Wake, a contemporary of Stephen. Roger, Vicomte du Cotentin, left no descendants, and his vast possessions in Normandy went to his niece Letitia, wife of Ralph Tesson. The viscountship of the Cotentin, however, remained escheated to the Crown. Letitia seems to have possessed some lands in Guernsey, probably those of the demesne lands of the viscounts, but she is only mentioned in connection with the island in one charter whereby she confirms, as overlord, the gift made by Robert Le Boutillier to the Abbey of Marmoutier of certain lands that he held on her fief.

From the charters of the Norman abbeys of the twelfth century, and the Extente of 1274, which mentions many of the lands forfeited in the reign of King John, we get an idea of the feudal holdings in Guernsey previous to the separation of Normandy. We find the island was divided at the end of the 12th century into a number of fiefs mostly held by the great Norman families of the Cotentin. The fief of the Vicomtes du Bessin was divided between the Wakes, Seigneurs of Fief du Comte, and the Abbey of Mont Saint Michel. These held the two largest manors in the island, and of them, Roger Suhart, member of an important family of the Bessin, held the Fief Suhart in the Castel and St. Peter's-in-the-Wood, and Robert Legat, another large fief at the Vale. The remainder of the island, representing the old fief of the Vicomtes du Cotentin, was also divided into a number of small manors. Of these, the Sires du Rosel held the Fief Rosel at St. Peter-Port; the Seigneurs of Anneville en Saire held the Fiefs of Anneville and Foville at St. Sampson's, which had probably been in their possession for three generations, as they were forfeited, in the reign of King John, by two cousins, John and Sampson d'Anneville; the Le Boutilliers held manors at St. Martin's and St. Andrew's; the de Barnevilles, descendants of the Sires de Rosel, seem to have held the Fief of Jerbourg, now known as Sausmarez Manor, and another member of the same family, Robert Mauvoisin de Rosel, held the Fief of Mauvoisin, at St. Saviour's, which he gave to the Abbey of Blanchelande;

Richard de Martinvast held the Fief of Beggeville at Torteval, and the Le Cauellys were probably already possessed of the Fief au Canelly, which straggles over part of Torteval, St. Peter's-in-the-Wood and St. Saviour's. Serk belonged to the de Vernons, and was given about the middle of the twelfth century by William de Vernon, Baron of Nehou, to the Abbey of Montebourg, whilst Alderney belonged to the l'Enginours, one of whom, William l'Enginour, Lord of Alderney, gave part of the island to the Abbey of Notre Dame du Vœu, Cherbourg, in 1184. The bulk of these Seigneurs were great landowners in Normandy, therefore we must suppose it was the importance of our fisheries that caused our lands to be so much sought after, as the possession of a fishery was a valuable asset in those days.

The manors in the possession of the Church had also greatly increased in numbers.

The Abbey of Marmoutier les Tours held a large fief stretching over part of St. Peter-Port and St. Martin's, now merged in the "Fief le Roi," but for lack of documents it is at present impossible to locate its position.

The Abbey of Mont Saint Michel held nearly one-fourth of this island, consisting of the fiefs of Saint Michel, Lihou, etc., straggling over part of the Vale, the Castel, St. Saviour's and St. Peter's-in-the-Wood.

The Abbey of La Trinité, Caen, held the Fief of l'Abesse de Caen at St. Andrew's.

The Abbey of Cormery, near Tours, held the Fief of Sainte Helène, and probably also that of La Haule at St. Andrew's.*

The Abbey of La Croix St. Leufroy, near Evreux, held the Fief of La Refrerie, at St. Andrew's, now corruptly called "La Rue Frairie."

The Abbey of St. Sauveur-le-Vicomte also held a fief at St. Andrew's, of which the Franc-fief de St. Sauveur is a portion.

The Abbey of Longues held the Fief de Longues at St. Saviour's.

The Abbey of Blanchelande held the Fief of Martinvast at St. Martin's, now known as Blanchelande, which had originally belonged to the canons of Cherbourg, who were dispossessed of it by King John, who gave it to Blanchelande.

* Cal. Pat. Rolls, 20 Edw. I., p. 486, April 24, 1292. Ratification by Edward I. of the sale by the Abbot and Convent of Cormery to Master William de Sancto Remigio of their lands and rents in Guernsey belonging to the priory of St. Elena in Hagna.

Lastly, the Bishop of Coutances held a fief at St. Andrew's, still called the Fief L'Evêque.

At the end of the 12th century we also find the first record of the existence of a local Ducal Court in Guernsey. When such a court was first established in the island it is impossible to say. It may date from as early as the reign of Henry I. for it is now being recognised that the bulk of the administrative and judicial reforms which were formerly attributed to Henry II., had not only their origin but were fully developed under Henry I.* To his reign is now attributed the creation of the Norman Exchequer, with its permanent judicial officers, who not only sat as the judges of the supreme Ducal Court, but were also employed as justices to hold pleas throughout the duchy. Besides these permanent local courts, with restricted jurisdiction, under ducal justices, were already established throughout the duchy to keep in check the oppressions of the barons and viscomtes.†

It is in the great Roll of the Norman Exchequer of 1180 that we get the first glimpse of the existence of such a local court in Guernsey, a court under the presidency of a royal officer, who would have executed justice by judgment of the chief tenants, the suitors of the duke's court, whom we still summon three times a year at our Court of Chief Pleas. For at this period in the local courts of the viscounts and baillis in Normandy, and in those of the sheriffs in England, judgment was given by the knights who held lands by suit of court in the district, in other words who owed the service of executing the king's justice.

The jurisdiction of our court must undoubtedly have been much more restricted at this period than we find it after the alterations made in our constitution by King John. Already the system of assizes, which Henry II. had re-instituted early in his reign in Normandy, had been extended to our islands, for in the Great Roll of 1180 we find Ralph de Havilland, the deputy of Gislebert de la Hougue, the fermor of Guernsey, accounting for £37 19s. 6d., the fines imposed at the last pleas or assizes. Further, he had been president of the local Ducal Court and, as such, had been fined by the justices £40 for being present and assisting in compounding a felony of maiming. In other words for allowing the court to exceed its jurisdiction, as maiming was one of the cases reserved for the duke's judgment at this period. This last entry proving the existence of a local court in the island.

* See Administration of Normandy under Henry I., by Professor C. H. Haskin, p. 209-232. *English Historical Review*. 1909.

† Do., do., pp. 220-221.

The assizes at this period were the supreme court of the king, travelling throughout the land executing justice in the king's name to all and sundry. They were held by royally appointed officers, either members of the Exchequer or great barons of the king's council, and when they sat all local courts in the neighbourhood were closed, whether those of the vicomtes and baillis, or of the feudal seigneurs, and all had to come to the king's court for justice. But the justices' commission did not end with the administration of justice, they had also to enquire into the whole administration of the district since the preceding assizes, who of the tenants in chief had died during the interval, who had been enfeoffed with new lands, so that the king might claim his dues, what crimes had been committed and by whom, what had become of the chattels of the felon, and what punishment if any had been inflicted. These enquiries had to be answered by the juries, twelve men, chosen from each of the divisions of the district. The whole of the fines inflicted by the justices had to be accounted for to the Exchequer by the fermor or bailli, over and above the sum that he owed for the ferm of his bailiwick, and he or his deputy was subject to a heavy fine if he had not administered justice rightly in the court under his charge.

We thus see at the end of the twelfth century what we may call political feudalism in the island being gradually restricted. The seignorial courts being supervised by the local ducal court and the latter by the justices of the assizes. Still the government of the Isles was feudal, the knights executed judgment under the duke's officers, not because they were chosen as the best fitted to do so, but because they held their lands as suitors of his court, bound by the service of performing his justice.*

It is rather difficult to say what were the powers of the fermors of the Isles, whose names figure on the Great Rolls of the Norman Exchequer, whether their functions only consisted of receiving the revenue, of which the balance, if any, went into their own pockets, after paying into the Exchequer the sum due for their ferm; or whether they also acted as baillis responsible for the administration of justice and for the order and safety of the portion of the duchy committed to their charge; as did the fermors of the bailiwicks and viscounties on the mainland. Anyway they were usually important barons or knights. The first we know of was no less a personage than William de Courcy, "dapifer"

* See Pollock & Maitland's *History of English Law*, pp. 538-550.

of the King of England, a favourite minister of Henry II., who died in 1177. Then followed Gislebert de la Hougue in 1180 and lastly Robert de Saint Mère Eglise, in 1198, member of an important family of the Contentin and near relative of William de Saint Mère Eglise, Bishop of London.

On the loss of Normandy by King John many of the owners of our manors adhered to Philip Augustus, and in consequence lost their lands in the island. The principal fiefs forfeited at this period were—Rosel, St. Peter-Port; Anneville, St. Sampson's; Suhart, Castel and St. Peter's-in-the-Wood; Lemminge, Fortescue, Vielesse, Buard, and Gorges, St. Martin's; Beggeville, Torteval; Legat, Vale, and several small manors at St. Andrew's. The lands of all the Norman abbeys were also forfeited for a time, and were only restored about 1238, by Henry III.

If we glance at the list of the Ecclesiastical and Lay Seigneurs owing suit of court at the Chief Pleas of the Royal Court at a later period, who, as we have seen were the judges of our early local court, we get an idea of the effect of these forfeitures on its composition.

SEIGNEURS OWING SUIT OF COURT.

Bishop of Coutances.	}	Lands forfeited on account of war.
Abbot of Mont St. Michel.		
„ of Marmoutier-lez-Tours.		
„ of Blanchelande.		
„ of La Rue Frairie (de Longues).		
„ of La Croix St. Leufroy.		
Abbess of La Trinité Caen.		
Seigneur d'Anneville (lands forfeited).		
„ de Sausmarez, St. Martin's.		
„ des Bruniaux, St. Martin's.		
„ des Mauxmarquis (lands forfeited).		
„ des Bruniaux de Nermont (not yet in existence).		
„ de Vaugrat.		
„ des Philippes.		
„ au Canelly.		
„ de Fantome.		
„ des Rohais.		

Of these seigneurs, no less than nine for certain were deprived of their lands by King John. The judges of the king's court were thus reduced by more than half their number to seven or eight at most, that is supposing that all the smaller fiefs now owing suit of court were then in existence, of which we have no proof. This number would

have been too small to carry on the business of the court, and probably was one of the reasons leading to King John's alterations in our constitution by the institution of a bench of twelve jurats, elected by the magnates of the island, under the presidency of the Governor of the Isles, or his lieutenant, to replace the feudal judges holding their lands by service of suit of court. Another factor leading to this change was undoubtedly the danger of leaving the administration of justice entirely in the hands of the remaining chief feudal tenants, many of whom had probably lost their lands in Normandy, and who were connected by family ties with that province.

Guernsey had also become of increased political value on the loss of Normandy, from the importance of our roadstead as a place of safety for vessels trading between England and Gascony, for we must remember that the ships of those days were very small, without compasses, steered by the sun by day or the stars by night; they rarely sailed far out to sea, but coasted along from one port to another, making for the nearest harbour of shelter on the approach of bad weather. After the loss of Normandy had closed its ports to English shipping, we became the first harbour of refuge after leaving England on the trade route to Gascony.

It has been suggested by some writers that we were in possession of special privileges before the reign of King John, and in proof they have been pointed to the existence of similar customs to ours, such as the privilege of electing their magistrates, possessed by several towns of Normandy in the time of Henry II., and perhaps earlier. But they forget an all-important difference. The towns possessing communes in the twelfth century were the principal centres of trade in the duchy, towns which may have had particular privileges of jurisdiction, even from Frankish days, which only obtained formal recognition at a later period; while we were only a small rural district of no importance, until the loss of Normandy brought into prominence the value of our roadstead as a place of shelter on the trade route to Gascony. In granting us the privilege of electing our judges, King John was following a policy already initiated by Henry II. in Normandy and Gascony, which he and his successors developed most largely in the latter province. The granting of communal privileges to localities situated, as we were, near hostile frontiers, had for its object the creation of centres bound to the king by these privileges of self-government, centres whose interests formed a counterpoise to the power of

the feudal seigneurs of the districts, who more often than not studied their own particular interests rather than those of the State. Many of our privileges, which differ from the customs of Normandy, bear such a marked resemblance to those of many towns in Gascony, which owe their communes to the early Plantaganet kings, that it is evident that they have a common origin in the general policy of the English kings for the government of their continental dominions after the loss of Normandy.

With King John's establishment of what, for want of a better expression, we may call our "commune," political feudalism came to an end in Guernsey. True, the chief tenants of the Crown still retained some share in the administration of the island even at the time of the assizes in the early part of the fourteenth century, but this share was consultative only, and gradually even this was lost. It is an instance of the continuity of our customs that to this day the Abbots of ruined Norman Abbeys and the Seigneurs of the principal manors in the island should still be summoned to appear three times a year at our Court of Chief Pleas.

We must now turn from what may be called the political side of feudalism in Guernsey to glance at the tenures of our manors and then at the economical side of feudalism in the island, the relations existing between the lord of the manor, the owner of the soil, and his tenants. What first strikes one is the marvellous vitality of the manorial system. Once a manor always a manor. It matters not whether, as in the case of many of our Guernsey fiefs, that a manor was escheated to the Crown in the days of King John, or at a much later period, it never loses its identity, is never merged into one general royal fief, but preserves through all these centuries its own individuality. It had its own court and administration, and even to this day it is its "douzaine," twelve sworn men, tenants of the manor, who draw up the "extente," or survey, of the holdings of the tenants.

There were two classes of manors in Guernsey, (1) those held by military service, grand serjeantry or little serjeantry, what are styled in France "fiefs hauberts," and "fiefs nobles," and (2) those held by yearly rent or its equivalent, such as a pair of spurs, &c., which may be compared with vavassories.

Fief du Comte, the largest in the island, was held in 1240, by Baldwin de Vere, of Hugh Wake, as half a knight's fee, and an annual rent of £6 sterling. Its Seigneur, Nicholas de Chesney, claimed in 1309 the right of court of his tenants; one fourth of the wreck of the sea of the whole island,

except from the Abbot of Mont St. Michel's manors of the Clos du Vale, and Lihou, and from Matthew de Saumarez's fief of Jerbourg; also the right of chase throughout the whole island.

Sausmarez Manor, St. Martin's, originally the Fief of Jerbourg, was held by grand serjeantry of acting as the third butler to the king whenever he should visit the island. Undoubtedly this tenure places it in the first rank of Guernsey manors, but why the seigneur was to act as third butler is puzzling, for it is the only manor mentioned in the Extente of 1331 as held by serjeantry of butlership. The seigneur owed suit at the three Chief Pleas, and held the Castle of Jerbourg, built on his lands, about 1327, by the people of the island. This castle was granted to Matthew de Saumarez by Edward III., in 1330, on condition "that the men of the commonalty of the said island shall be received there with their goods and chattels in time of war."*

He had also right of court for his tenants, held by his vavassors under his prévôt, "who would execute his justice for him, and owed him certain spurs valued twelve sols tournois," † as well as "wreck of the sea on his fief, free warren, right of chase, and his windmill, to which his men ought to bring timber and millstones at their own cost."

The Fief of Anneville was held by petty serjeantry of keeping the king's prisoners convicted of minor offences. The seigneur owed suit of court at the Chief Pleas, and had right of free warren by grant of Prince Edward (afterwards Edward I.), 9 June, 1261.

The manors of Rohais and of La Refrerie at St. Andrew's, were also held by petty serjeantry of keeping the king's prisoners. The other military fiefs of Bruniaux, St. Martin's; Mauxmarquis, St. Andrew's; Bruniaux de Nermont, Vale; Vaugrat, des Philippes, Canelly and Fantome, were held in common with the above by homage, relief and suit of court, with right of court for their tenants and of chase.

It is probable that most if not all of the military fiefs had also the right of colombier, or the cherished privilege of possessing a dovecot standing as an isolated tower. The remains of two such buildings exist, one at Le Colombier, Torteval, originally the dovecot of the Fief au Canelly, and

* In 1811, the Governor, Sir John Doyle, issued an order to Mr. Matthew de Saumarez, Seigneur of Sausmarez, saying that as he had been shown documents proving that he was warden of the Castle of Jerbourg from the earliest times, he should take command of the peninsula of Jerbourg in case of invasion.

† *Special Publication Société Jersiaise*, 1902, pp. 91-94.

the other at Lihou, to the north of the ruins of the priory. The sites of others are, however, indicated by such names as Le Colombier, near Ronceval, St. Sampson's, &c. Probably also La Colombelle, near Les Ruettes Brayes, may owe its name from being the site of one of the smaller dovecots which the lesser seigneurs were permitted to have attached to their farm buildings.

The administration of a feudal manor has been regarded from two points; (1) the old view, which represented everything feudal as a grinding tyranny, whether from the king as supreme in the State, down to the lord of the manor; (2) the modern view, which sees the power both of king or baron great, but not absolute. The king, the chief of the State, but regarded by his barons rather as chief among equals than as a superior. As the barons of Aragon said to their king—"We, *each* of whom is as good as you, *all together* better than you."*

So the feudal baron ruled his estate as chief among his principal tenants, who formed his court and administered justice under his representative, the seneschal. This system is clearly shown in the records of manor courts in England, and by the old "franchises" of our Guernsey Fief du Comte, the earliest copy of which dates from 1406. Here we find the seneschal, or president of the Manor Court, and the greffier, or clerk, appointed by the Lord of the Manor. The eight vavassors, or judges of the court, were the seigneurs of the eight principal frank-fiefs of the manor, who held their land by suit of court. By the sixteenth century only three of these frank-fiefs retained hereditary seigneurs, namely those of Du Groignet, Du Pignon, and De Carteret, the two first held by the Le Marchants, and the latter by a Blondel. These seigneurs served as vavassors either in person or by deputy chosen by themselves, subject to the approval of the Seigneur du Comte. The vavassors of the other five franc-fiefs, De Longues, Des Reveaux, Du Videclin, Des Grantes, and De La Court, were chosen by the lord of the manor, and presented by him to take oath before the Manor Court. They bore the title of seigneurs of the franc-fief they represented whilst acting as vavassors.

The next important officer, the prévôt or grangier of the manor, whose duties in some measure corresponded with those of the prévôt or sheriff of the Royal Court, was curiously chosen by the tenants of the thirty-two vellein bouvées of the manor. Two of these bouvées in turn choosing

* Lord Acton's *Circle*, p. 231.

the prévôt for the year. That this rather important officer, who also acted as receiver of the revenue of the manor, should have been elected yearly by the vellein tenants is a very interesting fact, one certainly quite contrary to the generally conceived notions on feudalism. The same custom prevailed in most of our Guernsey manors, with the exception of that of La Rosiere, belonging to the Seigneur d'Anneville, of which the "prévôté" was hereditary in the family of Prey, who were considerable landowners near "Les Grandes Capelles."

There were also seven bordiers of Fief du Comte who held their lands called "bordages" by service of acting as police officers to the court. They had to attend its sittings, execute its orders, help the prevot in arresting tenants of the manor, and taking them to prison; also in early times they had to assist him in receiving from the hands of the king's officers, felons, tenants of the manor condemned to execution by the Royal Court, and hang them on the manorial gallows, otherwise the king and not the lord of the manor, got their escheats.

The court of Fief du Comte judged all minor cases of disputes of the tenants of the manor concerning lands and chattels. But there was appeal from its judgments to the Royal Court. Some of the arrear fiefs of the manor, such as de Longues and Groignet, had also their own manorial courts. Of that of Fief de Longues we have most information, and even in the seventeenth century we find records of appeals from its judgments to the court of Fief le Comte. We may picture to ourselves the weary length of a lawsuit in those days, beginning in a lower manor court, then wending its way through the chief court of the manor on to the Royal Court for final decision.

The plea rolls of the court of Fief du Comte begin in 1479, and are perfect, with the exception of some few years in the sixteenth century down to the suppression of the judicial functions of the court in 1775. Unfortunately they do not contain matters of such varied interest, throwing light on the social condition of the people, as do similar records in England. The court had little correctional power over the tenants. Only very few cases of the exercise of this power appear, chiefly referring to contempt of court, or misconduct of officials. The ancient seal of the court still exists. It represents a knight on foot in full plate armour in the act of drawing his sword; the nimbus round his head and the letters S.G. above his shoulders show that the figure

is intended to represent St. George. According to Sir Edgar MacCulloch it "dates from about the middle of the fifteenth century." It was used to seal documents concerning sale of land or records of judgments of the Court.*

The court of the Priory of St. Michel du Vale was the largest feudal court in the island, and consisted of a Seneschal, eleven Vavasseurs, a Greffier, six Bordiers and a Wand-bearer. It was also the only other court in the island possessing an official seal, which represents the Archangel Michael trampling Satan under foot.†

Every other important fief in the island had also its court, though with more restricted jurisdiction than the two just mentioned. Most of them still hold their Courts of Chief Pleas three times a year, but their functions are now confined to calling over the roll of the tenants and receiving the chief rents due to the seigneur. Their places of meeting early in the nineteenth century are recorded by the late Mr. F. C. Lukis, and are worth mentioning, as it is probable that these were the traditional sites.

The Court of Fief du Comte was formerly held in the Chapel of St. George. That of Anneville in the great barn of the Manor House.

Sausmarez, St. Martin's, in the quaint old lodge, or Court House, bordering the high road, near the gateway leading to the back of Manor House.

The Court of St. Michel was held sometimes in the Vale Church, at others at "*L'Abbaye*"—the old priory to the south of the church—and sometimes in the cemetery of the Castel Church, on a spot marked by some flat stones, under the trees bordering the path to the north of the church.

The Court of Fief du Groignet was held in a large room in the old Manor House, near the King's Mills.

The Court of Fief de Longues at Le Haut, St. Saviour's, near the house of that name.

The Court of Fief Gaillard in the steep lane running to the south of the cemetery of St. Saviour's Church. The stone seats for the seneschal and vavassors are still to be seen at the foot of the flight of steps leading up to the cemetery.

The Court of Fief des Gohiers, in "*le champ de l'Église*," near St. Saviour's parish schools. The stone seats for the seneschal and vavassors are still to be seen along the hedge bordering the lane.

The Court of Fief de Beuval in the courtyard of Mr. Simon,

* Miss E. F. Carey's *Channel Islands*, p. 83.

† Miss E. F. Carey's *Channel Islands*, p. 86.

des Sages, St. Peter's-in-the-Wood. The stone seats for the officials of this Court are also still in existence.

The Court of Fief de la Corvée in the court yard at the farm of Le Pont, St. Pierre-du-Bois.

The Court of Fief de Suart in the lands of Le Long Frie, St. Pierre-du-Bois.

The Court of Fief de Lihou in the court yard of Mr. de Garis, Des Adams, St. Pierre-du-Bois.

The Court of Fief des Reveaux, in the high road near Les Islets, St. Pierre-du-Bois.

The Court du Fief des Coltons in the court yard of the farm at Le Grais.

The Court of Fief de St. Martin, alias de Calais, alias de Fermain, was formerly held near the Town Church, on a spot marked by a large stone, near le Pont Orson, the bridge which used to span the mill stream.

It will be noticed that nearly all these courts were held out of doors, as was very frequently the custom in the middle ages. The Abbot of St. Alban's, for instance, held his court under the great ash tree at St. Alban's in 1257.

Early in the sixteenth century the Royal Court was already attempting to restrict the powers of the Manor Courts by various *ordonnances*. In spite of these they still continued to flourish up to the middle of the seventeenth century, after which date they declined rapidly. The court of Fief du Comte retained its jurisdiction up to 1775, when it was suppressed by Bailiff William Le Marchant. That of Fief St. Michel was only abolished in 1861. These courts still exist in name, their duties, and those of the other Manor Courts in the island, now consisting merely of the appointment of officers for the collection of the revenue due the seigneur, or on some fiefs for the supervision of the streams, to see that the water has free course.

Manors were usually divided into the demesne lands, and the tenures. The demesne, the lands surrounding the Manor House, kept by the seigneur for his own use. The tenures, the lands held by the tenants. The latter, in Guernsey, were usually divided into frank-fiefs, if the manor was a large one, free tenements and villein "bouvées." At the present day many of our manors are entirely held in tenures, the seigneur owning no land, only receiving his seignorial dues from his tenants.

The seigneurs of the frank-fiefs and the free tenants held their lands by homage, relief, or one year's revenue on succession to them, and by suit at the Manorial Court at the

three Chief Pleas. They also paid dues called chef-rente or "rente censière," but were free from all villein servitudes. This suit of court is still demanded by the seigneurs of our manors from their tenants, and if the latter fail to appear they are subject to a fine, and if defaulters for more than three years their lands may be seized by the seigneur. There is nothing of the nature of homage in this attendance of the tenants at the Manor Court. Homage was only done on succession of a new seigneur to the fief or of a new tenant to his lands and never more than once in either case. Suit to a Manorial Court was exactly the same as suit to the King's Court. The principal suitors, the chief tenants of the seigneur, were in early times the judges of the court, which could not be held except the requisite number were present. They were also required to attend for the equally important purpose of giving the seneschal and court information of all that had happened in the manor since the preceding Chief Pleas.

The villein tenants did not formerly owe suit of court. Besides chef rente they had to pay their seigneur tithes of their crops, champart, the twelfth sheaf of their corn, or the twelfth bundle of flax, "revart de champart," on lands uncultivated, "pouillage," a couple of chickens for each house, "pesnage," for the right of running their pigs loose on the manorial common, "mouillage," a tithe on their wheat ground in the manorial mill, &c. They also owed a number of personal services to their seigneur, which varied on different manors. We hear little of these services on Fief du Comte, only of the duties of the villeins in carrying their corn rents to the manor corn stack, and covering and watching it day and night until it was threshed and garnered into the manor barn. On Fief Sausmarez, St. Martin's, we find numberless personal services demanded by the lord of the manor from his tenants. The documents which refer to these services are of 1330, Inquisition Post Mortem, and two "Lettres" under the seal of the island, of 1390, and 1487. These give the fullest and most valuable details we have of services due by villeins in the island. From the deed of 1390 it would seem that most if not all the holdings on this fief were villein. The tenants had to carry their lord's corn to Normandy, whenever required, between Vauville and Mont St. Michel at their own cost, to cart his wine and ale to the Manor House, give him one white and one black loaf from every baking of bread, the half of each fat beast or the quarter of each sheep they killed, and

a gallon of ale from each brewing. Also to provide him with firewood and furze for the use of the Manor House, carry their lord or his family to Jersey three times a year, receiving for this the same payment "as given by our lord the king to his tenants," as well as to pay tithes of their fish, cart the lord's corn wherever ordered in the island, besides paying other dues such as chef rente, chickens, loaves of bread, and money rents. In return, the lord of the manor provided the seneschal and vavassors for the Manor Court.

These services give us an idea of the different working of two important Guernsey manors in feudal times. On Fief du Comte, a large manor straggling over four parishes, from St. Peter's-in-the-Wood to the Vale, with no Manor House attached to it, but consisting principally of frank-fiefs and free holdings, with two compact groups of villein holdings, the "Trente-deux vilaine Bouvées," at the Castel, and "Les Onze Bouvées Nord-Est," at St. Saviour's; the villein tenants only owed personal service to their lord in connection with the collection and guarding the tithes of their corn and flax, until such time as the grainger of the manor took charge of it. On Sausmarez Manor, a smaller and compact estate, the holdings were almost entirely villein, and held by a variety of personal services. These services formed part of the rent due by the tenants, and they provided the lord of the manor with provisions for his household, and for the carriage of his goods and produce. In neither case do we find any provision for working the farm lands of the seigneur, which in England always formed part of services of the villeins.

Already, by the end of the fifteenth century, these personal services were found irksome, for the villein tenant of one lord was frequently the free tenant of another, or of the king, and often a large landowner. In 1480 we find record of a dispute between the Seigneur of Saumarez and one of his tenants, who had refused to cart "la feugere du seigneur a son hostel," and though the tenant was a member of an important family, and a large landowner on other fiefs, he was sentenced to "une journée au regard du chateau." We must hope that twenty-four hours' contemplation of Castle Cornet brought him to a proper sense of his duties.

We also find some tenants owing such rents as chickens with tails an inch long, capons, geese from their ponds, eels, eggs, and even congers. The latter seem to have been looked upon as an important article of barter even down to the beginning of the seventeenth century. So many

congers of good merchantable size often figure in the note book of George Fashion, Seigneur d'Anneville, as part of the rent due from the tenants of his farms. No doubt they were salted down for future household use. Owing to the subdivision of property by our laws of inheritance, these small rents became sometimes divided up into minute particles, one notable lawsuit in 1887 was brought by the prévôt of Blanchelande against three of the tenants of the fief for the payment of "one fowl, one half and one sixteenth of a fowl, one fortieth and one four hundred and eightieth part of a fowl, twenty-eight eggs, and three-fourths and one-eighth of an egg," fivepence being the usual fine for non-payment.

In old Guernsey documents are also to be found curious redevances. For instance, the Abbot of Mont St. Michel owed the Crown Officers three dinners a year, and the Prior of Lihou owed one to the tenants of the Fief Thomas Blondel. In 1393 a rent of a chaplet of roses on St. John's Day was owed by John Benest to the heirs of Denis Le Marchant, and another even more curious one of "a dozen butterflies," was the subject of a lawsuit in 1591. Cakes at Christmas time or at Easter are also frequently met with. These nominal rents are supposed to owe their origin to gifts of land, and as it was impossible to give outright land held of another person, they are simply a "pro forma" acknowledgment of tenure.

Dinners to tenants on special occasions were frequently given in the middle ages. To this day the Royal Court, the Crown Officers, and the Seigneurs of fiefs owing suit of court, dine at the king's expense after each of the Courts of Chief Pleas. The ancient name of these dinners was "Diner avec le Roi." Formerly they were held much more frequently than three times a year, as at present. An old document now in the archives at St. Lo, dating early in the reign of Edward I., gives a list of the following other occasions:—When the Bailiff chose the juries of the parishes for the assizes, when he inspected the king's highways, and when he taxed the fines of the assizes. Also, when a felon forfeited his goods to the king, or when a trial by battle was appealed and when it was fought.

The seigneurs of the principal fiefs also owed their tenants a dinner after the three annual Courts of Chief Pleas. This custom is still kept up on many fiefs at the present day.

MANORIAL CHAPELS.

The de Chesneys, Seigneurs of Anneville and Fief du Comte possessed four manorial chapels in the fifteenth century.

(1) The chapel of St. Thomas d'Anneville, the ruins of which still exist in the rear of the old Manor House at Les Annevilles.

(2) The chapel of Notre Dame de Pulias, supposed to be the same as Notre Dame de l'Épine, which was destroyed at the Reformation by the Governor, Sir Thomas Leighton, much against the wishes of the inhabitants of the Vingtaine de l'Épine. The site of this chapel has not yet been satisfactorily identified. Probably it may have been the chapel of the Fief des Bruniaux de Nermont, and built by the de Burnels or their predecessors, the Legats, long before this fief came into the possession of the de Chesneys.

(3) St. George, which originally belonged to the Abbey of Mont St. Michel, and is mentioned in a Bull of Pope Adrian IV., in 1156. How it came into the possession of the de Chesneys is not known. It was unfortunately pulled down at the end of the eighteenth century by Mr. J. Guille, of St. George, on account of a dispute with his neighbours concerning a right of way to it over his land.

(4) St. Brioc, Torteval. This chapel stood on the Fief de Beuval, which was already in the possession of the de Chesneys early in the fourteenth century.

Another manorial chapel was that of St. Michel du Manoir, St. Peter's Port, the chapel of the "Manoir de Haut," which stood on the site of the present Constables' Office, and which belonged to the Le Marchants for several centuries. The chapel was to the south of the arch leading from High Street. It is mentioned in an old document of 1388, whereby Pierrot Le Marchant and his brother Jauequin sell a plot of land to the south-west of this chapel, and stipulate that the buildings to be erected thereon shall not obstruct the light of its windows. This chapel was still in existence in 1521. When the old house in High Street to the south of the arch was pulled down, at the beginning of the last century, the remains of some of the old walls of the chapel were discovered. On the northern one was found a fine "piscina," which is now in the hall of Rosenheim, St. Andrew's.

We may now glance at the history of a few of the principal manors we have mentioned.

THE MANOR OF ANNEVILLE.

As already stated, it derived its name from the Seigneurs d'Anneville-en-Saire, in the Cotentin, its owners in the twelfth century. After the separation of Normandy in the reign of King John, it was forfeited by John and Sampson d'Anneville, who adhered to Philip Augustus. It remained in the hands of the Crown until 1248, when Henry III. gave it to Sir William de Chesney, a kinsman of the Governor of the Isles, Philip d'Albigny, the elder, whom he had accompanied on his last voyage to the Holy Land in 1236, where Philip died and was buried in the church of the Holy Sepulchre at Jerusalem. William de Chesney also owned large estates in the counties of Devon, Herts, Somerset Lincoln and Cambridge, as well as several manors in Jersey. He was also an important personage at the Court of Henry III. In 1253 he purchased the Fief du Comte from Baldwin de Vere, and thus became the largest landowner in Guernsey.

For two hundred and fifty years the de Chesneys occupied in insular affairs a position very similar to that of the de Carterets in Jersey, but they only occasionally resided in the island. No less than three of them were Governors of the Isles. Sir Nicholas de Chesney, 1297-1298, Sir William de Chesney, 1331 and 1343, and Sir Edmund de Chesney from 1359 to 1366. Another, Edmund de Chesney, member of a junior branch of the family, was Bailiff of Guernsey in 1480, but was deposed from that office the following year. He then became jurat of the Royal Court, but would seem to have been a sort of extra jurat, as during his term of office there were no less than thirteen jurats on the bench.

The de Chesneys, as jurats, claimed precedence over all their colleagues, a precedence allowed to Nicholas Fouaschin, Seigneur of Anneville, on his election in 1519. Lord Willoughby de Broke, heir through his grandmother of the senior branch of the de Chesneys, sold, in 1509, the manors of Anneville, Le Comte, and the whole of his estates in Guernsey to Nicholas Fouaschin, of Guernsey, merchant of Southampton, one of the gentlemen ushers of the Household of Henry VIII.

In 1595 Queen Elizabeth sent commissioners to Guernsey to hold an enquiry concerning the manors held of the Crown, and Thomas Fashion, then Seigneur d'Anneville, was called upon to show by what tenure he held his lands. This inquiry was the origin of the extraordinary legends that have passed for history concerning the manor of Anneville. Thomas Fashion produced before the commissioners what purported to

be an extract from the rolls of the Exchequer of Rouen, of the reign of William the Conqueror; it is almost needless to state that the Exchequer of Normandy had no existence before the reign of Henry I., and that rolls of its proceedings for the twelfth century even do not exist. According to this remarkable document, William the Conqueror, having heard that Guernsey had been ravaged by a pirate called Le Grand Sarasin, who had established himself in "le chateau du Grand Sarasin," on the site of the present Castel Church, despatched his Esquire, Sampson d'Anneville, to expel him. Sampson was successful and was given the Manor of Anneville, which was said to have then included Fief du Comte, as a reward. On the death of his son, Richard d'Anneville, the manors were escheated to Robert, Count of Mortain, the Conqueror's step-brother, who gave them to his Esquire, Robert de Vere, whose son Baldwin sold them to Sir William de Chesney. Well, Robert, Count of Mortain, was dead before 1100, and Sir William de Chesney was still alive in 1261; still Elizabeth's commissioners seem to have swallowed this little difficulty of dates without question.

Anneville passed from the Fashions to the Andros family in 1663, on the marriage of Charles Andros and Alice, daughter and heiress of Thomas Fashion, and has remained to this day in the hands of their descendants. The old Manor House is mentioned in a charter of 1350, concerning the division of the estate of Sir William de Chesney, by which Sir Edmund de Chesney, his eldest son, who received as his portion the Fief du Comte, stipulates that he shall have the use of it whenever he shall come to the island.

This manor has been looked upon as the most important in the island, but it owes this position more to the accident of its having been the residence of the de Chesneys and consequently the head of their possessions in Guernsey, rather than to any particular nobility of its tenure, for it was only held by petty serjeantry of keeping the King's prisoners.

LE FIEF DU COMTE.

This manor originally belonged to the Vicomtes du Bessin, who, early in the reign of Henry I., became Earls of Chester, and derives its name from this circumstance. Early in the reign of Henry II. it passed into the hands of Geoffrey Wake, whose descendants possessed it, until 1240, when Hugh Wake granted it to Baldwin de Vere, to hold of him by service of a half a knight's fee and the yearly payment of £6 sterling. It was one half of the original fief of the Vicomtes

du Bessin, the other half being in the possession of the Abbey of Mont St. Michel, so it would seem that the entire fief of the Vicomtes was reckoned as a knight's fee. In 1253, Baldwin de Vere, grandson of the above mentioned Baldwin, sold his fief to Sir William de Chesney. Sir William did not long enjoy peaceful possession, as in 1260, the Abbot of Mont St. Michel claimed the whole fief as overlord, pleading the original gift of Duke Robert II., 1028-1032. He died shortly afterwards, leaving his widow, Felicia, to continue the lawsuit. In 1268 the Abbot promised the Governor, Hugh de Trumbleville, "his dear friend," for his counsel and advice, half the revenue of the market of "Les Landes du Marché" which he also claimed, and should he win his cause, half of the Fief du Comte to hold of him by homage. In other words, the Abbot tried to bribe the judge to rob the widow.* He was, however, unsuccessful, and the king confirmed the de Chesneys in the possession of their lands.

At the Assizes of 1299 and 1309, the de Chesneys were called upon to show by what right they claimed one-fourth of the wreck of the sea throughout the whole island, also the right of court for their tenants, and of chase on the King's Fief. Their reply was the first of the legends which grew up around this fief,—namely, that Robert, Count of Mortain, had given it to his servant, Baldwin de Vere, whose son and heir had sold it to Sir William de Chesney, and that Sir William Baldwin and the Earl had all enjoyed these privileges. In face of documentary evidence still in existence, it is incomprehensible how such a statement could have been made.

Fief du Comte was sold by Lord Willoughby de Broke, in 1509, with the rest of his manors, to Nicholas Fouaschin. It remained in the possession of the latter's descendants for upwards of a century, when it was sold in 1630 by George Fashion to Peter Priaulx. It was sold in 1722 by the Priaulxs to the Le Marchants, and at the beginning of the nineteenth century it passed by marriage from the latter to the Hutchessons. The present seigneur, Mr. T. Hutchesson, has a splendid collection of manuscripts relating to the fief. The Plea Rolls of the Manor Court and the "Extentés" or Surveys of the manor commence in the middle of the fifteenth century. Other earlier documents referring to Fief du Comte are now at Warwick Castle. They came into the possession of the ancestors of the Earl of Warwick through the marriage of Sir Fulke Greville with the heiress of the Willoughbys, in the sixteenth century.

* Tupper. *History of Guernsey*, 2nd Ed., p. 73.

From the importance of its court and other ancient liberties, Fief du Comte was by far the most important manor in the island. It has no less than thirty-eight minor manors dependent of it, viz. :—

Pomare	St. Peter's-in-the-Wood.
Rozel	Vale.
La Court	} Câtel.
Grantée	...	...	...
Longue	} St. Saviour's.
Fouqués	...	...	...
Bequepée	} St. Pierre du Bois.
Au Crochon	...	...	...
Au Mière	...	...	...
Huchon	} St. Saviour's.
Gouë	...	...	...
Des Cherfs...	} Câtel.
Cobois	...	...	...
Bellenzère	...	...	...
Grangier	...	...	...
Besongnes	...	...	...
L'Ecachier	...	...	...
Effards	...	...	...
Saumier	...	...	...
Des Feuvres	...	...	...
De la Landelle	...	...	...
Des Queux...	...	...	...
Des Forgiers	...	...	...
Moullinets	...	...	...
Canvière	...	...	...
Au Breton	} St. Saviour's.
Clercs de l'Érée	...	...	...
Mauxconvenants	...	...	...
Hillaire	} Vale.
Trois Vattiaux	...	...	...
Du Quartier du Camp Rouf	...	...	...
Au Carpentier	...	...	...
Robert Gosselin	...	...	...
Richard de Nermont	...	...	...
Du Quartier des Goubies...	...	...	...
Du Camp des Hais	...	...	...
Richard de la Felie	...	...	...
Dame Alianor	...	...	...

In addition to these, the Seigneurs du Comte formerly held the fiefs of Le Groignet, Videclin, and Carteret, Castel ;

Beuval, St. Peter's-in-the-Wood ; Bruniaux, St. Martin's ; Bruniaux de Nermont, St. George and Le Canelly, but only the first three were dependencies of Fief du Comte, the remainder being distinct fiefs.

SAUSMAREZ MANOR, ST. MARTIN'S.

The ancient name of this manor was "le fief de Jerbourg." From a letter which has very recently come to light in the Patent Rolls of 1230, it seems to have belonged in the twelfth century to the great Norman family of de Barneville. At the commencement of the following century it had descended to an heiress, Nicholaa de Barneville, wife of Maurice de Lucy, probably a relative of Geoffrey de Lucy, Warden of the Isles, 1206-7 and 1224-26. Maurice was killed during an invasion of Guernsey in the reign of John, and his estates fell to the Crown during the minority of his heir. On the 27th January, 1230, * the king restores to Jordan de Lucy (in another letter called de Barneville) † son of Maurice de Lucy, his father's and mother's lands of Jerbourg (Gereburg). How it passed into the possession of the de Sausmarez is not known, possibly by marriage with a de Barneville heiress. Anyway, in a King's Writ of the year 1319, relative to proceedings of Placita de quo Waranto concerning Matthew de Sausmarez' rights on his fief of Jerbourg, it is stated that his father Matthew, and grandfather Nicholas, had enjoyed the manor and all its privileges before him ‡.

The manor was held, as already stated, by grand serjeantry of acting as the third butler to the king when he should visit the island, also by homage, relief, and suit of court at the three Chief Pleas.

In the sixteenth century Sausmarez Manor passed to the Andros family by marriage in 1542 of Judith, daughter and heiress of Thomas de Sausmarez, with John Andros, of Northamptonshire, who came to Guernsey with the Governor, Sir Peter Meutis. About the middle of the eighteenth century Mr. Charles Andros sold it to Mr. John de Sausmarez, a descendant of a junior branch of its former owners.

LA RUE FRAIRIE, ST. ANDREW'S.

The name of this manor is a corruption of La Refrerie which belonged in the 13th and 14th centuries to the Abbey of La Croix Saint Leufroy, near Evreux. Through some

* Cal: Pat: Rolls, 14 Henry III., p. 282.

† Cal: Pat: Rolls, 15 Henry III., p. 514.

‡ Record Office, Exch. Accts. Bundle 89. No. 8.

inexplicable cause not only has its name become most barbarously corrupted, but an imaginary Abbot of La Rue Frairie has dispossessed the Abbot of Longues from the list of Seigneurs owing suit at the Court of Chief Pleas and consequently the Abbot of La Croix Saint Leufroy virtually figures twice over. At the Assizes held in 1304 the Abbot of La Croix St. Leufroy was sued for failing to perform his duties in connection with this manor and by an inquisition then held it appears that he was bound to keep monks at La Refrerie (apud Refreria) in the parish of St. Andrew's to say masses for the souls of "our lord the king, his ancestors and successors." The suit ended in a compromise, the Abbot being permitted to let his lands in Guernsey for a year, and was excused the saying of the masses on payment of 100 sols tournois to the king.

Another reference to this manor is to be found in the accounts of John des Roches, Governor of the Isles, 1327-1330, as follows:—"labe de la referie (corrected to l'abé de la Croes) a une priorté a Saint André et i doivet estre moignez residens et chantez III messes checune semaine en la dite eglise por le roi dengleterre et fera aumones."

The correction of "l'abé de la referie" to "l'abé de la Croes" is instructive as it gives a possible clue to the origin of our modern "*Abbé de la Rue Frairie*," and it would seem to indicate that the Abbot of La Croix Saint Leufroy was locally called l'Abbé de la Refrerie as early as the 14th century.

At the Inquest held 1248 it is recorded that the Abbot of La Croix Saint Leufroy held three carucates of land by service of keeping the king's prisoners.

The charters of this Abbey are now in the Bibliothèque Nationale, Paris, but as far as I am aware they have never been examined by our local historians. It is quite possible that much interesting matter concerning the Abbey's Guernsey fief might be found in them.

THE GREAT METEOR OF FEBRUARY 22ND, 1909.

BY MR. B. T. ROWSWELL.

RESIDENTS in the Channel Islands, in common with the dwellers along the south coast of England and the north of France, were privileged to enjoy a magnificent view of the great Meteor of Monday evening, February 22nd, and of the long-lived trail of light it left behind. Had the phenomenon occurred with an overcast sky we should have missed what Mr. W. F. Denning, of Bristol, the celebrated observer of comets and meteors has described as "*the meteoric spectacle of a generation.*" But as it fortunately happened the weather was perfect for the observation of celestial phenomena; we were passing through a delightful interval of cloudless days—in fact the 22nd was the fifth successive day of unbroken sunshine, each of which five days was followed by a clear starlight night. On the evening in question a very light E. breeze prevailed and the moon, a delicate crescent less than two and a half days old, lay low in the S.W. sky.

The regrettable thing of course in connection with the passage of meteors is that the time of their visibility cannot be foretold. Eclipses of the sun and moon are predicted to the second, every movement of the planets among the starry host is charted long before, and occultations of stars by the moon can be tabulated years in advance if necessary, but the day and hour on which a magnificent meteor will flash through our sky no man knoweth or can venture to predict. Without the slightest warning of its approach the celestial visitor is in our midst, and before we have time to realize the fact it is gone—streak and all as a rule.

The most that astronomers can do in connection with shooting stars is to say that on certain days of the year the earth, in its revolution round the sun, is likely to encounter a larger number of these little bodies than at other times, so that a careful watch on these well-known dates may result in something out of the ordinary being seen—perhaps a shower of fiery trails, or, it may be, a large meteor. Owing to the fact that these several known meteor

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streams always radiate from a definite region of the sky, they have been given the name of the Constellation from which they appear to emanate, and so we read of the Leonids from the constellation Leo, and the Perseids, from the constellation Perseus. The former are the celebrated November meteors, and the latter are seen in the month of August. It was in connection with the Leonids that astronomers predicted a brilliant shower of falling stars for November 15th, 1899—a prediction that unfortunately failed completely.

But to return to the recent Meteor. Many in Guernsey were fortunate to see the actual passage of the body across the sky and witnessed the accompanying blaze of light as the fusing mass swept past the island. Very many more, however, saw the wonderful trail or streak of light it left behind, which slowly drifted across the sky in a N.W. direction and only finally faded from view at 9 o'clock, a full hour and a-half after its formation. Speculation was rife as to what the phenomenon really was, while we know for sure that not a few good people were considerably alarmed at the very unusual appearance in the heavens. On the other hand many who would have sacrificed much for the sight of a spectacle which thousands live through a long life and never see were all too blissfully unconscious of the wonderful event taking place out-of-doors. Amongst the latter class must be numbered the writer and other members of our Society, all of whom had just cause to bemoan their ill-fortune the next morning.

The local papers, of course, commented on the phenomenon. In the *Star* of the 23rd, for instance, we read as follows: "Last evening at about 7.30 a most brilliant meteor travelled across the sky from the North-East to the South-West. From what we gather it was in sight for at least 8 seconds, and left a glow behind it which lasted for almost an hour."

And the *Evening Press* of the same date said:—"The bursting of a meteor in the sky last night was observed by a number of people in all parts of the island. To the unscientific observer the phenomenon resembled a rocket coming from the north, dashing like a streak of fire across the sky until it appeared directly overhead from the town, then changing its course to an easterly direction, and bursting with a splendid "fireworks" effect. The meteor left a wide track of vapour across the sky, which gradually dissolved. The track, however, was distinctly visible half-an-hour after the bursting of the meteor, and was faintly visible much later."

In the same issue of the *Evening Press* Mr. Colletette (who, I believe, has been in correspondence with Mr. Denning on the subject) contributed interesting particulars as to the appearance of the streak of light as it drifted slowly across the sky.

In a valuable contribution to *Nature*, of March 4th, on the subject of the meteor and streak, Mr. Denning supplied the following particulars:—

“One of the most notable meteors of recent years appeared on February 22nd at 7.30 p.m. and was observed from the southern counties of England. It was a brilliant object, at first emitting an orange light, varying in intensity, then when about half its flight had been performed it suddenly blazed out with a steely-blue lustre and lit up the foggy atmosphere as though a huge rocket had exploded. It left a short, luminous streak where the chief outburst occurred, but this streak immediately intensified and soon extended along the whole path traversed by the meteor. Becoming bent and contorted, it assumed a variety of shapes and drifted to north-west under the action of upper wind currents. Diffusing itself into a broad, faint band of irregular form, it was ultimately lost amid the Milky Way about two hours after the time of its first projection. The long duration of the streak is almost without parallel in this country, though the Madrid meteorite of 1896, February 10, left a luminous band or cosmic cloud visible in the sky for $5\frac{1}{2}$ hours!

“The meteor of February 22nd was a Leonid, but the radiant is not quite accurately defined, as the flight of the object was very similar at most of the stations, for it slightly descended from Canis Minor to the southern region of Orion. But there is no doubt that the direction was from Leo, and the point of radiation seems well indicated at $175^{\circ} + 16^{\circ}$ near B. Leonis. Just possibly the radiant may have been at $155^{\circ} + 12^{\circ}$, for I saw a fairly bright meteor on the same night passing slowly from $150^{\circ} + 40^{\circ}$ to $148^{\circ} + 49^{\circ}$, and directed from this centre 5° E. of Regulus. The height of the large meteor was from about sixty to twenty-six miles over the English Channel, about forty miles south of the coasts of Sussex, Hampshire and Dorset. The luminous course was about 135 miles in length, and the velocity 20 miles per second. Several observations indicate a greater length of path and a lower elevation (22 miles) at the end, vertically over a point 50 miles S. of Plymouth. The best estimates for the duration of flight are 5-6 secs., 6-7 secs., and 8 secs. . . . One bright bend in the

luminous material moved to N.W. at a rate of eighty miles per hour, and appears to have retained approximately the same height of thirty-two miles while it travelled from over a point N. of Alderney Island to over Dartmoor. . . .

“The phenomenon may be aptly described as *the* meteoric spectacle of a generation. As the nucleus sailed along its nearly horizontal course, its light was far from being even. It gave a series of outbursts, the brighter of which much exceeded the lustre of Venus. This comparison applies to a distance of 100 miles. The mate of a vessel in the Channel near Start Point says the light was astonishing, and broke out with startling vividness, so that anyone could have easily seen to read. . . .

“The nucleus of the meteor as it traversed its course threw off a train of fiery sparks, such as is often seen, but these quickly died away. Then slowly the durable streak or trail came out, intensifying rapidly and stretching across the sky like a silver ribbon very irregularly arranged. By one observer in the Channel it was watched for three hours, until it became faintly blended with the Milky Way in Cepheus and Cygnus. . . . At the termination of the meteor’s career it evidently suffered disruption by two violent explosions, the places of which were definitely marked by brilliant condensations at the angles of the bent streaks.”

In a further contribution on the subject of the streak, to *Nature* the following week, its length as observed at Guernsey at 7.45 o’clock is given as 65° , and Mr. Denning says: “The meteor had a long way still to travel before it could have reached the earth had it continued its course westwards. Could it have withstood disruption and dispersion, it would have fallen into the sea about forty miles south of the Scilly Isles, and this is about 120 miles W. of the point where it appears to have collapsed, and its material to have been deflected southwards.”

On March 18th yet one more contribution from Mr. Denning appeared in *Nature* as follows:—

“The observations of this unusual object [the Meteor of February 22] are exceedingly numerous, but some of them are discordant, and occasion doubts as to the exact path which the meteor traversed in our atmosphere. The radiant point being inaccurately defined the direction and height are also to some extent uncertain. Apart from the determination already mentioned in *Nature*, I have worked out two others, which do not differ very materially except in the elevation at the end. Further descriptions from

France of a trustworthy and precise nature will enable the real path over the English Channel to be more certainly ascertained.

Radiant point	=	177° + 13°	...	190° + 20°
Height at first		50 miles	...	56 miles.
Height at end		26 "	...	41 "
Length of path		155 "	...	155 "
Velocity per second...		25 "	...	25 "

“In the event of the position at 190° + 20° being the correct one, the meteor was really a Comæ Berencid, and several fairly good observations from France and the Channel Islands indicate that it is entitled to some degree of confidence.”

To all this official and interesting information from the pen of so great an authority on the subject of meteors as Mr. Denning, little can be added, but I should just like to say in conclusion that the meteor's path in mid-air having been 40 miles south of the coasts of Sussex, Hampshire and Dorset, that is directly over the English Channel, its distance from Guernsey must have been roughly the same, or perhaps a little less. But however this may be, the actual flight of the body, as seen from here, must have been north of the island and very high in the sky. And its passage from E. to W. across our field of view must have been an imposing spectacle to those fortunate Guernsey people who happened to be out of doors at the moment and in a situation to observe the unusual phenomenon to advantage, for undoubtedly both the meteor and the streak were quite as well seen from this island as from anywhere else.

NOTES ON MOSSES, HEPATICÆ AND LICHENS FROM THE CHANNEL ISLANDS.

BY P. G. M. RHODES, B.A.

THE following list comprises some of the more interesting of the mosses, hepaticæ and lichens collected by me in the Channel Islands in 1907-1909, during the months of March and April of each year. Besides these I found many more or less common species in Guernsey and Sark, but as localities for these are specified in Mr. Marquand's *Flora of Guernsey and the Lesser Channel Islands* there is no need to include them in the present list.

As regards Jersey I do not know what has already been recorded, so I have noted some of the common species. A few are apparently new records for the Channel Islands. In the case of the mosses, vouchers of such have been submitted to Mr. Ingham. Nearly all the lichens have been verified by the Rev. H. P. Reader, O.P.

No very important discoveries are reported here ; but it may be mentioned that *Grimmia subsquarrosa* appears to be another instance of a plant which, while rare in Great Britain, is well distributed and locally abundant in the Channel Islands. It is also curious that among the lichens of the north coast of Jersey there are several (e.g., *Lecidea geminata*) which seem to occur chiefly among the Welsh and Scotch mountains.

MOSSES.

- Polytrichum aloides**, Hedw. Jersey, St. Martin's.
Campylopus pyriformis, Brid. Jersey, St. Martin's.
C. introflexus, Brid. Guernsey, Le Gouffre. Jersey, cliffs, Bouley Bay.
Dicranum scoparium, Hedw. Sark, between Creux Harbour and Dixcart. Jersey, cliffs, Rozel.
Fissidens viridulus, Wahl. Guernsey, Fermain Valley.
F. bryoides, Hedw. Jersey, Rozel.
F. rivularis, Spr. Guernsey, still near Le Gouffre, as recorded in the *Flora of Guernsey*.

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- Grimmia subsquarrosa**, *Wils.* Guernsey, Petit Bot. Jersey, La Coupe. Alderney, La Tchue. There is also a specimen in the Cambridge University Herbarium from near St. Aubin's, Jersey. All the above have been verified by Mr. H. N. Dixon, and belong to a form of *G. subsquarrosa* which slightly approaches *G. azovica*. I believe this plant to be frequent on the cliffs, but has been overlooked as *G. trichophylla*.
- Hedwigia ciliata**, *Ehrh.* Jersey, Bouley Bay.
- Pottia viridula**, *Mitt.* Guernsey, bank by road, Varclin, St. Martin's.
- Tortula ruraliformis**, *Dixon.* Guernsey, Cobo. Alderney, Longy Common.
- Weisia verticillata**, *Brid.* Guernsey, under Fort George.
- Trichostomum mutabile**, *Bruch.* Sark,
- T. flavo-virens**, *Bruch.* Alderney, La Tchue.
- Philonotis fontana**, *Brid.* Jersey, Bouley Bay.
- Bartramia stricta**, *Brid.* Alderney, fruiting sparingly on the cliffs, La Tchue. This very rare British moss was discovered there in 1900 by Mr. Marquand.
- Bryum pseudotriquetrum**, *Schwaeg.* Jersey, Bouley Bay.
- B. argenteum**, *L.* var. *lanatum*, *B. & S.* Sark, Point Chateau. This variety is new to Channel Islands.
- Mnium hornum**, *L.* Jersey, Rozel.
- Pterygophyllum lucens**, *Brid.* Jersey, Douet de la Mere, Rozel; Bouley Bay.
- Thuidium tamariscinum**, *B. & S.* Sark, Dixcart.
- Brachythecium velutinum**, *B. & S.* Guernsey, roadside St. Sampson's. New to Channel Islands.
- B. illecebrum**, *De Not.* Alderney, La Tchue.
- Eurhynchium prælongum**, *Hobbk.* Interior of Sark.
- E. rusciforme**, *Milde.* Approaching var. *inundatum*, *Brid.* Guernsey, cliffs. The var. *atlanticum* recorded by Mr. Marquand is probably var. *inundatum*, which has been confused with it by British bryologists.
- E. speciosum**, *Schp.* Guernsey, waterfall, Le Bigard.
- Plagiothecium silvaticum**, *B. & S.* Guernsey, Fermain Valley.
- Hypnum cupressiforme**, *L.*, var. *resupinatum*, *Schp.*, Sark. Var. *elatum*, *B. & S.*, Guernsey, Le Gouffre.

HEPATICÆ.

- Targionia hypophylla**, *L.* Jersey, wall near Rozel Mill.
- Conocephalus conicus**, *Dum.* Jersey, Douet de la Mer.
- Pellia epiphylla**, *Dum.* Jersey, Bouley Bay.
- Fossombronina angulosa**, *Raddi.* Sark, near Point Chateau.
- F. sp. (sterile).** Guernsey, sands at Vazon Bay. Probably this is *F. pusilla*.
- Lophocolea spicata**, *Tayl.* Guernsey, still at Les Messuriers, Forest, as recorded in the *Flora of Guernsey*.
- Kantia Trichomanis**, *Gray.* Jersey, St. Martin's.
- Diplophyllum albicans**, *Dum.* Jersey, Rozel Manor. Sark, Dixcart Valley.
- Scapania compacta**, *Dum.* Jersey, banks, Rozel.
- Lejeunia cavifolia**, *Lb.* Sark, interior.
- Anthoceros lævis**, *Steph.* Guernsey, Saints' Bay valley.

LICHENS.

- Collema melænum*, *Ach.* Guernsey, sea wall, Fermain Bay.
Leptogium palmatum, *Mont.* Guernsey, Moulin Huet valley.
Cladonia endiviæfolia, *Fr.* Jersey, banks by sea, Rozel.
C. aleicornis, *Flörke.* Jersey, Bouley Bay.
C. cervicornis, *Schaer.* Guernsey, Grandes Rocques.
C. macilenta, *Hoffm.* Jersey, Roman wall, Rozel.
Ramalina scopulorum, f. *incrassata*, *Nyl.* Guernsey.
R. breviscula, *Nyl.*, f. *gracilescens*, *Cromb.* Guernsey, Hommet Benest.
Roccella fuciformis, *DC.* Guernsey, Hommet Benest, exceptionally large.
 Jersey, Tour de Rozel.
R. phycopsis, *Ach.* Guernsey, Grandes Rocques, &c.
Parmelia conspersa, *Ach.* Guernsey, Fermain Point.
P. omphalodes, *Ach.* Jersey, Rozel.
P. Delisei, *Nyl.* Jersey, cliffs, Rozel.
P. proluxa, *Nyl.* Guernsey, under Doyle's Pillar and at Grandes Rocques.
Peltigera canina, *Hoffm.* Jersey, common on Rozel cliffs.
P. polydactyla, *Hoffm.* Jersey, shady banks, St. Martin's.
Physcia flavicans, *DC.* Guernsey, La Moye. Jersey, cliffs at Rozel, scarce.
P. erosa, *Leight.* Jersey, on conglomerate rocks by road to Rozel Bay.
Leproloma lanuginosum, *Nyl.* Guernsey, Grandes Rocques, with hypothallus remarkably developed.
Lecanora saxicola, *Ach.* Jersey, La Coupe, &c.
L. lobulata, *Somm.* Guernsey, Hommet Benest and La Moye.
L. erythrella, *Nyl.* Sark, Point Chateau, well developed.
L. atrocinerea, *Nyl.* Jersey, near Tour de Rozel.
L. subfusca, var. *campestris*, *Nyl.* Guernsey, Vale Castle. Spores smaller than any known measurements. See *Lich. Exch. Cl. Rep. 1909.*
L. gangaleoides, *Nyl.* Jersey, Tour de Rozel.
L. badia, *Ach.* Jersey, Tour de Rozel.
L. cinerea, *Somm.* Guernsey, Le Jaonnet.
Pertusaria ceuthocarpa, *T. & B.* Guernsey, Moulin Huet.
P. concreta, *Nyl.*, f. *Westringii*, *Nyl.* Jersey, rocks near Tour de Rozel.
P. pustulata, *Nyl.* Jersey, Rozel Manor.
Lecidea albocærulescens, *Wulf.* Jersey, Rozel.
L. atroalba, *Ach.* Jersey, La Coupe.
L. atroalbella, *Nyl.* Jersey, Bouley Bay.
L. confluens, *Web.* Jersey, Rozel.
L. contigua, *Fr.* Jersey, Rozel. Also a curiously acervate form on stone in hedge by Le Câtel, Rozel. See remarks by Miss A. Lorrain Smith in *Lich. Ex. Cl. Rep. 1909.*
L. cupularis, *Ehrh.* Jersey, Tour de Rozel.
L. geminata, *Flot.* Jersey, Rozel Fort.
L. latypea, *Ach.* Guernsey, Hommet Benest.
L. myriocarpa, *DC.* Jersey, Roman wall, Rozel. A curious terricolous form.
L. Salweii, *Borr.* Guernsey, sandy bank above Petit Port.
L. sanguineo-atra, *Ach.* Jersey, sandy bank on Roman wall, Rozel.

- Opegrapha atra**, f. *parallela*, *Leight.* Jersey, St. Martin's.
Arthonia varians, *Dav.* Guernsey, Icart.
Graphis sophistica, *Nyl.* Jersey, St. Martin's.
Endocarpon miniatum, *Ach.* Guernsey, shore at Bec du Nez.
Verrucaria halophila, *Nyl.* Guernsey, Moulin Huet.
V. æthiobola, *Whlbb.* Guernsey, Petit Port. Jersey, Le Câtel, Rozel.
V. mauroides, *Schaer.* Jersey, Rozel Fort.
V. nitida, *Weig.* Sark, near Creux. Jersey, St. Martin's.

SOME NOTES ON THE MARINE ZOOLOGY OF ALDERNEY.

BY MR. ERIC W. SHARP.

ALTHOUGH the land fauna of this island is well known, thanks to the energetic work of the members of this Society, the Marine Fauna has been practically untouched, with the exception of the shells.

Low spring tides happened to coincide with the Easter vacation, so I determined to spend a few days in Alderney, and do some shore hunting. The coast gives one the impression of being a good hunting ground. It has rocky capes separated by stretches of sand and zosteræ; the rocks are broken up into gullies and caves such as marine creatures love, and the tides run with such force as to ensure the perpetual renewal of the water. My hopes were by no means groundless, in fact the coast turned out to be far more productive than I anticipated. The richness of these shores may be gauged from the statement that I obtained as many as 120 species in the three days spent there. Quantity is not everything, but in this case there was quality as well; for many of our rarest forms were found, besides one species new to the Sarnian area, as far as I know.

In the following pages will be found notes on the most interesting of my captures, but as they are chiefly rarities, I have refrained from giving the exact localities where they were found.

In conclusion I would like to thank the authorities of the Marine Biological Station of Plymouth for kindly identifying specimens submitted to them.

PORIFERA.

Although the structure of the coast seems eminently suited to the needs of the Sponges, their numbers, taken all around, were disappointing. If not as numerous as in Guernsey, however, they were there in tolerable plenty and

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one or two good species were found. *Dercitus niger*, a black india-rubber like sponge, occurred once—a prize. *Tethya lynceurium* was quite common; much more so than in Guernsey. It resembles a Tangerine orange. *Leuconia nivea* and *Dysidea fragilis* also occurred, while *Dictyocylindrus* was quite plentiful.

CŒLEENTERATA.

Alderney seems a happy hunting ground for Anemones. No less than fifteen species were found, including several of great rarity. Of the commoner species the Dahlia (*Tealia crassicornis*) seemed more plentiful than with us, while the Daisy (*Sagartia bellis*), so common here, was comparatively rare in Alderney. The Opelet (*Anthea cereus*) is finer than in Guernsey, many specimens over six inches across being met with. Turning to rarities, the first place must be given to the scarlet and gold Cup Coral of Gosse (*Balanophyllia regia*), an exquisite little gem with scarlet disc and golden orange tentacles. These latter have no terminal knobs. The only previous record is in Ansted's "Channel Islands," while Gosse in his "Sea Anemones" records it only for Devon. It is quite small, about one-third of an inch each way, and lives in colonies on the sides of gullies at extreme low tide. Our other Coral (*Caryophyllia Smithii*) was quite common, and many very fine specimens were seen.

Near the rocks on which the above were found was a patch of sand sparsely covered with *Zostera*. This proved a very good hunting ground, especially on the turn of the tide. Here three of our rarest anemones were found. There were eighteen specimens in a radius of six feet. These three species were *Peachia undata*, *P. triphylla*, and *Cerianthus Lloydii*. In that spot there were twelve specimens of *P. undata*, which has now been found in Guernsey, Alderney, and Herm. One specimen of *P. triphylla* was obtained; it was formerly considered peculiar to Guernsey.

Five specimens of *C. Lloydii* were seen. This is a long worm-like form which builds a leathery tube to live in.

Two other zoophytes are important and worthy of note. One is a purple Lucernarian, identified as *L. Campanulata*. The only previous record is in Ansted. It differs from our ordinary species *Haliclystes octoradiata*, in that it has no capsules between the tufts of tentacles. It was growing on the tip of a frond of the purple seaweed *Porphyra*, as was its companion. *Antennularia antennina*, a tall compound zoophyte, is new to the Alderney list.

ECHINODERMS.

These, with the exception of a Sea Cucumber and a Sand Star, were not numerous. *Cucumaria Pentactes*, with a white skin and black tentacles, was quite common in the crevices of the rocks. It is about five inches long. *Ophiura albida*, a small sand-loving Brittle Star, was common at low tide, though I have not seen it in Guernsey in similar places. *Asterina gibbosa*, so common with us, was very rare in Alderney, only two specimens being met with. A *Synapta*, presumably *S. inhærens*, occurred in the sand.

MOLLUSCA.

Univalves, bivalves, and nudibranchs are all as much in evidence in Alderney as they are in Guernsey. Chief interest centres around a Nudibranch, which is new to the Sarnian list. This is a species of *Eolis*, a red tentacled animal about an inch long, which has not yet been satisfactorily identified. *Elysia viridis*, living on *Codium* as usual, was rare. It has been very rare in Guernsey during 1908 and 1909, while in 1907 it swarmed everywhere.

Very fine specimens of *Doris tuberculata* were found, besides eggs of several other species of sea slugs.

An exceptionally fine specimen of the beautiful golden *Triopa claviger* was found. *Chiton ruber*, a reddish mail shell or multivalve, is new to the Alderney list; while *Natica Alderi*, *Anomia patelliformis*, and *Pecten Maximus* are not recorded living, although dead shells have been found. *P. varius*, extremely common with us, was represented by a single specimen.

The Crustacea found, with the exception of *Perimela denticulata*, were very ordinary; while the Worms, Ascidians and Fishes, were all of the common types, and need not be mentioned in these notes. I append a list of additions to the recorded fauna of Alderney.

CŒLEENTERATA.

Sagartia bellis, v. tyriensis.

S. venusta. A few colonies.

S. nivea. Fairly frequent.

S. sphyrodeta. Fairly frequent.

Adamsia palliata. One fine specimen.

Anthea cereus.

v. **Smaragdina.** Common.

v. **rustica.** Not common.

Actinia mesembryanthemum.

v. **hepatica.** Common.

- Actinia olivacea.** Common.
 v. umbrina. Common.
Bunodes gemmacea. Abundant.
Tealia crassicornis. Very common.
Peachia undata. Several.
P. triphylla. One specimen.
Cerianthus lloydii. Several.
Corynactis viridis.
 v. rhodoprasina. Common.
 v. smaragdina. Rare.
Caryophyllia Smithii. Common.
Balanophyllia regia. Fairly frequent.
Aleyonium digitatum. One specimen.
Lucernaria campanulata. Two specimens.
Antennularia antennina. Two specimens.
Sertularia abietina. Common.

ECHINODERMATA.

- Antedon rosaceus.** Occasionally.
Ophiura albida. Common.
Ophiotria bellis. Not common.
Amphiura elegans. Common.
Uraster rubens. One specimen.
Asterina gibbosa. Common.
Echinus lividus. One specimen.
Echinocardium cordatum. One specimen, dead.
Cucumaria pentactes. Common.
Synapta ? inhærens. Rare.

CRUSTACEA.

- Carcinus mænas.** Common.
Cancer pagurus. Common.
Portunus puber. Common.
Perimela denticulata. Two specimens.
Porcellana platycheles. Common.
P. longicornis. Common.
Galathea squamifera. Common.
Pagurus bernhardus. Common.
P. prideuxii. One specimen.
P. euanensis. Six specimens.
Inachus ?. One specimen.
Palæmon serratus. Not common.
P. Squilla. Not common.
Hippolyte cranchii. One specimen.
H. varians. Common.
Athanas nitescens. One specimen.

MOLLUSCA.

- Chiton ruber.** One specimen.
Doris tuberculata. Very fine.
D. pilosa. Egg clusters common.
Eolis papillosa. Egg clusters common.
Triopa claviger. Fairly common.
Elysia viridis. One specimen.
Aplysia punctata. Very common.
Pleurobranchus plumula. Two specimens.
Hermæa dendritica. One specimen found on *Codium tomentosum* at Cobo in 1908. It is a small greenish sea slug, and is new to Guernsey.

THE PEZOMACHI (*Ichneumonidæ*) OF GUERNSEY.

BY W. A. LUFF, F.E.S.

THE insects comprising the genus *Pezomachus* are at once distinguished by the entire absence of wings in most of the species, and their general ant-like appearance. Up to the appearance of the following list two or three species only were recorded for Guernsey. Mr. E. D. Marquand, whilst collecting other insects this summer, captured all the specimens he could find in different parts of the island, with the result that we have now a fine list of twenty-one species. The *Pezomachi* are all very small *Ichneumons* that pass the larval stage in the bodies of spiders and the larvæ of moths and other insects. When in the perfect state, they are very nimble and active in their movements, and it requires a sharp eye and quick hand to capture them. Up to the present they have been let severely alone by most collectors, on account of the difficulty in getting them satisfactorily named. Mr. Claude Morley has however overhauled them, and has described all the species found in Great Britain, in the second volume of his valuable work on British *Ichneumons*. Mr. Morley kindly undertook to name the specimens taken by Mr. Marquand, so that the accuracy of the present list is assured. This is a valuable addition to our local insect fauna, especially as it represents a section not often worked by collectors. I have added the dates when the specimens were captured, as well as the localities.

- Pezomachus kiesenwetteri**, Först. Seven specimens taken at Moulin Huet on July 29th; Icart, 11th and 16th June, 31st July; Saints' Bay, June 8th, and Petit Bo, 26th August.
- P. zonatus**, Först. This species has several times been bred from the nests of a spider (*Agroeca brunnea*, Bl.). Two specimens were taken, one on the 7th September, and one on July 31st.
- P. rufipes**, Först. One at Saints' Bay, June 8th. One at Jerbourg, 14th June, and one at Bec du Nez, July 5th.
- P. cautus**, Först. This is a rare species, four specimens only have been mentioned as taken in Great Britain. One was captured on 16th June at Icart. One at Saints' Bay on 21st June. Two were also captured in Sark.

- P. æmulus**, Först. Two were captured at Petit Bo on May 18th. Brischke has bred this parasite from a comparatively large Noctua moth, *Cucullia argentea*.
- P. acarorum**, Linn. One specimen taken at Saints' Bay on the 8th of June.
- P. nigrītus**, Först. The male only of this species is winged. One specimen of the female taken at Icart Point on July 31st.
- P. micrurus**, Först. Has been bred from the egg bag of a spider *Ocyale (Pisaura) mirabilis*. One taken at Bec du Nez on 11th June.
- P. analis**, Först. Both sexes of this species have been bred from the Burnet Moth, *Zygæna filipendulæ*. It is recorded in the *Transactions* of this Society for 1904 as taken in Herm.
- P. attentus**, Först. One taken at Grande Mare, Vazon, on June 18th.
- P. anthracinus**, Först. The male of this species is winged. One female taken at Icart on July 31st. This specimen, Mr. Morley says, is unusually large.
- P. modestus**, Först. Mr. Morley says that this species is very abundant in Great Britain, in spring and autumn. Four specimens were taken at Jerbourg, 14th June; one at Fermain Cliffs, 27th August, and two at Grande Mare, Vazon, on 28th August.
- P. agilis**, Grav. Several specimens taken in 1902 in Guernsey, as mentioned in the *Transactions* for 1903.
- P. carnifex**, Först. One taken at Bez du Nez on June 11th.
- P. nigricornis**, Först. Not common; one taken in 1903, see *Transactions* for that year.
- P. corruptor**, Först. Two at Petit Bo on August 26th. One at Saints' Bay, August 2nd.
- P. instabilis**, Först. A very common species in Great Britain. One taken at Petit Bo, 26th August. One, a very large specimen, at Moulin Huet Bay on June 10th.
- P. fasciatus**, Fab. Three specimens taken at Petit Bo on August 26th; one at Grande Mare, Vazon, on August 28th.
- P. palpator**, Grav. This is one of the largest species of the genus. One specimen taken at the Corbière on May 7th.
- P. linearis**, Först. One specimen taken at Saints' Bay on 4th May.
- P. costatus**, Bridg. Captured last year on May 1st at Jerbourg and recorded in the *Transactions*.

SOME IMPORTANT EVENTS IN GUERNSEY HISTORY.*

BY LIEUT.-COLONEL T. W. M. DE GUÉRIN.

THE INVASION OF 1295.

A trivial brawl between some English and Norman seamen at Bayonne, resulting in the death of one of the latter, is said to have been the cause of the war between England and France at the end of the thirteenth century. The story says that in revenge for their comrade's death, the Normans attacked an English ship and hanged the English sailors and dogs from the yard-arms, "and so," says Hemingburgh, "they sailed over the sea, making no difference between a dog and an Englishman." Indignant at this outrage, the English gathered together their ships, while the French did the same, and on the 15th May, 1293, a pitched battle took place off St. Mahé, in Brittany,† resulting in a complete victory for the English, who returned to Portsmouth with much booty. Edward I. strove to keep peace, but Philip le Bel took up his subjects' cause and summoned Edward to answer in January, 1294, before the Parliament of Paris, for the misdeeds of his mariners.‡ After long debates it was arranged that Edward should make a formal surrender of Gascony to the French king, it being proposed that he should marry Philip's sister, Margaret, and that the duchy would be restored to him and settled on the children of the marriage. Philip having obtained possession of the chief strongholds of the duchy repudiated the bargain and in a Parliament held in June, 1294, Edward resolved on war. Our islands were in great danger; the Governor, Otho de Grandison, was in the Holy Land on a pilgrimage, and his lieutenant in the Isles was the Prior of Wenlock, who not being deemed capable of their

* Lecture delivered in the Ladies' College on March 18th, 1909.

† Guillaume Guiart places this battle near Guernsey.

"Vers les illes de Guernesie,
Que mer profonde ataint et lie,
En l'un costé de Normendie."

(Dupont. *Contentin et ses Iles*, Vol. II., p. 185. *Branches des roy lig*, edit. Buchon, t. II., p. 146.)

‡ *Political Hist. of England*, Vol. II., p. 187-8.

defence was superseded by the king, and Henry de Cobham was appointed Governor in June, 1294.* He fell ill a few days after his appointment, but the danger was too imminent to permit of delay, so he was replaced by Nicholas de Chesney, July 10, 1294,† who held the office until de Cobham was well enough to take up his duties. The first few months after his arrival in the islands passed by without incident, but in the spring of 1295 the French fleet, probably that under the command of John de Harcourt and Mahé de Montmorency, which burnt Dover later in the summer, descended on the islands, and they experienced one of the most terrible invasions on record, the horrors of which left an indelible mark on the memories of the inhabitants, and it is referred to by them many years later as the time "when . . . the islands were burnt and destroyed and more than 1,500 men were killed."‡ It was a raid of extermination and destruction. The churches were sacked and desecrated, the holy vessels and vestments carried off or destroyed, the images torn down from the altars and burnt; even the Host itself thrown down on the ground and spat upon. Women and girls were torn from the sanctuary, the town and most of the houses in the country burnt, the newly built pier partly destroyed and over fifteen hundred men and women killed. The castles were not taken, and many persons sought safety in them with their goods. It took several years for our island to recover from the damage inflicted on it by the enemy. In 1304, we find the churches were still in a state of dilapidation, and the Abbot of Marmoutier being sued to contribute his share of the expense of their restoration.§ Even in the year following the town was still partly in ruins, for on November 1st, 1305, the king authorised a toll on shipping for the purpose of repairing the pier and rebuilding the town.||

THE FIGHT FOR OUR PRIVILEGES.

The long fight for our priveleges which lasted for over thirty years, from 1309 to 1341, is one of the most important and interesting episodes of our history. It is also one on which we Channel Islanders pride ourselves for in the end we won the day. To understand the question we must first glance at the condition of the island at the end of the

* Cal. Patent Rolls, Ed. I., p. 75.

† Cal. Patent Rolls, Ed. I., p. 80.

‡ *Ancient Petitions*, Pub. Société Jersiaise, p. 50.

§ Assize Roll, 1304, Record Office.

|| Cal. Patent Rolls, 1302-1307, p. 392.

thirteenth century, that in part led to the dispute. In 1275 Edward I. had appointed Otho de Grandison as Governor of the Isles, and two years later gave him for life the whole of the royal revenue from them for his own use. Otho de Grandison was one of the most trusted servants of Edward I., in whose service he had risen from the position of esquire to the king, to posts of the highest trust. In 1278 he was Seneschal of Gascony, secretary to the king, 1280, captain of his forces in Wales, 1281, etc., but his chief employment was as ambassador. There was hardly a single embassy sent by Edward I. during the last twenty years of his reign in which Otho did not take part. We find him sent to the Pope and the Emperor in 1282, to the king of France, 1286, to the king of Armenia, 1292, to the Pope in 1298, and again to the king of France to treat for peace in 1300—1303. In 1303 he was one of the commissioners sent to Gascony to receive seisin of the lands restored by the king of France, and also to settle the affairs of the province after the war. In 1299 he was summoned to Parliament as baron.* It may well be imagined that he was too occupied with the affairs of State to pay much attention to our unfortunate islands, which were exploited by his lieutenants for the purpose of raising the largest possible revenue for their master, and for their own enrichment.

For the first twenty years of Otho's rule his lieutenants were chiefly local men, and we hear few complaints about them. However, about 1292, the exactions of Guillaume de Saint Remy, Bailiff of Guernsey, were the subject of grave complaint to the king, who sent over a commissioner, Thomas de Sandwich,† to investigate them. De Saint Remy finding that the commissioner sided with the complainants on all points, and fearing for his personal safety, fled to the sanctuary of the Church, and abjured the island.‡ He fled to England, and laid his case before the king, who pardoned him in 1294.§ Guillaume de Saint Remy returned and obtained restitution of his lands, but was killed shortly after on the invasion of the island by the French in 1295. In 1299 we hear the first mutterings of the storm over our privileges. Previous to the appointment of the justices for the usual tri-annual assizes the king had ordered the people of Guernsey to commit their customs to writing. This, however, was not done, and the justices ordered them to comply with

* Roles Gascons. Charles Brémont, pp. xviii-xxix.

† Havet. *Cours Royale des Iles Normandes*, p. 126.

‡ *Lettres Closes*, p. 54, pub. Société Jersiaise.

§ *Lettres Closes*, p. 56, Société Jersiaise.

the demand within a fortnight, from the 16th to the 30th October, 1299.

The appointment of English justices for these assizes was looked upon as a novelty and with disfavour by the people. One John du Vivier boldly refused to recognise them as rightly appointed, and was fined £30 tournois for his temerity.* In a sense it was a novelty, as for many years previous the custom had crept in of appointing as justices for the assizes, the Bailiffs of the islands or prominent local men.

There is little to detain us on the assizes of 1299 or those of 1304. The question of our privileges was raised, but nothing further was done.† In 1309 the fight began, the justice, John Fressingfield, called upon the people to show by what right they claimed their privileges. They replied that they and their ancestors had enjoyed them from time immemorial, but this the king's attorney denied and demanded proof. The justices adjourned the matter for decision before the King's Bench at Westminster, and the latter postponed the case from term to term until 1318, or even later. In the meanwhile affairs in the islands were rapidly becoming worse. The Bailiff, Massy de la Cour, refused, by order of the Governor, to take oath to the jurats to maintain our privileges on his appointment. The jurats refused to obey him and appealed to the king.‡ The king sided with the Governor and ordered the jurats to obey Otho de Grandison or appear before the king and his Council.§ To these grievances was added the more pressingly felt one, the rapacity of the shoal of foreign adventurers with whom Otho de Grandison had filled every lucrative post in the island. These preyed upon the people by illegal fines and exactions. They imposed fines on their own authority without consulting the jurats, imprisoned people in the castle without trial on all sorts of pretences, refusing to release them except on heavy payments, and committed various other oppressions. Finally, in 1320, at the urgent prayer of the people, the king appointed new justices to hold the assizes, William de Bourne, Nicholas de Chesney, and John de Carteret. These gave judgment in favour of the islanders on every point concerning their privileges. Also many of the seigneurs of the island, who had been deprived of their liberties by Otho's Bailiffs, obtained judgment in their favour, and the Governor's officers were ordered to restore all that had been received from the

* Assize Roll, No. 1157. 27, Edw. I., Record Office.

† Havet. *Les Cours Royales des Iles Normandes*, p. 10.

‡ *Ancient Petitions*, p. 26. No. 5685.

§ Cal. Close Rolls, March 8, 1314.

sequestrated liberties. Further, these officers were heavily fined for their misdeeds, and the most notorious of them, Gaultier de la Salle, was, immediately after the assizes, tried for the murder of Ranulph Gautier, who he and his accomplices had tortured to death in Castle Cornet, found guilty and hanged.

The triumph of the islanders was complete. Unfortunately they were not content, they wanted more, nothing less than the indictment of Otho de Grandison and his dismissal from the governorship of the Isles. The justices seem to have demurred, and the question was submitted to Parliament. Thomas d'Estefield, sent as attorney of the people of Guernsey to Parliament, was set upon, beaten and illtreated by the followers of Otho, in the streets of London, and dared not proceed; so the islanders petitioned the king, praying for remedy, and requesting that "Sir Otho may be removed from the said islands as one who has forfeited all his estates for the wrongs of which he is attainted."* Otho de Grandison, on his side, represented to the King that the royal revenue of the islands was seriously affected by the decisions of the justices, who had exceeded their mandate to the injury of the crown, and according to the islanders' version he paid large sums of money to obtain his ends.† The king ordered the suspension of all the judgments of these assizes on the plea that the "commissioners had exceeded the bounds of their commission to the king's disherison and prejudice of the said Otto.‡ He also ordered that all lands, tenements, liberties and rents of any of the islanders that had been delivered to them in accordance with these judgments, should be again taken into the king's hands. There was a general refusal to obey, and we read of force having been used against the Governor's officers who attempted to execute the order.§ On the 29th July, 1323,¶ the king appointed Sir Henry Spigurnel, Henry de Cliff, John de Ifeld and William de Denum, as justices, to examine and correct the errors in the judgments of the previous assizes. They reversed all the judgments of their predecessors, but on the question of our privileges they came to no definite decision, and left the matter in abeyance. Again there was refusal on the part of the islanders to give up their lands in accordance with these judgments, and we hear of Otho de Grandison, who had come

* *Ancient Petitions*, p. 31-32. No. 12834.

† *Ancient Petitions*, p. 61. No. 2648.

‡ Calendar of Patent Rolls, p. 9. 15 Edw. II., Part I., m. 22. 30 July, 1321.

§ Cal. Pat. Rolls, 16 Edw. II., p. 235, Feb. 2, 1323.

¶ Cal. Pat. Rolls, p. 437, 17 Edw. II., p. 1, m. 19.

over to look after his rebellious subjects, accompanied by his lieutenant, Gerard d'Oroms, superintending in person the reaping and carrying away of Thomas d'Estefeld's corn at "La Ville au Roi,"* which evidently was one of the lands in dispute.

The question of our privileges remained in abeyance until 1331, when Edward III. appointed Robert de Scardeburgh, Robert de Norton and others as justices to hold fresh assizes. The islanders were again called upon to declare by what warrant they claimed their privileges, but their patience was getting exhausted, and we hear of organised opposition. A meeting was held in Jersey at the Priory of l'Islet early in July, previous to the arrival of the justices. There Laurent du Gaillard, one of the Governors, Peter de Garis and Ranulph Le Gay, ex-Bailiffs, the Priors of the Vale, and of St. Clement's, Jersey, and many of the principal people of the islands, including Sir William de Chesney, Matthew de Sausmarez, Simon and Philip de St. Martin, &c., bound themselves on oath to demand the recognition of our privileges. They presented themselves before the justices at Guernsey on the 27th July, accompanied by a large crowd of people, and formally protested against the pretensions of the crown to meddle in their affairs, maintaining that "their customs belonged to them alone, that the king had no right to modify them or impose new ones, and that they were ready to defend them with their lives." The justices refused to listen to them, and there was a great tumult, the crowd applauding the malcontents and shouting "oui, oui, oui," to the injury of the lord the king, the terror of the people, and the peril of the lives of the justices." When the tumult was appeased, the justices ordered the Vicomte to cite before them, Laurent du Gaillard and John le Viner, probably the two leaders. They appealed to judgment by a jury of the country, who unanimously acquitted them. The justices then adjourned the proceedings against the other covenanters to Jersey, where only one, Philip de St. Martin, appeared and was fined twenty shillings. They then ordered the arrest of the defaulters, but unfortunately we do not know what was the ultimate termination of the conflict.† This scene was certainly one of the most dramatic in our annals. It showed the authorities that the patience of the islanders was at an end, and possibly had a considerable influence in leading to the

* *Ancient Petitions*, p. 33, No. 13171. Thomas d'Estefeld came to the island in the service of Sir Nicholas de Chesney, and married Alice, widow of Matthew de Sausmarez, senior, sister and co-heiress of the Bailiff, William de St. Remy.

† Dupont Hist. Cotentin et de ses Iles, t. II., pp. 245-247. Second report of the commissioners (1846, p. 310.)

subsequent abandonment of all proceedings concerning our liberties. This incident did not prevent the justices from coming to a decision on the principal point of their commission. The communities of Guernsey and Jersey were successively called upon to justify their pretensions regarding their privileges. At Guernsey, the justices adjourned the question to Jersey for decision. The Guernseymen pleaded that a cause commenced in their island could not be adjourned out of it, and refused to appear. The justices declared their customs to be provisionally forfeited by default, and adjourned the question to the King's Bench for settlement, where they had also referred those of Jersey. After many adjournments of the question by the King's Bench, the people of the Isles * petitioned the king in Parliament in 1333, setting forth their grievances, and appending a list of their cherished privileges. This petition is to be found in the Record Office, *Coram Rege Rolls*, Michaelmas, 1333.† In it the islanders set forth their claim to retain the customs of Normandy as well as certain other privileges which differed from them. They assured the king of their unswerving loyalty in spite of the many perils that surrounded them, for they were in the march of all nations, and never knew when they might be raided and burnt. They ended by requesting that new justices might be sent to the Isles to investigate the question. The king ordered all proceedings against them to be suspended, and referred the matter to his Council.

It would take too long to go into the points on which we differed from the customs of Normandy, that formed the chief ground of dispute during these twenty-four years. They comprised the right of electing our jurats, the powers of the Royal Court and many other customs very similar to those of the Cinque Ports or the Gascon communes. The answer of the islanders, when asked for proof of their claims, was invariably they had enjoyed them from time immemorial.‡ A very loose expression, one which the justices were well acquainted with, for it was the plea set up by the majority of the defendants at each "*Placita de quo*

* *Havet Les Cours Royales*, pp. 13-14.

† *Havet Les Cours Royales*, p. 228.

‡ In the proceedings in *Coram Rege* against Drogo de Barentin concerning his rights to the manor of Rozel, Jersey, it is evident that at the assizes of 1323 he had pleaded that he held the manor and its liberties from time immemorial, but when the case was adjourned before the King's Bench at Westminster, he produced the charter of Henry III., dated 16 June, 1247, granting them to his grandfather, and explained his former plea by stating that "time immemorial meant forty years according to the customs of the Isles." (*a*)

(*a*) *Placitorum in Domo Capitulari Westmonasteriensi Asservatorum Abreviatorium*.

Placita coram Rege apud Westmin. ; R. Ed. fil Ed. anno 17 ; Term Pasche.

Waranto." The Archbishop of York, for instance, when called upon to show by what warrant he claimed high justice over his tenants, replied "from time immemorial," not one scrap of parchment did he deign to produce.* It meant simply that the people did not remember a different state of things. We know from the Inquisition of 1248 that the right of electing our jurats was granted to us by King John, but their powers as set forth in that document were very different from the almost sovereign jurisdiction claimed by them in 1309 and 1331. Of the process of the development we have no record. Mr. Marett Godfrey was inclined to think that the growth of the power of the jurats took place during the period when the assizes were held by local justices.† How far this alteration received royal sanction in the 13th century we cannot at present tell.

The question of our liberties was finally closed by their confirmation in 1341 by Edward III. ; but before examining the reasons for this act, it is necessary to glance at the invasions of the Isles at the outbreak of the hundred years' war, and at the political situation in our neighbourhood, and in our Isles, which as we shall see were the causes leading up to it.

The causes that led up to the hundred years' war with France are too well known to everyone to need much explanation. On the death of Charles IV., in 1328, without male heirs, the crown of France passed to his cousin, Philip of Valois. Queen Isabella, sister of Charles IV., preferred the claims of her son Edward III. as his nephew, and therefore nearer to the throne than a first cousin. The French magnates repudiated her claim, and Isabella was forced to resign herself to simple protests. For some years the relations between Edward and Philip remained strained, and though no open rupture took place both were secretly preparing for war. In 1335, the king ordered the castles in the islands to be repaired and put into a proper state of defence. The following year, 1336, we were ravaged by the adherents of David Bruce, but Serk and Alderney seem to have been the chief sufferers at the hands of the Scots. In 1337 the French sailors raided our islands and the towns of the Sussex and Hampshire coast. Edward, indignant at this outrage, redoubled his preparations for war. On October 7, 1337, he renewed his claim to the French crown, repudiated his homage, and sent Bishop Burghersh

* Pollock & Maitland *History English Law*, Vol. I., p. 584.

† Bulletin 18, Soc. Jersiaise, p. 190.

L'origine des Jurés Justiciers, par H. Marett Godfrey.

to Paris with his defiance. In March, of 1338, Philip commenced hostilities, the French fleet, under Behuchet, swept down upon our islands, ravaged them, and passed on to the coasts of the south-eastern counties of England. Portsmouth was burnt, and so alarming were the French corsairs that in July, 1338, the dwellers on the south coast were ordered to take refuge in fortresses or withdraw their goods to a distance of four leagues from the sea. The French then returned and ravaged the Channel Islands for the second time, and on the 8th September, Castle Cornet fell into their hands. In October following, Philip de Valois gave Guernsey to his son John, Duke of Normandy, who shortly afterwards gave it to Robert Bertram, Marshal of France, one of the most famous warriors of those days. In March, 1339, the Marshal visited his new possession, and with a great host invaded Jersey and summoned the castle to surrender, offering the garrison, in the name of the king of France, the restoration of their privileges if they complied with his demand, or death to small and great, and the destruction of the land if they refused. The garrison refused to surrender, and the Marshal finding Mont Orgueil too strong to capture by assault, ravaged part of the island, and then returned to Normandy.* The interesting petition of the people of Jersey which records these facts goes on to request aid for the reconquest of Guernsey, where there was only one French knight and eighty men in the castle. On 20th June, 1340, the French fleet was totally defeated by the English at the battle of Sluys. The English having regained the mastery of the sea, preparations were made for the reconquest of Guernsey, and on the 29th October the French were forced to abandon the island by Walter de Weston, lieutenant of the Isles, but the truce which had been agreed upon between Edward and Philip on the 25th September preceding, prevented any attempt being made to recapture Castle Cornet.†

In March, 1341, Thomas de Ferrars, who had been Governor of the Isles since 1337, was replaced by Thomas de Hampton, who was immediately ordered to visit them and to report to the king on the administration of the islands and on the "manner these can be ordered for the king's best advantage in the future."‡ At the same time the king acknowledges the receipt of a petition from the islanders,

* Ancient Petitions, Société Jersiaise, p. 67-68, No. 5580.

† *The Early History and first Siege of Castle Cornet.* T. W. M. de Guérin. Published by Guernsey Natural Science Society, 1904.

‡ Cal. Pat. Rolls, 1341, p. 159.

requesting among other things, the preservation of their privileges.* This was the first reference made to our privileges for some years, and it was a preliminary to an order of the 2nd June, 1341, to the Treasurers and Chamberlains to inspect the rolls of Robert de Scardeburg, and report to the king on the proceedings at the assizes in the Isles of 1331. Then quickly followed the charter of the 10th July, 1341, confirming to the people of Guernsey and Jersey the whole of their privileges and customs, without enumerating them, but leaving this for a future occasion, which fortunately for us never arrived.

What were the reasons leading Edward III. to at last consent to ratify our cherished customs? There were several. The principal one was, without doubt, the sudden alteration in the political situation in our immediate neighbourhood on the death of John III., Duke of Brittany, in April, 1341, without children. His succession was claimed by Charles of Blois, nephew of Philip of Valois, the husband of Joan de Penthievé, daughter of Guy, full brother of John III., and by John de Montfort, the latter's half brother. Brittany had, with rare exceptions, been on friendly terms with England ever since the loss of Normandy, and her ports were safe shelter for English ships trading to Gascony. Brittany, in the hands of Charles of Blois, meant virtually absorption with France and the closing of her ports to England. Edward III. determined to support the claims of John de Montfort at all hazards, and soon joined in the war of succession. The great county of Penthievé-Treguier, the nearest part of Brittany to us, adhered to Charles of Blois, while Léon, Cornuailles and Vannes were the strongholds of John de Montfort. We lay off the hostile coast of Penthievé-Treguier as a link connecting England with Léon (now the department of Finistère). We thus see at a glance that it was good policy to keep the islanders contented and firmly attached to England, especially at a moment when the French still held Castle Cornet, and had a firm footing near our island. The attempt to deprive the islanders of their privileges had failed, it had caused great discontent, discontent which had even led to treason in Jersey involving Guillaume Payn, one of the jurats, † Guille de St. Hellier, Seigneur of Saumarez, one of the principal men in the island, ‡ and had even touched the great house of de Carteret, renowned for its faithfulness to the English kings; Philip, second son of Sir Reginald de

* Cal. Close Rolls, 1341, p. 117, 23 March, 1341.

† Cal. Patent Rolls, 1341-1343, p. 95. 20 May, 1341.

‡ Cal. Patent Rolls, 1350-1354, p. 123.

Carteret, Seigneur of St. Ouen, was a fugitive in Normandy, and only received pardon about ten years later.* Of what happened in Guernsey we hear little, probably we were no better than our neighbours; one fugitive we do know of who may, or may not have been a Guernseyman, and that was Stephen Coquerel, Rector of St. Peter-Port.†

Note the hurry in which this charter of confirmation was granted. There was no time to define our privileges, although they had been under consideration for over thirty years; this was left for the future, when, had opportunity arrived, the whole question could have been re-opened *de novo*. The hundred years' war intervened, and England, in a death struggle with France, had not time to attend to our affairs. Then followed the Wars of the Roses, and when peace again prevailed under Henry VII., no attempt was made to define them, but each successive English sovereign confirmed them on the lines of Edward III.'s charter. We were left to develop our constitution on the lines laid down in our claims made before the justices in 1331; the "Precepte d'Assize" in 1441 marking a further step of development; but it was only in the reign of Queen Elizabeth that our privileges were defined, and the Precepte d'Assize received royal sanction and became the "Magna Charter" of our constitution.

To complete the history of this period we must go back to the siege of Castle Cornet, which we left in the hands of the French in 1340.

During the truce which lasted from September, 1340, to the summer of 1342, the French remained in peaceable possession of the castle. In that interval the king had strengthened Jerbourg Castle, and re-organised the defence of the island.‡ On the renewal of the war in 1342, the siege of Castle Cornet recommenced, and in the accounts of Thomas de Hampton, we have details of the force of the besiegers, and of the blockade of the castle to prevent communication with Normandy. Towards the end of the summer, about the beginning of August, the English force sent to Brittany with the Countess de Montfort and Robert d'Artois passed our island, and after leaving it encountered the fleet of Don Louis of Spain, when the famous naval battle took place, in which the Countess fought like a man among the knights. Another truce followed in the spring of 1343, which found Castle Cornet still unconquered, and the siege was again abandoned for the

* Cal. Patent Rolls, 1350-1354, p. 174. Letter of Pardon for him dated 5 Nov., 1351.

† Cal. Patent Rolls, 1350-1354, p. 534, Dec. 1, 1353.

‡ Cal. Close Rolls, 1342, p. 179.

time. The French captain of the castle was Adam de Routichan, who, in June, 1343, sent Adam Charles, sergeant of the king of France, to Normandy, to request supplies.* We hear nothing further of the castle until June, 1345, when the truce expired and hostilities again broke out. The Governor of the Isles, Thomas de Ferrers, came over with reinforcements, and some time seems to have been spent in negotiations for the surrender of the castle, which came to nothing. We read in de Ferrers' accounts of payments to messengers sent to Normandy to the friends of the knights in the castle for news, and also to others sent with tidings to the king at Sandwich. According to the *Chronique de Flandres* the atrocities of Maran Le Maronier, who captured six English ships off Guernsey and put to death all on board, made Edward III. resolve to recapture the castle at all costs. A force consisting largely of Gascon ships accompanied by Godfrey de Harcourt, the famous Norman renegade, and some say by Reginald de Cobham, was despatched to this intent. In the meanwhile Thomas de Ferrers had been closely besieging the castle and preparing material for its assault. Godfrey de Harcourt arrived with his force on the 13th August, 1345,† and a few days later Castle Cornet was taken by assault. According to the *Chronique de Flandres*, Nicholas Helie, the French captain of the castle, and the whole garrison were slain. So ended the first French occupation of Castle Cornet, which they had held for nearly seven years.

THE INVASION OF GUERNSEY, 1356-1357.

Recently, there has come to light in the Close Rolls of Edward III. for the year 1357, three letters referring to a hitherto unknown invasion of Guernsey during the governorship of Thomas de Holand, 1356-7. This event must have taken place either immediately before, or shortly after the battle of Poitiers, which was fought on the 19th September, 1356. At this period the whole of the Cotentin was in the hands of the English and of Charles, the Bad, king of Navarre, who held all the chief towns and castles, including the famous castle of St. Sauveur-le-Vicomte, which had been bequeathed to Edward III. by Godfrey de Harcourt, and which formed the rallying place of all the bands that ravaged the districts of Normandy under French rule. During the summer and autumn of 1356, Robert de Clermont, captain

* Dupont. *Cotentin et ses Iles*, II., p. 296.

† Bulletin VI., Société Jersiaise, pp. 47-53.

in command of the French forces in Normandy, made two determined, but unsuccessful, attempts to drive the English out of the Cotentin. It is probable that the invasion of Guernsey took place on either the first or second of these occasions. We learn from the above mentioned letters, the earliest of which is dated 15th August, 1357, that sometime previous to this date the French had invaded Guernsey and captured Castle Cornet. When news of this disaster reached Jersey,* Thomas de Langhurst, deputy of Otho de Holand, lieutenant of Thomas de Holand, Governor of the Isles, collected his forces, and accompanied by Sir Reynold de Carteret, Philip de Carteret, John de Garriz, Richard de Saint Martin, Ralph le Empere (Lempriere), John de la Hougue, and Denis Le Feuvre, with others of the principal men of the island and their followers, proceeded to Guernsey to besiege Castle Cornet. After a fierce battle they captured the captain of the French force in the castle, who ransomed himself from them for eighty thousand florins.† Finally, the French agreed to surrender the castle in exchange for their captain. During their stay in the island, the Jerseymen killed a certain Guernseyman, named William Le Feuvre. According to their version they executed him for treason, according to his wife's account they murdered him out of ancient enmity.‡ It is to this event that we owe the names of the Jerseymen taking part in the expedition.

Have we not here the true origin of the story told by Falle of the part played by Jersey in the reconquest of Guernsey. Falle's account is full of inaccuracies, his date, 1343, is quite wrong; he evidently mixed up two sources of information, the *Chronicle of Flanders*, and an old Jersey manuscript to make them fit into the story of the recapture of Castle Cornet in 1345. Still, have we not in the enormous contribution of six thousand four hundred marks which he says was raised by the people of Jersey for the reconquest of Guernsey, and in the names of the Jerseymen who he says were killed on that occasion, namely, the Seigneurs de Vinchelez, de Matravers, des Augrez, de Garis, de la Hougue, Lemprière and others, a garbled tradition of the ransom of eighty thousand florins patriotically given up by the Jerseymen for the surrender of Castle Cornet; and of the names of the leaders of the Jersey force? Three of the names he mentions, de Garis, de la Hougue and Lemprière§ are identical with those in the Close Rolls.

* Cal. Close Rolls, 31 Ed. III., m. g., p. 377.

† Calendar Close Rolls, 31 Ed. III., p. 374, 25 Aug., 1357.

‡ Falle. *Hist. of Jersey*, p. 63.

§ Cal. Close Rolls, p. 184, Nov. 12, 1357.

THE INVASION OF YVAIN DE GALLES, 1372.

If of the earlier invasions of Guernsey we have scanty details it is the reverse with that of Yvain de Galles in 1372. The difficulty in this case is to decide which is the most correct of a number of circumstantial accounts differing from each other on many points. We have first Froissart's account; second, that of the author of the *Chronique des quatre premiers Valois*, and third, our only Guernsey chronicle, the ballad of *La descente des Saragousais*. Of these, I am inclined to think the most accurate is the account given in the *Chronique des quatre premiers Valois*, for its details agree on many points with those of our Guernsey ballad. According to M. Leopold Delisle, its author is far more accurate than Froissart, in his account of events in Normandy at this period, particularly on the campaigns in the Cotentin, and the siege of the Castle of St. Sauveur-le-Vicomte, on which Froissart is very unreliable, many of his statements being contradicted by documentary evidence. As regards the political situation in our immediate neighbourhood in Normandy, little had changed since the previous invasion of 1356. The English were still masters of the principal strongholds of the Cotentin, but the French had become more aggressive, and were gradually forcing them back, and even attempting to besiege the Castle of St. Sauveur-le-Vicomte.

Early in the year 1372, Charles le Sage ordered the equipment of a naval expedition to harass the English. For this purpose fourteen barges and other vessels were assembled at Harfleur under the command of Yvain de Galles and Morelet de Mommor (de Montmaur). Yvain was the son of a Welsh prince who had been executed by Edward III. He was one of the "disinherited," consequently, filled with hatred towards the English, he had taken service under their enemy the king of France. His force consisted of six hundred men-at-arms, besides the sailors of the fleet. Froissart states that they were in all 4,000 men, but this number is probably greatly exaggerated. Early in the spring of 1372, probably about the first week in May, Yvain set sail from Harfleur and directed his course towards Guernsey. The people of the island had been informed of his preparations and had urgently requested reinforcements from the English captain of St. Sauveur-le-Vicomte, who sent them forty men-at-arms and about the same number of archers. On their arrival in the island precautions were taken to protect the town and harbour. The French fleet arrived and anchored in Vazon Bay. According to our Guernsey account, John Letocq, who

had risen earlier than usual on that morning, descried the enemy landing on the sand dunes, near "la Grande Mare," and gave the alarm to the islanders, who hurried down to oppose them. The *Chronique des quatre premiers Valois* says "The French made full sail towards the island to effect a landing where the people of the country were assembled, armed with such weapons as they had." "Now, you must know that the young women and maidens of those islands had, in the springtide of that year, made garlands of flowers and violets, and had given them to the young men, telling them that those ought to fight well who had them for sweethearts." The Guernseymen thought that there were only sailors on board the French ships, but as they neared the land the French soldiers leapt on shore, armed at all points, and attacked them. There was a fierce fight which, according to our Guernsey ballad, took place near the mill of "La Carrière," not far from "La Houquette," to the west or north-west of the old chapel of St. George. Here, Richard Simon wounded Yvain de Galles on the hand and thigh. The islanders retreated on the town, pursued by Yvain, who had divided his force into two detachments. On the heights above the town, probably on the spot known as "La Bataille," the site of the Grange Club and the houses opposite, then open fields, the battle was renewed. Here, two of the Guernsey force, Thomas Le Lorreur and Ralph Holand, especially distinguished themselves, Holand being killed. Towards evening the Guernseymen were reinforced by the men from St. Sauveur-le-Vicomte ("quatre-vingt bons marchands anglais" as they are called in the ballad), but after a fierce fight they were compelled to retire, leaving five hundred dead on the field, according to one account, or eight hundred according to another. We are told in the ballad that the dead lay so thick that one could walk upon them, and that the blood ran down into the valleys, also that bitter were the lamentations of the ladies of St. Peter-Port that night. There is a discrepancy between the two accounts as to the end of this battle. The *Chronique des quatre premiers Valois* represents the flight of the Guernseymen as a complete rout. Our ballad on the other hand represents the French as retiring by way of the Bordage, and being there routed with great slaughter. The true version is probably midway between the two accounts. It is quite possible that the right wing of the Guernsey force was completely routed, and that the islanders fled for the nearest gate of the town, that of Smith Street, many of them being killed in "La ruelle

Meurtrière," the old lane that formerly led from Upland Road down the centre of the valley at the back of the College. Tradition states that the greatest slaughter took place at "La Rouge Rue" at St. John's. Sir Edgar MacCulloch was more inclined to seek it at Hauteville, where there was formerly a lane bearing this name. I am rather of the opinion that the tradition points to a third "Rouge Rue" which is mentioned in an old deed of 1608,* recording the sale of a garden bordering Forest Lane and to the north of "La Rouge Rue." Thus it must have either been the upper part of Smith Street, without the gate of the town, or a narrow lane between it and Forest Lane. If the battle took place as stated at "La Bataille," near the Grange Club, this would certainly be the most probable of the three.

The left wing of the Guernsey force may have retired in good order on La Tour de Beauregard (which stood on the site of St. Barnabas' Church) by way of the Bordage, where they may have repulsed a detachment of their pursuers as related in the ballad. In neither account do we hear of the capture or sack of the town, so probably Yvain was unable to penetrate its walls. He took up a position near Castle Cornet to besiege it. In the night, as a number of young men from Paris were sleeping round their camp fire, in sight of the castle, the garrison made a sortie, unperceived, and attacked and killed them and then returned to the castle. This event is no doubt the skirmish which, according to our Guernsey account, took place somewhere near "La Corbière" and the "Bec de la Chevre." La Corbière is identified by Sir Edgar MacCulloch as the point below Clarence Battery and the "Bec de la Chevre" is said to be at Les Terres, near the Bathing Places. According to our Guernsey account the French fleet had sailed round by the south of the island and taken up a position off these points, where a body of their sailors landed and were repulsed by the islanders. If, however, as seems certain, the town was not captured, this was an exceedingly likely spot for a part of Yvain's force to have encamped, as it was in sight both of the castle and of the "Tour de Beauregard," the chief defence of the town. It is incredible that any force would have attempted to besiege Castle Cornet by occupying the small islet on which it stands, as it offered no shelter. Our old ballad goes on to say that after the repulse of his force at the "Bec de la Chevre," Yvain re-embarked his sailors and returned to St. Sampson,

* MSS. of late Professor Bonamy Price, "Lettre" under seal of Guernsey, 25 Oct., 1608.

where Bregard, Prior of the Vale, received him with marked respect, and entertained him and "la princesse Alianor," his wife, at the Vale priory. Aymon Rose, the Captain of the island, who had retreated into the Vale Castle, was then besieged by Yvain, but refused to surrender. Finally, through the mediation of the Prior, it was agreed that Yvain should receive a heavy ransom and withdraw his troops from the island. It is a curious fact that although both Froissart and our Guernsey ballad style Aymon Rose, the Captain or Governor of the island, his name does not appear as such in any official document of this period. The Governor of the Isles in 1372 was Walter Huwet, whose lieutenant in Guernsey in September of the same year was Sir Ralph de Harmesthorp. Aymon Rose was appointed Constable of Gorey Castle, Jersey, the 25th March, 1372,* and Havet supposes that in the probable absence of both of Walter Huwet's lieutenants he may have been in supreme command in the Isles at the time of this invasion.† Froissart states that Aymon Rose fled from the battlefield and escaped to Castle Cornet with great difficulty. The castle being said to have been situated about two leagues from the place where the battle had been fought. Yvain besieged the castle, but it was too strong and well furnished with arms for him to take. The King of France on hearing of the defeat of the English fleet off La Rochelle, in June, 1372, ordered Yvain to raise the siege, and proceed at once to Spain to procure reinforcements from King Henry of Castile. This Yvain did, previously dismissing his troops, and providing them with vessels to return to Harfleur. A receipt of his dated from Santander, in Spain, the 24th July, 1372,‡ still exists. This date confirms the statement that the invasion occurred in the spring or early summer. It is certainly difficult to decide whether Yvain besieged Aymon Rose in Castle Cornet or the Vale Castle. The *Chronique des quatre premiers Valois* only mentions the castle, which naturally one would understand to mean Castle Cornet. Still it is quite possible that he was unable to reach it and took refuge in that of the Vale. The concluding verses of our Guernsey ballad relating to the death of Yvain are absolutely unhistorical. Yvain was killed at the siege of Mortagne, in Poitou, in 1378, by a Welsh renegade, John Lambe, in the pay of Richard II., who first ingratiated

* *Série Chronologique des Gardiens et Seigneurs des Iles Normandes*. J. Havet.

† He was still Constable of Gorey Castle in Aug. 1372.

‡ L. Delisle. *Hist. St. Sauveur le Vicomte*, p. 180. *Cabinet des Titers, 1e Série. Mot Galles*.

himself into his service and then murdered him in cold blood. Rymer's *Fœdora*, under date of 18 September, 1381, contains an entry recording the gift of one hundred francs to John Lambe and his companions, who had brought the king the joyful news of Yvain's death.*

It was recently stated by the Rev. Gallienne, in a lecture at the Guille-Allès Library, that the invasion of Guernsey, in 1372, by Yvain de Galles never took place, the chief reason brought forward in support of this view being the fact that while Froissart states that Aymon Rose was the captain of the English force in Guernsey, we know from documentary evidence that he never held any official post in our island, but was appointed captain of Mont Orgueil Castle, Jersey, on the 25th March, 1372, therefore Froissart must have confounded the invasion with that of Jersey, in 1373, by du Gueselin, and has made errors in the date, name of the island, &c., &c.

The invasion of Jersey by du Gueselin has been the subject of an admirable article, by M. Jean Lemoine, in *La Revue Historique* for 1897. M. Lemoine gives in an appendix copies of Royal letters, extracts from the accounts of the Receivers of the Isles, &c., &c., referring to this invasion. An examination of the extracts from the accounts of Aymon Rose is however fatal to Mr. Gallienne's theory, for they clearly show that Aymon Rose's term of office, as captain of Mont Orgueil Castle, expired on the 3rd June, 1373, when he handed the castle over to William de Asthorp, who had been appointed Governor of the Isles on the 20th April preceding. On the 6th July he was appointed to the command of a London barge in the king's service for four months and consequently at the time of du Gueselin's invasion of Jersey, which M. Lemoine proves to have taken place between the 12th July and the 16th August of the same year, he was not in Jersey, but only returned there with the fleet of Philip de Courtenay, Admiral of the Fleet towards the West, who on the 16th August of that year was ordered by the king to proceed immediately to the relief of Jersey, which had been invaded by the king's enemies. Therefore for Mr. Gallienne's view to be correct Froissart must have made errors not only in the names of the commanders of both the English and French forces, but in the date, the name of the island and the name of the castle beseiged !

* Clarke's *Guernsey Magazine*. October—December, 1879.

The Invasion of Guernsey by Yvain de Galles, in 1372, by Sir Edgar MacCulloch.

The invasion of Guernsey by Yvain de Galles, in 1372, has up to the present been accepted as an historical fact by all our historians, including M. Lemoine. We have for early authorities Froissart, our Guernsey ballad *La descente des Saragousais* and the *Chronique des quatre premiers Valois*. The latter gives the fullest and most circumstantial account, agreeing in many particulars with our Guernsey ballad, but differing from it in many details, showing that our ballad is derived from a separate source of information and is not merely a versification of the chronicle.

As regards the accuracy of the writer of the *Chronique des quatre premiers Valois*, on events happening in Normandy, in our immediate neighbourhood, at this period, no higher testimony can be produced than that of M. Leopold Delisle, the greatest modern authority on Norman history. He writes in his *Histoire du chateau et Sires de St. Sauveur le Vicomte** “que l’auteur de la *Chronique des quatre premiers Valois* a été bien mieux renseigné que Froissart sur le siege et la capitulation de Saint Sauveur. Presque tous le détails qu’il raporte sont parfaitement d’accord avec les documents officiels dont j’ai précédemment fait usage.” His statements therefore are not to be lightly set on one side without official documentary evidence to disprove them.

We have official documentary proof of two facts mentioned by the author of the *Chronique* in his narrative of Yvain’s expedition in 1372. First, the preparation of the expedition by the northern French Naval Arsenal, Le Clos des Galées at Rouen, the accounts of which for the years 1382-1384 have recently been published† and contain inventories “d’amoures qui furent achetées pour le fait d’Yvain de Galles.” Second, Yvain’s journey to Spain after leaving Guernsey is proved by a receipt of his dated from Santander, July, 1372, which is now in the Archives Nationale, Paris, *Cabinet des titres, 1e serie, mot Galles*.‡ We have thus documentary proof of the commencement and end of the narrative, for this was the only naval expedition undertaken by Yvain de Galles. A careful examination of the accounts and rolls referring to our island at the Record Office would most probably give official confirmation of the central portion of the story, the invasion of Guernsey.

The accounts of Nicholas de la Salle, King’s Receiver in Guernsey from Michaelmas, 1372, to Michaelmas, 1373, are

* Page 225.

† Les Comptes du Clos des Galées de Rouen au XIVe siècle (1382-1384) par Charles Bréard, p. 152.

‡ Delisle. *Hist. St. Sauveur le Vicomte*, p. 180.

at the Record Office and were hastily examined by Colonel J. H. C. Carey a few years ago. Two items in his notes point to an invasion of the Isles having recently taken place. First the loss of a large portion of the royal revenue from Alderney "on account of the destruction of the island." Second, the very large repairs made to the Crown Mills in Guernsey. These repairs have an important bearing on another point which will now be touched on.

GUERNSEY AND DU GUESELIN

The history of du Gueselin's invasion of Jersey has been exhaustively treated by M. Jean Lemoine, in *La Revue Historique*, 1897. He has proved by extracts from English State Rolls and the accounts of the Receivers and Lieutenants of the Isles, now in the Record Office, London, the accuracy of the main outline of the narrative given by Cabaret d'Orville in his *Chronique du bon duc de Louis de Bourbon*, but he deals with Jersey only and consequently omits all reference to what d'Orville says of du Gueselin and the Duc de Bourbon's invasion of Guernsey. D'Orville relates that "from Jersey they passed over to Guernsey, where there was a castle which the garrison did not dare to defend when they saw the other castles taken, and it was the strongest of them all. The men of the Isles promised to be true and faithful to the King of France, and they remained so, so long as the good Admiral de Vienne lived. Messire Jean Hedangest and Thibault his brother were appointed to guard the Isles of Jersey and Guernsey, and then the duke and his force returned to Quimper." This account was written about the year 1429, and no doubt is greatly exaggerated, but the raiding of Guernsey by a French force during the year 1373, and most probably by that of du Gueselin, is clearly proved by a comparison of Colonel Carey's extracts from the accounts of Nicholas de la Salle, Receiver in Guernsey, from Michaelmas, 1372, to Michaelmas, 1373, with those of William de Asthorp, Warden of the Isles, from 21st December, 1373, to 1st February, 1374. In Nicholas de la Salle's accounts we find a long list of the Crown Mills repaired, probably those burnt at the time of Yvain's invasion in the spring of 1372. Also he accounts for the farm of the revenue of Sark for the year. In de Asthorp's accounts we find a totally different state of affairs. All the mills, except four, Maen, Petit Bo, Petit Moulin, and Les Grands Moulins have been burnt by the king's enemies and no revenue can be obtained from them. Also only a

portion of the revenue of Sark can be recovered, because the island had been destroyed by war; and further only one hundred and seventy-three hens can be received for the poulage of Guernsey because of the destruction of houses, which had been burnt and destroyed by the enemy.*

We have then clear proof of an invasion of Guernsey in 1373 from these extracts. The presumption is that the invaders were du Gueselin and the Duc de Bourbon as d'Orville relates. It is, however, most improbable that Castle Cornet surrendered as he states, but it is quite possible that the islanders may have been compelled to ransom themselves by payment of a heavy fine in a similar manner as the people of Jersey did for at least three years. The disorganised state of England's finances during the closing years of Edward III.'s reign prevented any successful attempt being made to cripple the power of the French navy under the Admiral de Vienne. On the other hand it is also possible, the town of St. Peter-Port being walled and defended by the Tour de Beauregard, that the people of Guernsey were not left in such a helpless condition as those of Jersey. They had a safe retreat within the town walls for themselves and valuables, and consequently may have escaped paying this ransom.

GUERNSEYMEN AT THE SIEGE OF MONT ST. MICHEL.

Recently there has come to light in the appendix of *La Chronique de Mont St. Michel*, published by *La Société des Anciens Textes Français*, some interesting documents referring to the history of our island, during the wars between England and France, in the reign of Henry VI. Up to the present, this period has been the least known of our history, very few documents bearing upon it having come to light, but it is most probable that further research both in London and Paris would greatly add to our information.

Shortly after the battle of Agincourt, Henry V. completed the conquest of the whole of Normandy with the exception of the famous abbey-fortress of Mont St. Michel, which alone held out for upwards of thirty years for its rightful king. In the year 1425 the English made a determined attempt to capture it, and for the purpose of blockading it, a fleet of twenty vessels were collected from Rouen, Danzig, Orwell, Winchelsea, Portsmouth, Dieppe, Southampton, Blainville, Guernsey, and Caen. These were placed

* Du Gueselin a Jersey, par J. Lemoine. *La Revue Historique*, 1897, p.56.

under the command of Richard Pouvoir and Lawrence Hauden, Captain of Tombelaine. From the accounts of this expedition that have come down to us, we find that the Guernsey contingent consisted of three ships, *La Pitié*, *La Marie*, and *La Trinité*, commanded respectively by Denis Le Marchant, Pierres Nicholas, and Hemon Henry, who had under them twenty-nine men-at-arms and eighty-nine archers and sailors. These three vessels took part in the first month of the blockade. They were reviewed by the *Vicomte* of Carentan, Guillaume Biote, in the harbour of Chausey, on the 17th May, 1425, and seem to have terminated their engagement on the 30th of the same month, up to which date the captains and crew received payment.

If so, they possibly escaped the terrible disaster that overtook the English force at the end of the month of June, of the same year, when it was totally defeated both on land and sea. The entire English fleet was either burnt or captured, and the Channel, from St. Malo to Calais, was left at the mercy of the ships of St. Malo and Mont St. Michel for the remainder of the summer of 1425.

The names of the three Guernsey captains are well known to us from local documents. Denis Le Marchant and Pierre Nicholas were both of them jurats of the Royal Court. Hemon, or Edmond Henry, was the son of Nicholas Henry, of La Perelle, the foundry of the Chapel of Notre Dame de la Perelle, now called St. Apoline. He was also one of the jurats in 1421.

It had long been known that several Jerseyman had taken part in the campaigns of Henry V. in Normandy, three of whom, John de St. Martin, John Lempriere, and Ralph Tourgis having been rewarded by the king for their services, by grants of forfeited manors in that province, but this is the first notice concerning Guernseymen that has as yet come to light.

There are also several other letters in the appendix of the above mentioned *Chronique*, showing that our islands at this period were used as a base for the English fleet, and for the collection of reinforcements to harass the flanks of the French forces as they gradually drove the English out of Normandy. Thus, in 1436, Thomas, Lord Scales, Seneschal of Normandy, sends urgent orders to the Isles of "Guelnerry," to the English force appointed to guard the sea, for their assistance in his attack upon the town of Granville, which the French had recently captured. Another letter of 1443 refers to a similar project

against the same town. The commission sent by Henry VI, to Normandy for this purpose, despatched John Bandulph, *Vicomte* of Caen, to the Isles of Jersey and Guernsey to collect as many vessels as possible, as well as men at arms and sailors to assist in the attack.

It is evident that the vessels from our islands did great damage to the French on the coasts of the Cotentin, so much so, that in 1451, after the final expulsion of the English from Normandy, Charles VII. refused to give up to its rightful owners the Castle of Pirou, which stood on the coast nearly opposite to Jersey, on the plea that "it was on the sea shore near the islands of Gerry and Gernesey, occupied by our adversaries, and in a place of danger." A few years later the French made an attempt to conquer the islands, and in the "Paston Letters" on the 8th June, 1454, Botoner writes to John Paston, that "The Frenchmen hafe be afore the Isles of Gersey and Guernsey, and a grete navy of hem, and VC (500) bē taken and slayn by men of the seyde trew Isles." In the same year, John Nanfan, Governor of the Isles, petitions the king for subsidies, and among other things states that he had paid £1,000 to the captains of "Shirburg" (Cherbourg) and St. Sauveur-le-Vicomte "for the salvation of the lives of the hostages of the said Isle of Jersey, being then in ward in peril of death, which would have caused great division, and the final destruction of the said Isle.* It is probable that these were Jersey-men taken prisoners during the last stages of the war with France, before the capture of Cherbourg, 1450, as the petition is endorsed on the 5th March, 1454, or three months earlier than Botoner's letter. A sidelight on the same period is thrown by a "Lettre" of the 13th February, 1459, formerly in the possession of the late Mrs. Giffard Sheppard, of La Roque Barrée, whereby Guillmote de Mollepy (de Moulpied), widow of Johan Ollivier, of St. Martin's, sells to Philippin Johan, alias du Doit, two bushels of wheat rent for having obtained the deliverance of her son, Johan Ollivier, from the Castle of Cherbourg. When de Brezé invaded Jersey in 1461, and captured Mont Orgueil Castle, a final attempt was made by the French to capture Guernsey, and a letter in the *Patent Rolls* of 15 May, 1461, speaks of "the king's enemies of France who have entered the island of Guernsey and besieged the Castle of Cornet there.†" Unfortunately we have no details of this attack, but it is evident that the French, being unable to capture the castle, retired to Jersey. This was the last determined attempt made by the French to conquer our island.

**Ancient Petitions*, Soc. Jersiaise, p. 89-90, No. 5892. †*Cal. Patent Rolls*, Edw. IV., p.

THE RAINFALL OF GUERNSEY FOR THE YEAR 1909.

BY MR. A. COLLENETTE, F.C.S.

THE year 1908, as will be remembered, was the driest year since 1870. Last year I prepared a table (IX. *Trans.* for 1908) showing that the rainfall had reached a low figure in the years 1858 and 1870 and that the two years, 1859 and 1871, following the driest years, were considerably wetter; in fact that they closed the dry period, or series of dry years to which they belonged. This year, 1909, has proved to be 7·78 inches wetter than last year and I have reproduced the table (VII.), giving the fall in its place. It will be seen that the rule applying to the last two very dry periods applies also to the one we are passing through. It will be noted that two very wet years, 1860 and 1872, were immediately followed by wetter years, and therefore, if there is a common cause for the dry periods, and if they belong to any kind of cycle, 1910 should be a very wet year.

1909 has given the same rainfall as 1907 and has been a dry year for it closed with a deficit, as compared with the 67 years' average of 2·29 in. Last year's (1908) driest month was June with a total of 0·62 in. This year (1909) the driest month was May with 0·75 in. In 1908 two months only, March and September, were over their averages. This year (1909) there were three months with plus quantities, these were March and October, and in a lesser degree June. The month of June has the distinction of having given the wettest week of the year, 3·31 in. having fallen between the 1st and 7th and inasmuch as the remainder of the month yielded half an inch only it will be seen that June plus quantity depended on the fall of that week. A reference to Table V. will show that 2·53 in. fell on two days. If we except that one week it will be seen that practically the months April to September, inclusive were dry. January and February were also dry—and in a lesser degree November and December were also.

[1909.]

The three wet months, March, June and October together contributed 49% , nearly, of the total fall for the year and this fact brings out the dryness of the winter. The Table (II.) gives the detail of the distribution throughout the year.

As regards the distribution of rainfall over the island there is now no doubt that the falling off in quantity from the Town in towards the South and West is a real fact. This year again shows the same peculiarity. The South Coast has had 10% less rain than the town, St. Peter's-in-the-Wood shows 12% less, in the results of the year. The station at St. Saviour's being well in land is 6% less. The East Coast has received from 4% to 6% and the town Stations are within 5% of the Brooklyn fall.

I have corrected Table IV. to date and a comparison will show that, excepting Oberlands and St. George, where there is period is but 1 and 2 years and therefore not a fair comparison, the main facts are unaltered.

The heavy falls in one day are more numerous this year than last, the details will be found in Table V.

Table VI. shows how the two droughts of the year were experienced at the various stations.

There being an impression on the minds of some interested persons that the dry years have greatly reduced the average of the rainfall on the whole period under observation, I have prepared a Table No. VIII. which will present to the Society the actual facts.

It will be seen that the succeeding dry and wet years make but a slight difference on the mean value of our long period.

TABLE I.
LIST OF STATIONS AND OBSERVERS.

Ref. No.	Observer.	Position of Gauge.	Part of the Island.	Elevation Feet.
1	Mr. A. Collenette.	"Brooklyn," St. Martin's Rd.	S.E.	300
2	Mr. B. Rowswell.	"Les Blanchés," St. Martin's.	S.E.	300
3	Guernsey Waterworks.	"Hautnez," Forest Road.	S.	343
4	Dr. F. Carey.	"Grange Villa," Grange.	E.	180
5	Mr. J. Guilbert.	"Colborne Villa," Rohais.	E.	145
6	Mr. F. Lilley.	"Les Hêches," St. Peter-in-the-Wood.	S.W.	
7	Guernsey Waterworks.	Village, St. Saviour's.	S.W.	
8	Mr. J. Hocart.	"Les Mielles," L'Ancrese.	N.E.	33
9	Mr. A. Poat.	"Richmond," St. Sampson's.	N.E.	25

TABLE II.
RAINFALL AT ST. MARTIN'S ROAD.

Months.	Rainfall. Inches.			Greatest fall in one day.		Proportions of Monthly Totals to the Year's Total.		Wet Days.	
	Monthly Totals, 1909.	Monthly Totals, 67 years' Averages	Differences between Averages and 1909.	Amount.	Day.	1909.	Normal.	1909.	Averages.
				Inches.					
January	2·23	3·74	-1·51	0·72	12th	6·5	10·3	15	19
February.....	1·10	2·60	-1·50	0·24	9th	3·2	7·2	10	15
March	5·19	2·54	+ 2·65	0·73	29th	15·3	7·0	30	16
April	2·16	2·34	-0·18	0·63	19th	6·4	6·5	11	14
May	0·75	2·11	-1·36	0·35	24th	2·2	6·0	6	11
June	3·81	2·03	+ 1·78	1·44	3rd	11·2	5·6	12	11
July	1·49	2·13	-0·64	0·55	9th	4·4	5·9	17	11
August	1·03	2·40	-1·37	0·39	10th	3·0	6·6	4	12
September	1·87	3·05	-1·18	0·47	30th	5·5	8·4	19	14
October	7·58	4·89	+ 2·69	1·02	16th	22·3	13·4	24	19
November	2·21	4·36	-2·15	0·63	29th	6·5	11·9	14	19
December	4·58	4·10	-0·48	0·73	2nd	13·5	11·2	24	19
The Year.....	34·00	36·29	-2·29	1·44	3rd June	100·0	100·0	186	180

TABLE III.
DISTRIBUTION OF RAINFALL OVER THE ISLAND, 1909.

Months.	South & South East.			East.		South-West.		North-East.		Averages of all Stations.
	Brooklyn.	Les Blanches.	Hautnez.	Grange Villa.	Rohais.	St. Peter's.	St. Saviour's.	L'Ancrese.	St. Sampson's.	
	1	2	3	4	5	6	7	8	9	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January ..	2·23	2·22	1·88	2·11	2·33	2·19	2·29	2·04	2·21	2·17
February..	1·10	1·06	0·83	0·87	0·88	0·69	0·78	0·94	0·96	0·88
March	5·19	4·94	4·62	5·08	5·41	4·89	5·03	5·69	5·31	5·13
April	2·16	1·98	1·88	1·87	1·96	2·16	1·89	1·96	1·76	1·96
May	0·75	0·73	0·67	0·73	0·89	0·74	0·69	0·70	0·81	0·74
June	3·81	3·71	3·75	3·62	3·55	2·64	2·56	3·56	3·52	3·41
July	1·49	1·55	1·37	1·46	1·50	1·17	1·38	1·34	1·33	1·39
August ..	1·03	0·94	0·89	1·00	1·14	0·80	0·92	1·04	0·97	0·97
September	1·87	1·84	1·71	1·77	1·79	1·70	1·75	1·76	1·83	1·78
October ..	7·58	7·18	7·01	7·38	7·80	6·96	7·68	7·18	7·21	7·33
November.	2·21	2·02	1·95	2·13	2·10	1·85	2·03	1·92	1·86	2·11
December.	4·58	4·15	3·94	4·20	4·60	3·99	4·41	4·06	4·03	4·21
The Year.	34·00	32·32	30·50	32·22	33·95	29·78	31·66	32·81	31·80	32·08
Comprison	100	95	90	95	99	88	94	96	94	
Wet Days.	186	189	169	182	192	175	177	165	169	176

TABLE IV.
DISTRIBUTION OF RAINFALL,

Showing the percentages of rainfall measured in various parts of the Island taking that of "Brooklyn" as 100.

No. of Years considered.	Stations.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	Mean.	Order.
13	"Brooklyn" and Hauteville	100	100	100	100	100	100	100	100	100	3
12	"Les Blanches," S. Martin's	98	94	96	98	95	95	92	94	96	4
6	"Hautnez," Forest	—	—	97	99	92	94	89	94	91	} 8
7	Grange	—	90	94	90	91	92	95	92	91	
7	Rohais	—	97	99	100	95	95	98	96	95	5
5	Couture	—	95	95	95	94	91	—	—	92	7
3	St. Peter's-in-the-Wood..	—	—	—	—	—	92	88	—	90	9
3	King's Mills	—	—	—	—	92	113*	90	98	93	} 6
6	St. Sampson's	—	92	98	93	96	90	88	—	93	
13	L'Ancrese	87	91	98	94	91	91	96	96	93	} 6
3	Cobo	87	84	89	—	—	—	—	—	86	
8	Perelle	80	79	—	—	—	—	—	—	80	11
2	Oberland	—	—	—	104	101	—	—	—	102	2
1	St. George	—	104	—	—	—	—	—	—	104	1
2	St. Saviour's	—	—	—	—	—	—	—	94	94	—

* Probably incorrect, some returns being inconsistent. Omitted in the mean.

TABLE V.
HEAVY FALLS OF 0.60 INCH, AND OVER, IN ONE DAY, 1909.

Stations.	1	2	3	4	5	6	7	8	9
January 12..	0.72	0.63	0.60	0.70	0.72	0.60	0.65	—	—
March 6..	0.61	—	0.63	0.60	0.67	0.76	0.70	0.81	0.62
" 29..	0.73	0.75	0.74	0.73	0.65	0.85	0.80	0.82	0.70
April 19..	0.63	0.64	0.69	—	0.65	0.73	0.63	0.61	—
June 1..	1.09	1.10	1.09	1.05	1.03	0.80	0.99	1.10	1.15
" 3..	1.44	1.31	1.42	1.32	1.34	0.78	1.25	1.18	1.23
October 4..	—	—	—	—	—	—	0.60	—	0.65
" 7..	0.61	—	—	—	—	—	—	—	—
" 16..	1.02	0.76	0.88	0.97	1.05	0.82	0.84	0.86	0.90
" 20..	0.70	0.73	0.71	0.75	0.67	0.73	0.70	0.60	0.63
" 25..	0.65	0.68	0.65	—	0.67	0.68	0.66	—	—
" 26..	0.67	0.64	0.60	—	0.69	—	—	—	—
" 27..	0.64	0.72	0.82	0.69	0.77	0.80	1.04	0.60	0.60
November 15..	—	—	—	—	—	—	—	0.60	—
" 29..	0.63	—	0.62	0.64	0.64	—	0.62	—	—
December 2..	0.73	—	—	0.68	0.71	0.68	0.73	0.68	—
" 21..	0.67	—	—	—	0.61	—	—	0.60	—

TABLE VI.
Droughts, 1909. Number of Consecutive Dry Days.

Day of commencement.	Stations.								
	1	2	3	4	5	6	7	8	9
April 1st....	23	23	23	23	23	23	23	23	23
July 31st....	17	15	17	17	15	17	17	17	17

14 days without rain = a drought.

TABLE VII.
PREVIOUS YEARS OF LOWEST RAINFALL WITH THE 5 YEARS BEFORE AND AFTER THE MINIMA.

In.	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
56											
46								48.04			
36	34.98						43.41				
26		29.29	30.42	30.36	31.90				31.22	32.50	34.47
						25.03					
In.	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875
56											
46								56.96			
36	43.30	44.43									
26			37.07	34.76	32.99		36.26		37.72	35.38	36.28
						27.05					
In.	1903	1904	1905	1906	1907	1908	1909				
56											
46											
36	40.88	37.72									
26			34.12	33.43	34.00		34.00				
						26.22					

TABLE VIII.
AVERAGE ANNUAL VALUE OF RAINFALL.

The Year included	No. of Years.	Dry or Wet.	Rainfall of Year.	Average of full Period.	Effect of each year on Average.
			Inches.	Inches.	Inches.
Previous	58	—	—	36·62	—
1901	59	Dry.	27·97	36·54	-0·08
1902	60	Dry.	33·98	36·52	-0·02
1903	61	Wet.	40·88	36·62	+ 0·10
1904	62	Wet.	37·72	36·62	—
1905	63	Dry.	34·12	36·59	-0·03
1906	64	Dry.	33·43	36·46	-0·13
1907	65	Dry.	34·00	36·50	+ 0·04
1908	66	Very Dry.	26·22	36·32	-0·18
1909	67	Dry.	34·00	36·29	-0·03
Whole period of 9 years	—	Dry.	33·59	— 0·33	—

SUNSHINE IN GUERNSEY.

BY MR. A. COLLENETTE, F.C.S.

WE now have 16 years averages of sunshine. Compared with the 67 years period for rainfall this is a very short time and it is not to be expected that the figure quoted as the average sunshine, 1917·2 hours, is really the sunshine of Guernsey, for we have just passed through and for all we know, may be still passing through a cold series of years. The year just concluded has been one of average heat it is true, but the summer had no period of sustained summer heat and the average temperature has been kept up more by the relatively high temperature of the winter months than by the warmth and sunshine of the summer months.

We would have fared very badly had it not been for the excessive sunshine of one month, May. This month stands out as an altogether unusual one. The average daily sunshine we expect in May is 7·9 hours, raised this year to 8 hours, and when I say that the mean daily value this year was 10·9 hours, say 11 hours, you will realise that there has been last May a mean of 3 hours excess per day for the whole month.

The following analysis of the duration per day will enable you to realise the excess.

Days' without sunshine	...	...	...	0
" under 5 hours	...	...	...	2
" between 5 and 10 hours	...	...	...	9
" " 10 " 11	"	...	...	1
" " 11 " 12	"	...	...	1
" " 12 " 13	"	...	...	6
" " 13 " 14	"	...	...	9
" " 14 " 15	"	...	...	3
" under 10 hours	...	...	...	11
" over 10 hours	...	...	...	20

The excess for the month of May was 89 hours, as it appears in the table where the average for May stands at 250·4, hours but as this average has been raised by the month itself from 244·4 hours it follows that the gain of this May

over the average of past Mays is the difference between 339·4 and 244·4 or 95·0 hours. Then if we deduct 95 hours from the total of the year we get (1968-95) 1,873 hours or a year 44 hours less than average.

We are right therefore in describing the year, on the whole, as being one under the average, but containing an exceptional month which swelled the total of the year above the average.

February, April, August and November were above their averages, but the seven other months were below and July stands out as being the worst month, being 47 hours in deficit. June and July were very disappointing as summer months. Both these months lost an hour a day for their whole duration, and when we consider that these are the month of the sun's highest position in the sky we realise that the loss was greater than it seems.

As regards records the year is poor, the total of May being the only one.

In the second table you will find that no month of 1909 has reached the previous lowest. The gloomiest year we have had, 1894 with 1,724·5 hours, was very much gloomier than last year, even if we remove the excess of May. for then it stands as 1,873 against 1,724 hours and is a small mercy to be thankful for.

In considering the cloudiness of the year as given in Table I. it must be remembered that the cloud is estimated at night as well as during the day, hence there appears to be a want of consistency which is not real because the columns of sunshine and cloud are not comparable.

The distribution of sunshine throughout the year (see Table I.) has been disturbed by May's excess.

TABLE I.
SUNSHINE, 1909.

Months.	SUNSHINE.										CLOUD.			
	Monthly Totals, Hours.			Percentages of Possible.		Daily Mean, Hours.		Proportion of the Year's Total.		Sunless Days.		Scale 0 to 10.		
	1909.	Sixteen Years' Averages.	Difference from Averages.	1909.	Sixteen Years' Averages.	1909.	Sixteen Years' Averages.	1909.	Sixteen Years' Averages.	1909.	Averages.	1909.	Averages.	1909.
January	62.0	58.0	+ 4.0	23	22	2.0	1.8	3.2	3.0	5	9	6.5	6.6	
February ..	115.8	84.8	+ 31.0	41	30	4.1	2.9	5.9	4.4	3	6	5.1	6.2	
March	115.5	143.2	- 27.7	31	39	3.7	4.6	6.0	7.5	6	3	6.8	5.4	
April	218.0	195.6	+ 22.4	53	47	6.9	6.5	11.0	10.2	1	1	4.5	4.7	
May	339.4*	250.4	+ 89.0	72*	53	10.9	8.0	17.3	13.0	0	1	3.2	4.5	
June	231.7	248.0	- 16.3	48	51	7.7	8.2	11.7	13.1	2	1	6.0	4.8	
July	227.4	274.4	- 47.0	46	56	7.3	8.8	11.5	14.6	2	0	2.9	4.5	
August	272.4	245.3	+ 27.1	61	55	8.8	7.9	13.8	12.7	2	1	4.5	4.5	
September ..	171.5	186.8	- 15.3	46	50	5.7	6.2	8.8	9.7	3	1	5.4	4.6	
October	100.3	115.2	- 14.9	30	35	3.2	3.7	5.1	6.0	8	4	7.5	6.0	
November ..	77.8	70.5	+ 7.3	29	26	2.6	2.3	3.9	3.5	5	7	5.8	6.4	
December ..	35.7	44.9	- 9.2	14	18	1.1	1.4	1.8	2.3	14	12	7.4	5.7	
The Year ..	1917.2	1967.7	+ 50.5	44	43	5.5	5.2	100	100	41	46	5.4	5.3	

* These records were made in 1909.

TABLE II.
SUNSHINE RECORDS.

Months.	Monthly Totals.		Sunniest Day.		Averages.			
	Highest.	Lowest.	In each Month.	Date.	Sunniest Day.		Gloomiest Day.	
					Mean.	Day.	Mean.	Day.
January	82.5	28.7	8.3	26th, 1899	3.13	26th	0.91	21st
February ..	118.9	44.6	9.7	26th, 1899	5.44	28th	1.74	6th
March	228.4	83.7	11.8	30th, 1907	7.43	26th	2.77	8th
April	260.8	129.3	13.6	24th, 1905	8.41	23rd	4.30	3rd
May	339.4*	181.3	14.5	31st, 1899	10.84	4th	6.47	21st
June	314.4	191.7	15.6	20th, 1905	10.35	27th	5.63	1st
July	339.9	187.2	15.0	7th, 1898	11.21	4th	6.55	25th
August	325.6	186.4	13.9	12th, 1900	10.45	2nd	5.86	27th
September ..	269.4	107.3	12.4	3rd, 1895	7.52	7th	4.10	28th
October	154.5	85.19	10.8	1st, 1898	5.24	14th	2.10	30th
November ..	113.9	39.9	8.8	3rd, 1908	4.05	5th	1.04	29th
December ..	71.5	17.9	7.9	25th, 1905	2.88	28th	0.53	16th
The Year ..	2215.3	1724.5	15.6	20th June	11.21	4th	0.53	16th
	1899	1894		1905		July		Dec.

NOTES ON THE RAINFALL AT SARK, HERM AND ALDERNEY, DURING THE YEAR 1909.

BY BASIL T. ROWSWELL.

THROUGH the continued and kindly co-operation of Captain Henry, of La Vallée du Creux, Sark, and of Mr. W. J. Picot, of Le Huret, Alderney, I am again able to supplement Mr. Collenette's valuable paper on the year's rainfall at Guernsey by a Table giving the rainfall at Sark and Alderney with, in addition, a few notes on the weather experienced in those islands and at Herm as compared with our own. On the other hand, it is with regret that I have to report the closing of the station at Herm, but, owing to an unexpected change of observer, the readings there became unreliable because of difficulties in the way of a systematic visit to the gauge presenting themselves. The station was therefore definitely closed at the beginning of July. I must, however, tender very hearty thanks to Mr. Leicester Gore, with whose help the station was kept open for three years.

The year 1909 both at Sark and Alderney, as at Guernsey, proved decidedly more rainy than its predecessor. At Sark the difference was 7.62 in. and at Alderney 8.97 in. This great increase of rainfall, however, was not supported by a proportionate increase in the number of "rain days," and here again we have complete agreement with the Guernsey observations. The explanation of course is that 1909 had a bigger number of heavy falls than 1908, a statement amply borne out by the figures in the Table. In 1908 it was apparently always raining more or less, but in such small quantity the totals grew very slowly; in 1909 rain fell practically as often (at Alderney indeed somewhat oftener) as in 1908, but with much better effect as regards the aggregate rainfall.

The stations at Sark and Alderney have not been established a sufficiently long time to allow of an average being worked out for those islands, but since at Guernsey the

[1909.]

year (1909) was again a dry one (the 5th in succession), it is reasonable to suppose that the twelvemonth as a whole was also dry in the smaller islands, although, as already stated, much less so than in 1908. But if averages are as yet out of the question, one thing seems pretty clearly established as a result of the four years' observations, viz., that Sark is a decidedly drier place than Alderney, while as regards Herm the available material seems to point to its occupying an intermediate position. Guernsey, there is no doubt, heads the list as the wettest island of the group.

And here, in connection with the rainfall shortage of the last few years and the probable cause of it, I should like to quote from a letter of Dr. H. R. Mill, the Chief of the British Rainfall Organization, to *Nature* of October 28th, 1909. Writing on "Drought in South-West Ireland," he says:—"It is frequently found that parts of the country often quite narrow strips, show a marked deficiency of rainfall for several successive years, and afterwards revert to an average condition or show an excess. The most probable explanation seems to be a change, perhaps a slight one, in the prevailing tracks of the centres of barometric minima, but I have not found data in a form suitable for testing the truth of the suggestion." It will be extremely interesting to hear of corroborative evidence in support of Dr. Mill's suggestion for we know that, quite apart from other people's experience, our own rainfall has given anxiety and been the subject of considerable comment from the water supply point of view in recent years.

That our springs are entirely dependent for their supply upon the rainfall I for one do not doubt—indeed I am in the possession of evidence very much on the side of this theory. Since the autumn of 1901 I have taken regular measurements of the depth of water in our well at Les Blanchés, and a comparison of the figures with the rainfall totals shows quite clearly, for instance, that the very low springs of 1902 and 1909 followed, in each case, a remarkably dry year. These two unusually dry years, viz., 1901 and 1908, are by a long way the driest at St. Martin's of the period 1894-1909, and, beginning with 1902, the spring in that year and in 1909 averaged much lower than in any of the six intervening years of much bigger rainfall. And as an illustration of a wet twelvemonth being followed by abundance of water in the well I can instance the years 1903 and 1904. The rainfall of 1903 is the biggest at Les Blanchés of the last 16 years, and in 1904 the springs literally overflowed their banks. At

St. Martin's the average height of water in 1904 was seven feet against three feet only in 1902 and in 1909.

But I must now return more particularly to the weather of 1909 in the smaller islands as recorded by the rainfall registered there. The year began with a dry month and by a curious coincidence, as shown in the Table, the total measurement at Sark and Herm was exactly similar. An "absolute" drought, which in the technical sense of the word means an interval of more than 14 days without any rain at all, was noted by Capt. Henry, at Sark, in January. It began on the 19th of the month and ended on February 2nd, having lasted 15 days. Droughts in the winter portion of the year are rarities—at any rate at Guernsey.

In February, an exceptionally dry month, Sark narrowly escaped another drought, for no rain fell at the station for 14 days, viz., from the 12th to the 25th. Alderney on the other hand enjoyed one of 15 days' duration, for Mr. Picot's returns show that no rain fell there from the 12th to the 26th. At Les Blanchés (Guernsey), because of the occurrence of slight precipitation during both the January and February dry spells, no drought was noted. Apart from these small technicalities, however, and speaking practically, the weather was just as dry in all the islands.

At the end of February and the beginning of March a sharp, cold snap reigned over the Bailiwick and we experienced a week of snowy conditions. Snow fell in varying amounts at all the stations from February 26th to March 4th and keen frosts occurred. Alderney appears to have had most snow and Sark least, for the seven days' precipitation yielded 0·86 in. of water in the former island and 0·60 in. only in the latter, Les Blanchés (Guernsey) with 0·76 in. occupying an intermediate position.

Throughout the Bailiwick March was the second wettest month of the year. From beginning to end we were treated to an unbroken succession of depressions the passage of which kept the barometer unusually low and the rain gauges continuously busy. Several dry days, it is true, occurred both at Sark and Alderney, but at Les Blanchés (Guernsey) one day only out of the thirty-one proved dry.

April began dry everywhere and continued so until past the middle of the month—indeed but for a little rain at the several stations on the 12th (Easter Monday) another drought would have been put on record as the change to unsettled only set in on the 17th. Two days later, during the afternoon of the 19th, an early spring thunderstorm burst over the

islands quite unexpectedly. In Guernsey at any rate the electrical disturbance was not particularly severe and here too (Les Blanchés) the rainfall, 0·64 in., was slightest. At Herm the thunder shower yielded 0·72 in. of water, at Alderney 0·77 in., but at Sark no less than 1·10 in. It is rather curious to note in this connection that in spite of Sark being recognized, and rightly so I think, as the driest of the islands, it was, this distinction notwithstanding, the first station to register an inch of rainfall in 1909.

With the advent of May a sudden return to very dry weather occurred, a return as sudden as that which developed at the beginning of April, only on this occasion it lasted without break until the 24th of the month when the passage of a slight thunderstorm at night brought a 23 days' drought to an abrupt end everywhere. Herm, for a change, had the heaviest of the thunder rain this time, just over half-an-inch (0·54 in.) being reported, while Alderney had the comparatively small amount of 0·13 in. only. The month of May was extremely dry at Alderney, the total measurement, 0·22 in., making it the driest month in that island during the four years 1906—1909.

June opened with an unusually wet week occasioned principally by a depression which hung about in our neighbourhood from the 1st to the 4th, and in addition to heavy downpours gave intensely gloomy skies and a very low temperature. The persistence with which the low pressure area clung to us was, indeed, remarkable, and we know that wretchedly unseasonable as our weather was far worse conditions were experienced along the south coast of England. At Les Blanchés (Guernsey) the depression gave two falls of over one inch each and a total for the four days of 2·87 in.; at Sark where as much as 1·38 in. was measured by Capt. Henry on the 3rd, the total reached 2·39 in. Alderney had a total of 2·12 in., and no inch fall, the heaviest being 0·93 in. on the 1st. The deluge at Sark on the 3rd is the biggest daily fall in that island since observations were begun in January, 1906. On the night of the 21st a thunderstorm is reported to have occurred at Alderney.

Broken weather was our lot throughout July, but no thunderstorms passed because the distribution of atmospheric pressure was not favourable to their occurrence in the islands. Easterly winds, with a high barometer over England, are the ideal conditions for summer thunderstorms here, whereas westerly winds, and consequently relatively low pressure over England, was the prevailing distribution.

Again, as in April and May, all the early part of August was anticyclonic and dry. At Sark no rain fell from July 28th to August 16th inclusive, or for 10 days. At Alderney the drought was of 16 days' duration only, it having begun four days later in that island. Very warm and sunny weather was experienced during the prevalence of this drought—in fact it was practically our sole taste of summer this year. The heat burst began on the 5th, and ended on the 16th with the approach of showery weather which lasted rather over a week.

The figures for September, given in the Table, show a marked difference in the totals for the two smaller islands. The Alderney amount is actually double that for Sark with which island we may also couple Les Blanchés (Guernsey) where the month's aggregate was 1·84 in. One day's rainfall, Friday, the 10th, appears to have been responsible for the difference. On that and the following day the centre of a well-marked but not deep depression lay over Brittany, and in some way or other Alderney managed to get included in a portion of the system from which very heavy precipitation occurred. At any rate against 0·15 in. only at Sark and 0·24 in. at Les Blanchés (Guernsey), Alderney had no less than 1·49 in.—an inch and a-half practically. It fell during the night from the 10th to the 11th, and in writing about it Mr. Picot said:—"Rarely has there been in Alderney such a downpour of rain." It is interesting also to note, by the way, that the area of tremendous rain must have stretched right across the Channel, for the observer at Portland Bill recorded 1·07 in. for the same day. In the afternoon of the 7th September, "a huge waterspout" was seen seven miles N.E. of Bray Roadstead, Alderney.

October was a particularly wet and unsettled period. At Les Blanchés (Guernsey) the month's total rainfall, 7·18 in., has only been exceeded three times as a monthly total in the sixteen years 1894—1909. At Sark it is the wettest month on record so far, while Alderney can show but one worse—October, 1907, with 7·97 in. It was a typical October, not cold, but boisterous, wet and gloomy with, in addition, at Alderney, thunder and lightning on the 8th and 24th. Sark had an unusually large number of heavy showers this month; on five occasions the gauge contained over half-an-inch of rain and on five other occasions the measurement reached or exceeded a quarter of an inch. Heavy rainfalls are not by any means the rule at Sark, but of course exceptions will occur from time to time.

Unusually big as was the downpour at Alderney on September 10th, that island was destined to record a still heavier fall on November 15th—the heaviest daily fall in fact registered by Mr. Picot during the four years he has had charge of the station. And, again, the visitation was peculiar to Alderney, for whereas the amount for that day was 0·41 in. at Sark and 0·54 in. at Les Blanchés (Guernsey), Alderney had 1·55 in., and the report ran:—“There is no mistake. The rainfall that day and night was so exceptional here (Alderney) that old folks aver never having seen such . . . Rain came down continuously, at times as if by a waterspout.” November, on the whole, was not at all a disagreeable month, considerable dry intervals, for the season, were enjoyed in all the islands, and owing to the prevalence of Easterly and Northerly winds, temperature ranged low.

December began with very boisterous weather. Several deep depressions passed and a lot of rain fell during the first week. At Alderney “a heavy thunderstorm with much lightning and rain passed over” on the evening of the 3rd, and at night on the 6th electrical disturbance was again noted. The week’s rainfall amounted to:—Sark, 2·10 in. ; Alderney, 2·42 in. ; Les Blanchés (Guernsey), 2·28 in. No settled weather occurred during December, while the middle of the month was cold and frosty. Alderney reported a fall of wet snow on the 15th, and on the 20th, “hard frost and ice.” The 20th was a cold day, too, at Guernsey—indeed frost held the whole time in the shade and a minimum temperature of 30·6 deg. was recorded by the screened instrument at Les Blanchés.

Mention has been made of the fact that Sark is proving itself a decidedly drier island than either Alderney or Guernsey. Leaving Guernsey out of the discussion in the present Report, the average difference between Sark and Alderney for the four years 1906—1909 is 4·40 in. In 1906 and 1907 the actual difference was 2·56 and 2·69 in. respectively ; in 1908 it increased to 5·51 in. and last year was no less than 6·86 in. Last year’s big difference is in part at any rate accounted for by the two exceptionally heavy downpours of September and November, both of which Sark may be said to have missed altogether.

ABSOLUTE DROUGHTS.

An Absolute Drought is a "period of *more than* 14 consecutive days no one of which is a rain day."

Sark.

January 19 to February 2	= 15 days.
May 1 to 23.....	= 23 „
June 7 to 21.....	= 15 „
July 28 to August 16.....	= 20 „

Alderney.

February 12 to 26	= 15 days.
May 1 to 23.....	= 23 „
August 1 to 16.....	= 16 „

PARTIAL DROUGHTS.

A Partial Drought is a "period of *more than* 28 consecutive days, the mean rainfall of which does not exceed .01 in. per day."

Sark.

July 10 to August 16 = 38 days with a total of 0.31 in. of rain which fell on 7 days.

Alderney.

April 30 to May 31 = 32 days with a total of 0.29 in. of rain which fell on 5 days.

LONGEST RAIN SPELL.

Inclusive dates giving the longest unbroken succession of rain days in each island for the year.

Sark.

November 27 to December 7 = 11 days with a total of 2.80 in. of rain.

Alderney.

January 6 to 16 = 11 days with a total of 1.83 in. of rain.

SARK, HERM AND ALDERNEY RAINFALL, 1909.

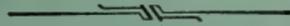
Months.	Monthly Totals.			Wet Days.			Heaviest Daily Rainfall.			No. of Falls of 0·50in. and above.		
	Sark.	Herm.	Alderney.	Sark.	Herm.	Alderney.	Sark.	Herm.	Alderney.	Sark.	Herm.	Alderney.
	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.
January	1·84	1·84	2·03	10	15	15	0·55 12th		0·47 12th	1		
February	0·96	0·89	0·90	8	7	7	0·31 9th & 11th		0·45 28th			
March	3·89	5·18	5·18	24	27	27	0·66 29th		0·87 6th	2		
April	1·88	1·76	1·76	10	9	9	1·10 19th		0·77 19th	1		
May	0·61	0·93	0·22	5	4	4	0·29 24th		0·13 24th		1	
June	2·76	2·76	2·76	9	14	14	1·38 3rd	0·54 24th	0·93 1st	2		
July	1·11	1·37	1·37	10	12	12	0·51 9th		0·43 27th	1		
August	0·70	1·18	1·18	4	5	5	0·30 20th		0·39 17th			
September	1·72	3·55	3·55	12	11	11	0·54 9th		1·49 10th	1		
October	6·07	6·43	6·43	22	23	23	0·74 16th		0·71 28th	5		
November	1·43	3·15	3·15	11	10	10	0·48 29th		1·55 15th			
December	3·16	4·46	4·46	21	20	20	0·60 2nd		0·68 21st	1		
The Year	26·13	32·99	32·99	146	157	157	1·38 June 3rd		1·55 Nov. 15th	14		15
Totals for 1908	18·51	22·99	24·02	155	150	150	0·62 Feb. 16th		1 04 Apl. 24th	1		6
" 1907	26·15	28·84	28·84	178	188	188	1·11 Nov. 25th		1·15 Oct. 1st	6		7
" 1906	26·07	27·89	28·03	161	163	168	1·16 June 28th	1·00 June 28th	0·85 Nov. 8th	10	11	15

GUERNSEY

SOCIETY OF NATURAL SCIENCE

AND

LOCAL RESEARCH.



REPORT AND TRANSACTIONS

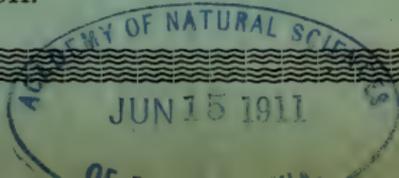
1910.



Guernsey :

BICHARD'S PRINTING AND PUBLISHING COMPANY, LTD.,
BORDAGE STREET.

1911.



GUERNSEY

SOCIETY OF NATURAL SCIENCE

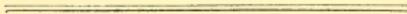
AND

LOCAL RESEARCH.



REPORT AND TRANSACTIONS.

1910.



Guernsey :

BICHARD'S PRINTING AND PUBLISHING COMPANY, LIMITED,
BORDAGE STREET.

1910.



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REV. G. E. LEE, M.A., F.S.A., Rector of St. Peter-Port.

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MR. B. T. ROWSWELL.

REV. F. E. LOWE, M.A.

MISS M. BROWNE, B.A.

LIST OF MEMBERS (1910).

- 1891—Aikman, Dr., M.D., C.M., L.R.C.S. Queen's Road.
 1903—Aikman, Mrs. Queen's Road.
 1903—Aikman, Miss Queen's Road.
 1904—Allès, Mr. G. F. Gothic Cottage, St. Martin's.
 1897—Ashburne, Miss R. Granville House.
 1903—Benson, Dr., M.D., C.M., F.R.C.S.,
 Edinburgh Saumarez Place.
 1882—Bichard, Mr. T. M. *Gazette* Office.
 1904—Bishop, Mr. Julius, Jurat of the
 Royal Court. Grange.
 1903—Bishop, Dr. Henry Draper, M.D.,
 M.R.C.S., L.R.C.P. 7, Grange-road.
 1907—Bisson, Mr. T. The Laurels, Vale.
 1904—Blampied, Mr. C. La Fosse, St. Martin's.
 1910—Blicq, Mr. J. E. Brock Road.
 1907—Bostock, Miss Smith Street.
 1909—Brown, Miss Mary, B.A. Ladies' College.
 1907—Buller, Dr. Carlson Crescent, Southampton.
 1889—Carey, Mr. F. Summerland, Mount Durand.
 1890—Carey, Mr. J. J., F.R.G.S. Cobo.
 1897—Carey, Miss E. Cambridge Park Road.
 1908—Carey, Mr. T. W. Somerset Place, Queen's Road.
 1891—Carey, Mr. William, Bailiff of
 Guernsey Queen's Road.
 1890—Carré, Miss B. Elm Grove.
 1907—Chalmers, Mr. A. L. Corbière, St. Pierre-du-Bois.
 1911—Cheeswright, Miss E. S. The Studio, Sark.
 1882—Collenette, Mr. A., F.C.S. Fort Road.
 1882—Collings, Colonel A. H. Grange.
 1890—Collings, Miss M. B. 24, Saumarez Street.
 1911—Colbron, Mr. E. R.
 1882—Cole, Miss R. 39, Canichers.
 1910—Coles, Dr. E. A. Mount Row.
 1906—Corbin, Dr. E. K., M.R.C.S. Saumarez Street.
 1908—Corbin, Miss R. Stanley Road.
 1899—Cromartie, Mr. D. B. Norfolk Lodge, Doyle Road.
 1906—Cumber, Mr. Joseph. Fountain Street.
 1893—De Guérin, Lieut.-Col. T. W. M. Le Mont Durand, Mount Row.
 1893—De Guérin, Miss C. M. Le Mont Durand, Mount Row.
 1906—De Jersey, Colonel Grant. Grange Lodge.
 1882—De La Mare, Mr. C. G. Croûtes.

- 1882—Derrick, Mr. G. T. King's Road.
 1894—De Saumarez, Lord 43, Grosvenor-sq., London, S.W.
 1893—Durand, Colonel C. J. Grange Villa.
 1906—Falla, Mr. A. Les Hauteurs, Vale.
 1904—Fleure, Dr. Herbert J., D.Sc. University College, Aberystwyth.
 1908—Foote, Advocate W. H. 6, New Street.
 1896—Foster, Miss F. A. Granville House.
 1905—Guilbert, Mr. T. J., States Surveyor Rohais.
 1882—Guille, Miss S. Cressington, Gravées.
 1893—Harvey, General. Oakleigh, Mount Durand.
 1906—Henry, Mr. S. M. Mount Row.
 1893—Hocart, Mr. J. S. Les Mielles, Vale.
 1911—Hocart, Jurat A. J. Blanc Bois, Castel.
 1906—Irish, Mr. John W. B. Elm Grove.
 1903—Kelson, Mrs. Doyle Road.
 1884—Lee, Rev. G. E., M.A., F.S.A. George Place, Union Street.
 1882—Le Cocq, Mr. Saumarez Clifton Lodge.
 1893—Le Cocq, Captain Beau Séjour, Cambridge Park-rd.
 1907—Le Feuvre, Miss C. 3, Brock Terrace, Grange Road.
 1903—Le Mottée, Colonel G. H., Jurat of
 the Royal Court Hauteville.
 1882—Lowe, Rev. F. E., M.A., F.E.S.,
 Membre de la Société Lepidop-
 tère de Genève St. Stephen's Vicarage.
 1911—Luff, Mr. E. A. La Chaumière, Brock Road.
 1903—Macleane, Mr. E. F. H. La Bigoterie.
 1894—Mainguy, General F. B., Jurat of
 the Royal Court Les Rocquettes.
 1888—Marquand, Mr. E. D., A.L.S. Knyghtwood, St. Martin's.
 1896—Marquand, Mr. H. E. Star Office
 1907—Mauger, Mr. H. E., H.M.'s Sheriff King's Road.
 1900—Mellish, Miss A. L., M.A. Ladies' College.
 1908—Mesny, Rev. P. S., M.A. Côtel Rectory.
 1908—Moon, Miss A. King's Road.
 1905—Naftel, Mr. A. M. 13, George Road.
 1907—Nicolle, Mr. E. T. 2, Norfolk Terrace, Jersey.
 1882—Paen, Mr. J. S. King's Road.
 1899—Penfold, Rev. J. B. V. Grange.
 1889—Penney, Rev. W. C., M.A. Elizabeth College.
 1882—Pitts, Mr. J. L., F.S.A. (Normandy) Canichers.
 1908—Priaulx, Mr. N. W. Mount Row.
 1906—Randell, Miss Clare Grove End, Doyle Road.
 1896—Robilliard, Mr. P. E. La Piette.
 1903—Robinson, Dr. E. L., M.R.C.S.,
 L.R.C.P. Melrose, Gravées.
 1911—Ross-Taylor, Dr.
 1904—Rowswell, Mr. B. T. Les Blanchés, St. Martin's.
 1906—Semple, Dr. Macphun Eaton Place.

- 1883—Sharp, Mr. W. “Sherborne,” Rocquettes.
 1907—Sincl, Mr. Joseph 12, Royal Crescent, Jersey.
 1909—Spencer, Mr. R. P. Brock Road.
 1909—Standen, Miss J. 3, Doyle Terrace.
 1911—Standen, Miss H. Doyle Terrace, Doyle Road.
 1903—Tanner, Mr. F. L., L.D.S., F.R.C.S. Vauvert House.
 1905—Tanner, Mrs. Vauvert House.
 1908—Terry, Rev. G., B.A. Montville, St. Martin’s.
 1893—Tourtel, Rev. R. H., M.A., B.D.,
 F.S.A. (Normandy) Torteval Rectory.
 1906—Végeais, Miss Brock Road.
 1903—Wild, Dr. H. S., M.R.C.S., L.R.C.P. Gravées.
 1908—Woolcombe, Dr. Robert Lloyd, M.A.,
 LL.D., F.R.G.S., M.R.I.A. . . 14, Waterloo Road, Dublin.

In Memoriam.

WILLIAM AMBRIDGE LUFF,

BORN 4th FEBRUARY, 1851 ; DIED 19th MAY, 1910.

THE Guernsey Society of Natural Science has this year sustained a very grievous loss by the untimely death of my lamented friend, Mr. WILLIAM AMBRIDGE LUFF, who for over a quarter of a century had been one of its staunchest friends and supporters. On a memorable day in October 1882 it was resolved to form a Society having for its object the systematic study of the Natural History and Archæology of Guernsey and the neighbouring islands. Mr. LUFF was one of the leading spirits in this movement, and since that date his interest never flagged for a single moment in the work being done by the Society he loved so well. It was always with a feeling of pride that he would point to the volumes on his bookshelves comprising the *Transactions* of the Society for twenty-two years ; and twenty-two years of uninterrupted activity is no ordinary measure of life in a small insular Society like ours.

Very early in life young LUFF began to manifest a keen interest in butterflies and beetles ; and as time went on the study and collecting of insects became his sole hobby and delight. Every hour that could be snatched from a business that kept him closely occupied, was devoted to the study of Entomology ; but the insect-fauna of the Channel Islands was always to him of paramount interest. Thousands of specimens from other parts of the world had a place in his cabinets, and were necessary for study and comparison ; but a single specimen captured in the Channel Islands was in his sight worth ten taken elsewhere. During more than forty years' collecting in the different islands of the Channel Archi-

pelago he amassed a vast store of insects of all kinds, and the entire collection well illustrates the effect of prolonged isolation on certain species, and the modifications they undergo under different local conditions.

But although LUFF was first and foremost an Entomologist, he did not shut his eyes to other interesting matters. In the course of business he frequently had opportunities of snapping up unconsidered trifles which would perhaps have been overlooked by the majority of people; and thus in the course of years he gradually acquired a considerable collection of books, pamphlets, engravings, maps and prints relating to Guernsey and its sister islands.

It is hardly necessary to mention our friend's official connection with this Society. All the members are aware that at the time of his death he held the office of Honorary Treasurer—a post he had ably filled for a period of over twenty-five years. In 1898 he was unanimously elected President of the Society, and in accordance with established rule he occupied the chair for two years. From the very commencement Mr. LUFF was a member of the Council of the Society, and although he rarely spoke much at the meetings, his opinion always carried weight on any subject that was discussed. Everything that he did was always done quietly and without ostentation, for he was by nature gentle, peaceable and diffident to a remarkable degree. Of his private and social life I know very little, although I enjoyed his friendship for over twenty years; but I should imagine he was a man who never lost a friend or made an enemy.

The management of a large business left him but little leisure for the pursuit of his favourite study, and yet he always managed to lend a helping hand in any work that had for its object the study of Natural Science. Many a young entomologist owes his early training to the practical instruction given by Mr. LUFF during the summer excursions which the Society arranged for the benefit of junior members, and I well remember with what untiring energy he collected the

Fungi of the island during a whole twelvemonth, when I was compiling the list for my *Flora of Guernsey* ten years ago. Many other persons helped me generously, but the lion's share of the work was done by Mr. LUFF.

A characteristic of our late friend was the scrupulous fidelity with which he acknowledged the work done by others even in his own line; and the grateful recognition of any service, however trifling, rendered to him in his own special researches. Another characteristic was his love of accuracy. He was no slipshod worker. All the insects about which he had the slightest doubt were submitted to one or other of the recognised authorities on the subject, and in this way many a rarity, or even occasionally an unsuspected novelty, was brought to light.

In the year 1899 he discovered a very curious mealy-bug living at the roots of sea spurrey on the coast of Guernsey near Richmond. It proved to be an unknown species, and Mr. Newstead described it under the name of *Dactylopius Luffii*. In 1903 a sand-wasp new to science was found in Jersey, and named *Ammophila Luffii* by the late Mr. Edward Saunders. A very tiny moth whose larva resides in cone-shaped cases made from the lichen on which it feeds, was identified as the type of entirely new genus, and the insect was described under the name of *Luffia lapidella*, "in honour of the entomologist who first succeeded in breeding both the sexes from larvæ found in Guernsey." It is pleasant to know that the name of our friend will thus be preserved in the annals of entomology; and in botany his name is identified with a fungus—*Omphalia Luffii*—first discovered by him at Lihou Island. It was on the recommendation of two or three eminent entomologists who were well acquainted with his work that Mr. LUFF was in 1903 elected a Fellow of the Entomological Society of London.

The principal portion of LUFF'S published notes and papers are to be found in the *Transactions* of this Society; but as early as 1873 he was a contributor to the *Entomologist*, and the correspondent of Edward Newman and Henry

Doubleday. From time to time communications from his pen appeared in various other Journals. But, as just stated, most of his work is recorded in our Proceedings, and its scope and extent will best be estimated by the following list of the papers be read before this Society in different years :—

The Butterflies of Guernsey and Sark (1882).

The Moths (Macro-lepidoptera) of Guernsey, Alderney, Sark and Herm (1889).

The Hemiptera-Heteroptera of Guernsey (1890).

The Neuroptera of Guernsey (1891).

The Cicadæ or Tettigidæ of Guernsey (1892).

Additions to the Hemiptera-Heteroptera (1892).

The Coleoptera of Guernsey (1893).

The Aculeate-Hymenoptera of Guernsey (1894).

The Diptera of Guernsey (1895).

The Orthoptera of Guernsey (1896).

The Tenthredinidæ (Sawflies) of Guernsey (1896).

Additions to the list of Guernsey Diptera (1896).

The Insects of Alderney (1897).

The Micro-lepidoptera of Guernsey (1898).

The Insects of Alderney (1899).

Presidential Address (1900).

Additions to the list of Alderney Insects (1900).

The same—second paper (1902).

The Chrysididæ, Ichneumonidæ and Braconidæ of Guernsey (1903).

The Coccidæ of Guernsey (1903).

The Insects of Herm (1904).

The Insects of Jethou (1904).

The Aphides of Guernsey (1905).

The Insects of Sark (1906).

The non-British Insects of the Sarnian Islands (1907).

The Insects of Jersey (1908).

Additions to the Insects of Sark (1909).

The Pezomachi (Ichneumonidæ) of Guernsey (1909).

The above enumeration sufficiently shows the extent and thoroughness of Mr. LUFF'S work. Any unrecorded insects that were discovered subsequently to the printing of these papers were each year entered up in supplementary lists appended to the annual Entomological Reports, and by this means the known insect fauna of the islands was always kept accurately up to date.

There are probably few places in the United Kingdom where the insects have been so well worked up as Guernsey.

Several thousands of species are recorded ; and it is very certain that a considerable number which used to occur have now disappeared owing to building, draining, quarrying and the reclamation of waste land. Immense changes have taken place in Guernsey since those far-away days in the sixties when young LUFF first began to collect butterflies and moths ; and the work he has accomplished during the succeeding period could never be done now. But, happily, all is on record, and what is done has been done well.

Another name has to be inscribed on the roll of Guernsey-men who have made their mark in the world of science. One of these days it is to be hoped some member of this Society will compile a series of biographical sketches of the Sarnian naturalists, giving details of their lives and their work. When this is done, an important place will certainly be reserved for the entomologist who forms the subject of this imperfect and inadequate memoir.

E. D. MARQUAND.

Paris, November 25, 1910.

OBITUARY.

The following obituary notice, headed "WILLIAM AMBRIDGE LUFF, F.E.S.," appears in the *Entomologist's Record*:—

A large circle of entomologists will hear with great regret that WILLIAM AMBRIDGE LUFF is gone from us. He died at his residence, La Chaumière, Guernsey, on Thursday, 19th May, aged 59. From an early childhood he was ardently attached to the study of Nature, saving his pence for the purchase of collecting apparatus. His life was one of singular energy, though outwardly remarkable for quiet manner and unruffled calm. Very early, by the death of his father, he was called upon to take the responsibility of an important cabinet maker's and upholsterer's business, and the practical fatherhood of his younger brothers and sisters. This is not the place to speak of his personal character, but it is not too much to say that he was held in universal respect and esteem by all who were privileged to know him. He leaves a widow, two sons and a daughter to mourn his loss. As a citizen he took an interest in public affairs, and has held various important offices in what in Guernsey is equivalent to municipal government. He was a valued member of the council of that excellent institution the Guille-Allès Library, and a chief influence in the founding of the Guernsey Society of Natural Science and Local Research, of which, from its initiation to the day of his death, he was Hon. Treasurer. He was elected President at the fifteenth annual meeting of the Society, a post which is tenable for two years, and delivered his address on retiring on December 19, 1900. He had amassed vast collections of local insects in nearly every department of entomology, and it is to be hoped that these may be retained intact and held in competent keeping for the

benefit and education of Guernsey. He had also formed a valuable library of entomological books and other works and engravings connected with his native place, and had lately added to his house two capacious rooms for the reception of these treasures. It is a touching circumstance that, on the Saturday, feeling suddenly a great increase of his illness, and walking with extreme difficulty, he made his way to the door of his "Museum," and clinging to the door which he had opened, took a long silent look around, before being led up to his bed from which he never rose again.

W. A. LUFF has made his own name and place in the entomological history of the Channel Isles—and can never have a successor. He has done a pioneer work which will doubtless receive additions from other hands, and may occasionally require correction, but it will never need to be done again. He has systematised our knowledge of the entomological fauna of Guernsey in particular, and of the Channel Isles in general. Every worker in the same field will be indebted to MR. LUFF. All his life he had been collecting material, and his lists of the various families of insects, indigenous to the Channel Isles, have extended over a period of nearly thirty years. We need not point out the value of such diligent and systematic work to the cause of science. His knowledge, though chiefly confined to the insects of his own home, was thorough, his industry unflagging, and his gifts of observation unusually acute and accurate. We think it doubtful if any corresponding portion of Great Britain has been so exhaustively searched, and the results as minutely recorded by any one entomologist, as the Island of Guernsey and its dependencies, by the subject of our notice. He, more frequently before the foundation of the Guernsey Society of Natural Science, 1882, contributed notes to the various entomological periodicals, but his chief and lasting work is to be found in the *Transactions* of the local Society. In these pages, from the first publication in 1882 to within a few weeks of his death, appear, year by year, carefully compiled lists of insects in all departments, recorded for Guernsey. He began

with the Macro-lepidoptera, using as a basis Ansted's not very reliable earlier attempt to record the fauna of Guernsey. He ended on December 15, 1909. In cases admitting of doubt, he was particular to submit his insects to the critical inspection of specialists in England. This brief list of his principal contributions to the "*Transactions of the Natural Science Society*" will best show the wide field of his investigations.

1882—"The Butterflies of Guernsey and Sark;" "A List of the Nocturnal Macros of Guernsey, Alderney, Sark, and Herm;" 1890 and 1892—"The Hemiptera-Heteroptera of Guernsey;" 1891—"A List of the Neuroptera of Guernsey;" 1895—"Diptera;" 1896—"The Orthoptera;" 1897-1900—"Three Papers and Lists of the Insects of Alderney;" 1902—"The Cicadæ;" 1903—"The Coleoptera;" 1904—"The Aculeate Hymenoptera;" "The Coccidæ of Guernsey," "The Insects of Herm and Jethou;" 1906—"The Insects of Sark;" 1908—"The Insects of Jersey."

F. E. L.

TRANSACTIONS OF THE SOCIETY.

*

Monthly Meeting held Thursday, January 26th, Colonel De Guérin in the chair in the absence of the Bailiff, the President.

Mr. Collenette read his annual paper on the Rainfall and Sunshine of the Bailiwick.

The sunshine for 1909 was 50 hours above the average; the record for May was one which is not likely to be surpassed, for while the average is 7·9 hours per day, this year it rose to 10·9 hours per day; there was some sunshine every day. The temperature of the year was below the average.

The rainfall, though below the average, was 7·78 inches more than in 1908. The records appear to show that the greatest rainfall occurs over the town, decreasing towards the south and west.

The lecture was, as usual, illustrated by diagrams thrown on the lantern screen.

A short discussion ensued. A hearty vote of thanks was awarded to Mr. Collenette for his trouble in making slides, &c.

The seventh Annual Soirée was held in the Lecture Hall of the Guille-Allès Library on Tuesday, February 8th. There was a large audience.

The President, W. Carey, Esq., Bailiff, opened the proceedings. The members of the Society, he said, were not themselves able to provide all the items on the programme, but they gave hearty thanks to the ladies and gentlemen who were assisting in the musical department. The Society had been carrying on most valuable and interesting work for many years and published annual *Transactions*, a costly matter. These Soirées assisted in raising funds to meet the expenses of printing. He hoped the publicity given to the work of the Society at this meeting would induce ladies and gentlemen to become members.

The items of the musical portion of the programme proved most enjoyable. Four quartettes were sung by the Misses M. Standen and A. Willoughby and Messrs. Goodman and A. Lee. The last of these quartettes, "Sobbing Quartette," provoked an encore, and the last

verse was repeated. Fraulein Anna Philipp, a really brilliant pianiste, played a "Rhapsodie" (*Liszt*) in splendid style. An enthusiastic encore followed, and Fraulein Philipp favoured with a second selection. Miss Agnes Willoughby sang "Sognia-Reverie" (*Schira*), and Miss Ruth Edmonds contributed a violin solo "Adagio-Canzonetta" (*Godard*), playing with her customary ability.

The first of the lecturers was Mr. E. D. Marquand, A.L.S., who chose as his subject "Life in a Rockpool." In the course of a lecture which occupied little more than ten minutes, Mr. Marquand succeeded in conveying a striking word picture of a typical half-tide rock pool. The lecture throughout was brimful of interest, and was also instructive. Mr. Marquand dealt specially with "animal plants" (sea anemones), zoophytes, star-fish and sea-urchins. The lecture was illustrated with lantern slides, specially striking pictures being shown of transverse sections of the spines of the sea urchin.

Mr. A. Collenette, F.C.S., lectured on "Types of Heavenly Bodies." This lecture, too, which was fully illustrated, proved both interesting and instructive. The lecturer briefly referred to the different types of "heavenly bodies"—dark worlds seen only in the light of other heavenly bodies, dark worlds intermediate, bodies giving out heat but no light, bodies giving out both heat and light, dark stars, the presence of which can only be ascertained by the eclipsing of light stars, &c. Interesting details were given concerning all these different types, and attention was drawn to the different colours of the stars—white, red, blue, green and yellow. Finally Mr. Collenette dealt with comets, showing the different types.

Mr. F. L. Tanner, F.Z.S., lectured on "Some Great Extinct Reptiles." The speaker first showed a slide representing the four great ages, in which through the process of evolution the living inhabitants of the world developed from invertebrates to vertebrate amphibians, then to reptiles of land, sea, and air, and finally to warm blooded mammalians. Mr. Tanner dealt specially with the third great age—the reptilian age. Fine illustrations of the wonderful reptiles which lived on the earth in those days were shown, and the peculiarities of development referred to. A touch of humour was introduced by the showing of one of E. T. Reed's famous *Punch* pictures, "Mixed bathing in prehistoric times."

The soir e terminated with the National Anthem shortly after 10 o'clock.

Monthly Meeting held Wednesday, March 16th, 1910, at 8, William Carey, Esq., President, in the chair.

The attendance of members numbered 28.

Mr. E. W. Sharp exhibited a full grown specimen of *Halichystes octoradiatus* found in Havelet Bay, February, 1910. Attention was called to the fact that one clump of tentacles was bifurcated.

Mr. E. D. Marquand presented four "Bulletins de la Société d'Archéologie d'Avranches, for 1907 (Nos. 6, 7 and 8) and 1908 (Nos. 1, 2 and 3); also "Proceedings of the Linnean Society" for 1905 to 1909 (five Nos.), and fourteen unbound parts of the "Journal of the Linnean Society" published 1905 to 1909. Thanks to Mr. Marquand the Library now possesses Vols. XXXVI., XXXVII. and XXXVIII of the "Journal" complete. Mr. Marquand also presented ten, mounted and labelled, rare plants from Guernsey and Alderney—a valuable addition to the Society's Herbarium. This donation includes specimens of *Salvia Marquandii*, a species of *Salvia* new to science and found apparently only at Vazon. The plant is described and figured in the 1906 *Transactions*.

Mr. E. D. Marquand read a paper "Rambles in Sark in search of Wild Flowers." This was a popular description of what wild flowers the visitor to Sark may expect to find in his rambles, with some brief reference to the Island's rarities. A hearty vote of thanks was accorded the lecturer for his interesting paper, and Mr. W. Sharp, in calling attention to the fact that Mr. Marquand was shortly leaving Guernsey, said an immense debt of gratitude was owing to him for his invaluable help to the Society, and he was sure they were all very sorry to be losing him. This statement was loudly endorsed by the meeting.

Mr. Eric W. Sharp read a paper entitled "The Ascidiens of Guernsey," which he illustrated with drawings and specimens collected by himself. This valuable contribution to our knowledge of these curious marine animals which frequently form a conspicuous adornment of the rocks round our coast was listened to with great interest, and the specimens handed round for examination were much admired. Mr. Sharp was very heartily thanked for his excellent paper, and in the discussion which followed Mr. E. D. Marquand spoke most highly of Mr. Sharp's researches in Marine Zoology, and congratulated the Society on possessing such an energetic worker in this branch of Natural Science.

Mr. Tanner informed the meeting that he hoped to organize excursions to the Gouilot Caves (Sark) in August and September next, and he would be glad to hear of any members of the Society who would like to join the party. More definite announcements of the excursions would be made later.

Mr. H. E. Marquand (Editor of the *Star*) said he would like to see the Society organize an excursion to the caves between Moulin Huet and Petit-Port. He had himself visited them on one occasion with friends. The caves were so very unique in formation he felt sure the Society would derive much pleasure from a visit. The easiest way to get to them was by boat from Moulin Huet, the cliff descent at this particular spot being rather dangerous.

Monthly Meeting held Wednesday, November 16th, 1910, at 8, William Carey, Esq., President, in the chair.

The attendance of members at this, the first meeting for the season, numbered 18. Weather very rainy.

The two following gentlemen were elected members :—

Mr. E. A. Luff, of Brock-road, proposed by Mr. D. B. Cromartie, seconded by Mr. B. T. Rowswell.

Mr. J. E. Blicq, of Bordage-street, proposed by Mr. G. F. Allès, seconded by Mr. B. T. Rowswell.

Colonel de Guérin presented Déchelette's "Manuel d'Archéologie Préhistorique Celtique et Gallo-Romaine," Part 2, to the Society's Library, and exhibited a large and interesting collection of locally-found flint instruments. Some of these had been picked up at Grande Rocque, Le Crocq, Crève Cœur (L'Anresse), and many were from the Colonel's estate at Le Mont Durant. At the latter place from 150 to 200 in all had been found and the Colonel was of opinion that the spot marked the site of an old settlement.

Two valuable papers were afterwards read by Colonel de Guérin, the first of which, "Our Statue-Menhirs and those of France and Italy," was illustrated by 23 specially prepared lantern pictures which included slides of the old stone figures at St. Martin's and the Castel churches. This dissertation was very much enjoyed as was also the Colonel's second paper, "Our Hereditary Governors."

Brief discussions, in which Mr. Collenette, Mr. De La Mare and Mr. Cromartie took part, followed the reading of each paper, and Colonel de Guérin was warmly thanked for his very instructive contributions.

Both of these papers will be published in this year's *Transactions*.

The meeting rose just before 9.30 o'clock.

*Annual General Meeting, held Wednesday, December 14th, 1910,
William Carey, Esq., President, in the chair.*

Nineteen members were present. Evening very showery as day had also been.

Mr. W. E. Coles, of Mount Row, proposed by Mr. E. A. Luff, and seconded by Mr. B. Rowswell, was elected a member.

Mr. Rowswell showed a recent publication of the Ray Society, a work on the British Annelids, containing, amongst others, some very fine illustrations in colour of worms found in Channel Island waters.

The annual sectional Reports were read as follows :

Geology.—Mr. C. G. De La Mare.

Marine Zoology.—Mr. F. L. Tanner.

Ornithology.—Mr. B. T. Rowswell.

Entomology.—The Rev. F. E. Lowe.

Mr. Collenette spoke about an apparently new disease which is attacking the roots of an indoor-growing fig tree. He had been called recently to examine the tree and had sent a specimen of the diseased roots to the Board of Agriculture who had replied that they were unable to arrive at any conclusion as to what insect was doing the mischief. Mr. Collenette said he had not seen the matured insect, but had secured a grub.

The Acting Hon. Secretary then read the Report of the Council, and Mr. C. G. De La Mare, as Acting Hon. Treasurer, supplied particulars as to the financial status of the Society. From his remarks it appeared that the year closed with a balance in hand of £12 2s. 3d. Mr. J. Linwood Pitts and Mr. Basil T. Rowswell were appointed auditors.

The President then read a "Report on the Exploration of the Palæolithic Cave-dwelling known as La Cotte, St. Brelade, Jersey." The Report had been received from Mr. E. Toulmin Nicolle, Hon. Secretary of the "Société Jersiaise," who in a letter dated October 29th and addressed to our President said "The importance of the discovery is such that it was decided to communicate the result to the principal learned Societies in England and France and also to yours. It is the first time that implements of the Mousterian type

have been found in Jersey, indeed in the Channel Islands, with teeth of the Rhinoceros and Reindeer." This official account of the exploration of the La Cotte Cave, undertaken by the "Société Jersiaise" during the past summer, proved intensely interesting. In view of the importance of the discoveries it was decided, at Mr. Collenette's suggestion, to postpone the discussion of the Report to another occasion when more time than was then available might be devoted to it.

Mr. E. D. Marquand's Memoir of the late Mr. W. A. Luff was not read owing to the lateness of the hour.

Two new sectional Secretaries were announced as follows: The Rev. F. E. Lowe, M.A., succeeds the late Mr. Luff as Secretary of the Entomological Section, and Mr. B. T. Rowswell replaces Mr. E. D. Marquand as Secretary of the Ornithological Section.

After announcing that Colonel T. W. M. de Guérin was to succeed him as President, Mr. Carey was very warmly thanked for his services to the Society. In replying Mr. Carey said that although now obliged, according to the rules, to vacate the chair, his interest in the Society's welfare would not diminish.

Mr. H. E. Marquand and Mr. C. G. De La Mare were unanimously elected Secretary and Treasurer respectively. In connection with the change of Secretary a vote of thanks was passed to Mr. Rowswell for his services as Acting Honorary Secretary.

The election of the Council for 1911 resulted in the following ladies and gentlemen being returned:—

Mr. J. Linwood Pitts, M.J.I., F.S.A. (Normandy).

Mr. F. L. Tanner, L.D.S., F.R.C.S.

Miss A. L. Mellish, M.A.

Mr. B. T. Rowswell.

Rev. F. E. Lowe, M.A.

Miss M. Browne, B.A.

The meeting did not break up until 10.15 o'clock.

Report of the Council, 1910.

In presenting their usual annual Report the Council have pleasure in reporting another year of successful work, notwithstanding the fact that the Society has suffered several severe losses—losses which in a sense have plunged the Society into deep mourning.

As regards work an amount of systematic observation and study has been going on in the various sections of research in which our Society so usefully interests itself. Of this work, and of the activity of the members by whom it has been accomplished, the *Transactions* for 1910, to be published in due course, will bear ample testimony. Recent important discoveries in Jersey of a pre-historic nature, the result of cave excavations undertaken by that very energetic body, "La Société Jersiaise," raises the question whether our own Society should not turn its attention (with the prospect of as good results as in the sister island) to the examination of some of our south coast caves. Of the excellent work done in Jersey in this direction we shall hear something this evening—something that should stimulate us, as members of an old and flourishing Natural Science and Research Society, to emulate the doings of our Jersey friends. Something might perhaps be done in this direction during the coming year. Money spent on the excavation of one or two of our island caves most likely to yield fruitful results would be money very well spent indeed.

Several new names have been added to the roll of membership this year which now numbers some 90 ladies and gentlemen. Members, who from lack of time, or some other cause, are unable to take any very active part in the Society's work, can usefully help by showing the annual volume of *Transactions* to their friends and inducing them to become members. The scope of the Society's work naturally depends upon its funds; the bigger the latter the more the work that can be undertaken.

Attendance at the monthly meetings has been quite up to the average, and a lively interest has been taken in the papers read on these occasions.

On Tuesday evening, February 8th, the Seventh Annual Soirée in aid of the Society's funds was held in the Guille-Allès Lecture Hall (kindly lent for the occasion as in former years) and was well attended by members and the general public. Particulars of the soirée will be published in the *Transactions*, and the Treasurer's Report will deal with the financial side of the undertaking. The Council tender their very hearty thanks to all the ladies and gentlemen who so materially helped to make the Soirée a success, and in particular to Mr. F. L. Tanner who, as usual, undertook the preparation of the programme.

The Council of the Lukis Museum, represented by the Rev. G. E. Lee and Col. T. W. M. de Guérin, received and entertained the members of our Society at the Grange on

Thursday evening, February 17th. Notices of this specially arranged-for visit were sent out to all the members, and a large number availed themselves of the opportunity to be present. Altogether a most enjoyable evening was spent, thanks to the courtesy of Mr. Lee and Col. de Guérin, who were untiring in their efforts to point out and describe the treasures contained in this extremely valuable collection of mostly local archæological finds.

For convenience Mr. Lee had temporarily withdrawn from their proper place in the show cases a number of specially valuable objects, including stone hammers and axes, arrow heads, &c., and on these Mr. Lee spoke principally. The richness of the Lukis Museum in these pre-historic implements, as compared with those to be seen in other well-known collections in Great Britain and on the Continent, was frequently commented upon by Mr. Lee.

Col. de Guérin afterwards spoke about and described the pottery found by the Lukis' in several of the Dolmens on the island, and which makes such a splendid display in the Museum.

Captain Francis Du Bois Lukis, who, conditionally, bequeathed his valuable Museum to the States of Guernsey, died on December 15th, 1907, aged 81 years. On March 18th, 1908, the States accepted the gift, and on April 29th of the same year purchased the house in the Grange Road where for so many years the Museum had been located and looked after by Capt. Lukis. On Friday afternoon, September 17th, 1909, the Museum was formally thrown open to the public.

Turning now to the losses sustained by our Society this year, it is with the sincerest regret the Council finds itself called upon to record the decease of the Hon. Treasurer, Mr. William Ambridge Luff, F.E.S., which occurred at his residence, Brock Road, on May 19th, at the comparatively early age of 59 years. Mr. Luff was one of the Founders of our Society. He was present at the meeting held on October 10th, 1882, when the Society first saw the light, and he was then and there made Hon. Treasurer, a post he continued to hold without break to the day of his death. Science generally, and Entomology in particular, but most of all this Society has lost a devoted worker in Mr. Luff. The Society's *Transactions*, from the beginning to the present time, are full of the valuable results of his labours in the field of Entomology, of which he was the great authority in the Channel Islands. Deceased was laid to rest in the Foulon Cemetery on May 23rd in the presence of a vast concourse of sorrowing friends.

Mr. Luff has gone from our midst, but his work remains a lasting monument to his memory. Two Memoirs of deceased will be published in the 1910 volume of *Transactions*, one from the pen of his almost life-long friend, Mr. E. D. Marquand, A.L.S., the other a reprint of an Appreciation which appeared in the July number of the *Entomologists' Record*, and bears the initials F. E. L.

As regards the Entomological Section, of which the late Mr. Luff was Secretary, the Council have much pleasure in announcing that the Rev. Frank E. Lowe, M.A., has very kindly consented to succeed Mr. Luff in that capacity.

Misfortunes never come singly, we are told, and so it has been with our Society this year. In the early spring Mr. George T. Derrick, another of the Founders and our highly valued Hon. Secretary, was taken seriously ill, and an Acting Honorary Secretary (Mr. Basil T. Rowswell) was named to temporarily attend to the duties of the post. In September our President received a letter from Mr. Derrick tendering his resignation of the post of Secretary on account of continued ill-health. In acceding to Mr. Derrick's request the Council did so regretfully, and now wish to put on record their high appreciation of his long and valued services to the Society since its foundation in 1882, and during the last ten years especially as its Hon. Secretary. Mr. Derrick was elected Hon. Secretary on December 19th, 1900, in succession to Mr. W. Sharp, our first Hon. Secretary, who that evening was raised to the Presidential chair for the usual two years.

In addition to the foregoing, two valued workers have left the island—Mr. E. D. Marquand who, with his family, has gone to reside at Paris, and Mr. Eric W. Sharp, who has entered upon a course of studies in London. Energetic workers are not easily replaced, and Mr. Sharp's particular branch of research, Marine Zoology, has had few devotees in the past although offering rich rewards to its disciples.

Of Mr. Marquand's work, not for our Society alone, but for the island and science generally, his well-known and popular book, "Flora of Guernsey and the Lesser Channel Islands," published in 1901, is a living witness. As an all-round naturalist, Mr. Marquand is a worker no Society can afford to lose, and the Council deeply deplore his departure from amongst us. Mr. Marquand's special line of study is Botany as we all know, but his sincere devotion to Natural History in all its branches, as revealed by the pages of our *Transactions*, as also by his presence at the monthly meetings, is too well known to need commenting upon here. We feel

sure, however, that absence from the island will not lessen Mr. Marquand's deep interest in this Society for which he has done so much and such good work in the past.

In conclusion the Council desire to again thank the Board of Management of the Guille-Allès Library for the use of a room for the monthly meetings, for the loan of the Lecture Hall for the Soirée, as also for the continued, and deservedly appreciated, interest taken in the Society's work.

For the Council,

BASIL T. ROWSWELL,

Acting Hon. Secretary.

December 14th, 1910.

Donations to the Society's Library.

The Council regret having to report that very little use has been made of the Library this year, to which of course all the members have free access with privilege of borrowing the volumes for home reading. The usual exchange of *Transactions* has been made with scientific societies in England, France and America, and the list has been increased by the addition of those of the Torquay Natural Science Society, and the Marine Zoology Laboratory at Concarneau, a request having been received from both places for copies of our *Transactions* in exchange for their own.

The donations and exchanges have resulted in the following additions to the Library :—

From Col. T. W. M. DE GUÉRIN :—

Déchelette (Joseph), Manuel d'Archéologie Préhistorique Celtique et Gallo-Romaine. IIe Partie. Archéologie Celtique ou Protohistorique, avec Appendices. 2 vols., 1910.

From Mr. E. D. MARQUAND, A.L.S. :—

Proceedings of the Linnean Society, 1905 to 1909 (Five Nos.)

Journal of the Linnean Society, 1905 to 1909. (Fourteen Nos.)

Bulletins de la Société d'Archéologie d'Avranches, 1907 and 1908. (Four Nos.)

From Dr. ROBERT L. WOOLCOMBE, M.A., of Dublin :—

Contributions to the Natural History of Lambay, County Dublin. Being the January and February numbers of the *Irish Naturalist* for 1907.

From the Author :—

Haize (Jules). La Tour Solidor. Notice Historique.

NOTE.—M. Haize is Secretary of La Société Historique et Archéologique de l'arrondissement de St. Malo.

From La Société Jersiaise, Jersey :—

Journal de Jean Chevalier. 4me et 5me Fascicules.
Trente-Cinquième Bulletin Annuel, 1910.

From the Trustees of the British Museum :—

Sharpe (R. Bowdler), LL.D., Hand-list of the Genera
and Species of Birds. Vol. V. 1909.

Guide to the British Vertebrates. 1910.

Guide to the Crustacea, Arachnida, Onychophora and
Myriopoda. 1910.

Memorials of Charles Darwin. Special Guide No. 4.
1910.

From the London County Council :—

Eighth Annual Report of the Horniman Museum and
Library, Forest Hill, London, S.E. 1909.

From the Torquay Natural History Society, Founded 1844 :—

Journal of the Torquay Natural History Society. Vol. I.
Nos. 1 and 2. 1909-1910.

From France, etc. :—

Phytogeographical Nomenclature (III^{me} Congrès In-
ternational de Botanique, Bruxelles, May, 1910). Reports
and Propositions, by Flahault & Schröter.

Travaux Scientifiques du Laboratoire de Zoologie et
de Physiologie Maritimes de Concarneau. Tome I. (2^{me}
Partie), 1909.

Travaux Scientifiques de l'Université de Rennes.
Tome VI., 1907.

Do. (2^{me} Partie), 1907.

From Portici, Italy :—

Bolletino del Laboratorio di Zoologia Generale e
Agraria della R. Scuola Superiore d'Agricoltura in Portici.
Vol. IV., 1910.

From the United States of America :—

Boston Society of Natural History.—Proceedings.
Vol. XXXIV., Nos. 5 to 8. 1909-1910.

Do.—Allen (Glover M.), Fauna of New England.
II. List of the Aves. 1909.

Cincinnati, Ohio.—Bulletin of the Lloyd Library of
Botany, Pharmacy and Materia Medica. Pharmacy Series,
No. 2, 1910, and Mycological Series, No. 4, 1909.

Philadelphia.—Academy of Natural Sciences, Vol. LXI.,
Parts 2 and 3, and Vol. LXII., Parts 1 and 2. 1909-1910.

Washington.—Library of Congress. Report for year
ending June 30, 1909.

Do.—Smithsonian Institution. Annual Report for
year ending June 30, 1908. 1909.

Do.—Do. Report of the U.S. National Museum for
the year ending June 30, 1909. 1909.

ABSTRACT OF THE TREASURER'S ACCOUNT

From January 1st to December 15th, 1910.

Dr.	£	s.	d.	Cr.	£	s.	d.
Balance of last year's Account ...	15	11	2	Expenses connected with Soirée... ..	2	6	9
Proceeds of Soirée	7	6	8	Star Publishing Co.	1	19	1
Copies of <i>Transactions</i> sold	0	19	0	Cost of <i>Transactions</i>	34	14	6
Members' Subscriptions	30	0	4	Collection of Subscriptions	1	8	6
Interest at Bank	0	3	9	Donation to Caretaker	0	15	0
				Secretary's Expenses for Postage of <i>Transactions</i> , &c.	0	14	10
				Balance in hand	12	2	3
	£54	0	11		£54	0	11

C. G. DE LA MARE,
Acting Treasurer.

Examined and found correct,

J. LINWOOD PITTS, }
BASIL T. ROWSWELL, } *Auditors.*

December 15th, 1910.

Report of the Entomological Section, 1910.

Owing to the irreparable loss our Society has sustained by the death of the Veteran Entomologist and Special Secretary, no full report of the Society's work in this section is possible.

I have been requested to attempt to supply the deficiency and have consented to do my best, chiefly because I believe Mr. Luff would wish it. I am not aware that Mr. Luff has left notes of any points brought to his notice during the first half of the year, and I, of course, having no official position have received no reports. I am only able therefore to place at the disposal of the Society the slender material provided by my own experience, and confined to the single branch of my own pursuit of Entomology, viz., Lepidoptera.

The year 1910 has been one of almost continued cold and rain, and the insects observed have been few. This does not necessarily mean that they have been greatly reduced in number, but that in unfavourable weather they are less active and consequently less in evidence. And for the same reason probably the field naturalist has been less energetic and given himself fewer opportunities of observation.

However, we can add three moths to our local list which are very desirable additions.

The one of first importance is *Nola albula*. Its discovery was due to a happy chance. A schoolboy of Marlborough College, spending his summer holidays in Guernsey, brought to me a box of very ordinary moths to name for him, but among the common herd was a good specimen of *Nola albula*. Of this genus *Nola* some five species only are recorded for England; though for Europe Standinger's list includes fourteen or fifteen. *Albula* is a very rare moth in England, only seven specimens are known to have been taken. It is, however, a widely distributed species, and is found not uncommonly throughout Northern and Central Europe, extending as far south as Italy and Dalmatia, and eastward to Japan. The German dealers are therefore able to offer it in their lists at the low price of 8d. Our Guernsey specimen was beaten out of the hedge in a lane near Cobo, and alas! ranks as a "foreigner." In the same box was a rather wasted specimen of *Pelurga comitata*, an insect which has not before been recorded for Guernsey, though taken by Mr. Luff in Alderney in 1873. This is a fairly common moth on waste ground in England. Another interesting capture by the same boy were several specimens of *Agrotis vestigialis*, Rott. (*Valligera* Hb.) The only previous record of this species in

Guernsey was made by myself in the early eighties, and as I had never seen it since I had begun to suspect some mistake—the more that I had not preserved a Guernsey specimen. All my own come from North Wales.

On September 8th I took flying to light at the Imperial Hotel, Pleinmont, a fine male *Epineuronia* (*Heliofobus*) *popularis*. This handsome moth, though very common in the south of England, has never been noticed in Guernsey before. This is the more strange as it is too large and too boisterous in its behaviour to be easily overlooked. The male is readily attracted by light, the female never, but is a very sluggish insect and can only be found by searching at night with a lantern the stems of coarse grass on which it rests and on which the larva feeds.

FRANK E. LOWE, Sec. Ent. Sect.

Report of the Geological Section, 1910.

1.—“*Hougue du Moûtier*” Quarry, S. Sampson.

The working of this quarry has exposed a fine section of a vein presenting some peculiarities. This vein is of a uniform width of about 2 feet, but its course is very sinuous, which may in great measure be accounted for by faulting and displacement subsequent to its intrusion. The “country rock” is the usual diorite, but the composition of the vein is variable. In those parts where it seems least altered, it consists almost entirely of crystallized quartz and felspar, but elsewhere it passes into ci syenite, while in other parts it has been altered by the formation of secondary products, such as chlorite and epidote, and the vein has a very mottled appearance due to the presence of iron in various combinations. The diorite into which it intrudes is also much altered in places, resembling serpentine, while on the east side of the quarry there is a patch where it is distinctly banded, some of the bands consisting entirely of hornblende in crystals averaging $\frac{1}{4}$ of an inch in diameter, while the alternating bands contain much quartz. This patch of banded rock is cut through by the vein, so that its banded formation is evidently anterior.

2.—*Rue Piette, Côtel.*

The bank having been cut back for the purpose of building a well, shewed superficial deposits ranging from nothing at the south end to 5 or 6 feet in thickness at the lower or north end. These deposits consist of the usual

roughly stratified alternations of sand and clay. The underlying rock is decomposed gneiss, with intrusive veins of granite corresponding to that at Cobo.

C. G. DE LA MARE, Sec. Geo. Sect.

Report of the Ornithological Section, 1910.

The recent departure from the island of Mr. E. D. Marquand, A.L.S., has deprived the Ornithological Section of its valued Secretary, whose annual Report on the bird migration to and from the island it has been our privilege and profit to hear read for several years past.

In 1889 (twenty-one years ago) I commenced making a few notes on some of our summer bird visitors, and having, with a few additions, continued these observations regularly since, I offer this as my sole excuse for attempting, however imperfectly, to keep up the work begun by Mr. Marquand for our Society in connection with bird migration here. Several ladies and gentlemen, whose names appear lower down, have assisted me materially with this Report, and to each and all of these I am deeply indebted for notes, the more especially as my own observations are mostly confined to St. Martin's, while some of theirs include the district of the Vale at one end of the island and Torteval at the other. The bigger the field of observation the better.

In sending me his notes, Mr. J. S. Hocart, of Les Mielles, Vale, wrote:—"To all appearance I believe that birds are getting each year scarcer at the Vale. The large area of ground now covered with glass, and the disappearance of trees, bushes, &c., which used to afford them shelter and cover, is probably helping to keep them away. The great number of air-guns now used by boys is also depriving us of our songsters; even the chirping sparrow is far less abundant than it was at one time."

Mr. Hocart's reference to air-guns has struck a sympathetic chord. For the sake of the poor defenceless birds I heartily wish there was no such thing as air-guns. In many instances the little bird shot at is not killed outright, only wounded more or less badly, and left, very often with perhaps a broken wing or leg, to die a painful, lingering death. I certainly think something might be done to protect the birds from this cruelty, if in no other way by licensing the owners of air-guns and fixing an age, before attaining which boys should not be allowed to use them. I wish our legisla-

tors could be induced to move in the matter just for the sake of our feathered songsters without whose sweet singing the country-side, even in spring and summer, would be dull indeed.

Ornithological Reports have been published in our Society's *Transactions* since 1903, and as supplementing this year's observations, I have added in brackets at the end of each note the earliest and latest recorded date for that particular bird with the year and the authority responsible for the observation.

Chiff Chaff.—Heard several of these early Spring arrivals on March 23rd in the Fermain Bay valley. They were in song almost as in the height of the season: it was most delightful to hear them once more. Exactly when they arrived I cannot say, as this was my first visit to the valley in search of them. Before the end of the month the birds were quite plentiful at St. Martin's. I continued to hear the bird until the early days of October, my last date being the 8th, when I heard one at Moulin Huet, below the Courtes Fallaises.

[March 23rd in 1910.—Mr. B. T. Rowswell.]

[October 22nd in 1908.—Mr. E. D. Marquand.]

Wheatear.—Mr. E. D. Marquand and his son saw two Wheatears at Icart Point, St. Martin's, on the 28th of March, one day later than last year. The first I saw was on April 5th, on the Moulin Huet cliffs. At l'Ancrese Mr Hocart did not see any until the 10th of the month, and the last seen by him in that district was on October 11th. At St. Martin's I continued to see Wheatears off and on at Petit Port up to October 25th.

[March 12th in 1903.—Mr. G. Dalgliesh.]

[October 25th in 1910.—Mr. B. T. Rowswell.]

Wryneck.—The cry of this always most welcome harbinger of Spring and of the Cuckoo was first heard on March 29th by the Rev. R. H. Tourtel, at Torteval, who reports hearing it several times that afternoon. A week later, on April 5th, the bird was heard by Mr. E. Durman at St. Saviour's, and on the 8th I heard the cry myself at the bottom of the Water Lane, St. Martin's. At the Vale Mr. Hocart's notes give April 11th as the date of arrival in his district. Mr. Hocart says:—"The bird was seldom heard, and disappeared unusually early," and he mentions June 25th as the last occasion on which he heard the bird calling in his neighbourhood. The Rev. R. H. Tourtel gives July 15th as his last date. At St. Martin's I continued noting the sound until July 18th on which date, while walking along the Moulin Huet cliffs, I heard the bird for the last time. Two days earlier, and on the same cliffs, I got almost within touching distance of a Wryneck still in full song. The strength of the cry at close quarters is almost startling and the clearness of the note delightful.

[March 29th in 1910.—Rev. R. H. Tourtel.]

[July 30th in 1908.—Mr. J. S. Hocart.]

Cuckoo.—This, probably the best known of all our feathered visitors, was heard first on April 21st and again on the 22nd by Miss Boley, in the Sausmarez Manor grounds at St. Martin's. On the 23rd the bird was heard generally all over the island for Rev. Tourtel, at Torteval; Capt. Lenfestey, at Le Bordage, St. Peter's-in-the-Wood; Mr. Robert, at New Place, Vauvert; Mr. Durman, at St. Saviour's, and Mr. Hocart, at the Vale, all report hearing the familiar call, in the districts named, on this day. It was also recorded in several parts of St. Martin's, and the *Evening Press* stated that it was both seen and heard at Les Varendes at 6 a.m. This well distributed, and I may add thoroughly trustworthy

testimony to the general appearance of the Cuckoo in all parts of Guernsey on April 23rd, is, I consider, very interesting. With the close of the month of June, the Cuckoo's voice practically ceases to be heard in the land although, as is well known, the bird remains with us for some weeks longer. Mr. Hocart tells me that June 22nd was the last day on which he heard the bird at the Vale, and Mr. Tourtel gives June 30th for himself at Torteval. At St. Martin's the Vallon trees, below the Courtes Fallaises, is a favourite haunt of the Cuckoo, and at this spot I have frequently loitered in the gathering twilight at the end of June and the beginning of July to listen to the rich full note coming from one of the tree-tops. On July 1st of this year, for instance, at 8.30 o'clock in the evening, I was sauntering along the old pathway when a bird started singing and only stopped after saying "cuckoo" 140 times. I heard a bird there again on July 4th, 5th, 6th and 8th. At 7.45 a.m. on the 9th, my old friend, I presume, said "cuckoo" 72 times, and at 8 o'clock on the evening of the same day I heard him for the last time when all he could manage was a few calls in a very husky voice. The next day, July 10th, Mr. G. J. Tourtel heard a bird at the same spot and this is the latest date for hearing the Cuckoo of which I have reliable information.

[April 13th in 1905.—Mr. E. D. Marquand.]

[July 13th in 1907.—Rev. R. H. Tourtel.]

Swallow.—On April 12th, my brother-in-law, Mr. G. F. Allès, and myself saw a Swallow skimming over a field near Les Naftiaux, at St. Andrew's. I did not chance to see any again until April 22nd, but on the 26th and 29th they were plentiful at Moulin Huet. At L'Ancrese Mr. Hocart first saw some on April 21st, a date he considers as rather late. As regards their departure, Mr. Hocart wrote:—"The bulk of them left the Vale during some rough cold days at the middle of September, but a few were still seen daily until October 16th, when I saw the two last." Of the departure of the main body I have no personal observations to report, but I noticed while out driving in the country for several hours, both on October 10th and 11th, that very few Swallows were about. I saw some in different places on Sunday, the 23rd, at Petit Port on the 25th, at Les Blanchés on the 28th, and a solitary one along the Fort road on the 31st. This I thought was going to be my latest date for seeing Swallows this year, but exactly a fortnight later, on November 14th, a couple were seen flying about at the top of George-road.

[April 6th in 1909.—Mr. E. D. Marquand.]

[November 14th in 1910.—Mr. B. T. Rowswell.]

House Martin.—About this pretty little member of the Swallow tribe I have been supplied with no notes, so only can give you the result of my own observations. With many people Swallows proper, House Martins and Swifts, are all Swallows, and yet each have very distinctive characteristics. The House Martin, for instance, is smallest of the three, and has a short blunt tail. Then, in addition, the snow-white patch of feathers on the back near the tail easily distinguishes it from the other members of the family. The first I saw this year was a solitary one flying about over the Moulin Huet cliffs on April 29th, and I did not see any more until May 9th, when another was observed at the same place, after which they became normally plentiful for the season. Throughout October I continued to see House Martins from time to time. On the 23rd for example several were sporting themselves in a gully at Petit Port, and I saw some again at Les Blanchés on the 28th and at Moulin Huet on the 31st. On November 15th I saw one (the last) at the top of George Road at 10 a.m.

[April 3rd in 1905.—Mr. E. D. Marquand.]

[November 17th in 1908.—Mr. B. T. Rowswell.]

Swift.—Mr. George J. Tourtel, of St. Martin's, was the first to observe the arrival of the "Black Swallows" this year. On April 29th he saw one

of these interesting birds at Moulin Huet, but I did not see any until May 9th, when I watched three sporting themselves over the Fort Road. On Whit-Monday, May 16th, the birds showed decided indications of becoming more plentiful. On Thursday evening, August 11th, my brother-in-law and myself witnessed a great assembly of Swifts over the cliffs at Les Fontenelles, Forest. We had been spending a lazy afternoon amongst the gorse, smoking and reading, when about 6 o'clock the birds began to attract our attention. At first the party was comparatively small in number, perhaps fifty, then grew steadily until we estimated the number at over 200. The birds were circling about at all elevations—many so low that the peculiar click of the wings and the rush of the birds through the air were distinctly heard. Once the whole flock without exception rose suddenly to such a great height that had we not known they were Swifts, it would have been impossible to identify them. When we left the spot at 7 o'clock, the birds had again descended to lower levels and were flying about in all directions in as large numbers as ever. We noticed, too, that the birds were perfectly silent, never once uttering the harsh scream for which Swifts are noted when chasing one another on warm summer days as, for instance, the little Town Church band may often be heard doing during the height of the season. It was certainly a most interesting sight, unlike anything we had ever seen before. Swifts are the last of the Hirundines to reach our shores as they are the first to leave, departing in bulk towards the end of August. Stragglers, however, may still be seen in the early days of September. During the week ending September 2nd this year, I saw a few almost daily and on the morning of the 4th a couple were flying high over St. Martin's church. On the 9th I noted the last, a solitary one, at the Courtes Fallaises, St. Martin's.

[April 24th in 1909.—Mr. E. D. Marquand.]

[September 26th in 1907.—Mr. E. D. Marquand.]

Cornerake.—This interesting Summer migrant, the scarcity of which in recent years has been commented upon by Mr. Marquand on several occasions, appears to have been rather more abundant this season, although the whole of the observations recorded in connection with it are embraced within the small compass of eleven days. The bird was first heard by my brother-in-law (Mr. Allès) and myself on Whit-Monday afternoon, May 16th, at Les Jaonnets, St. Saviour's. On the evening of the same day my friend, Mr. E. Rammell, heard Cornerakes at three different spots near St. George, Câtel. On Saturday evening, May 21st, whilst observing Halley's Comet from Les Bemonts, St. Andrew's, in company with Mr. Rammell, the pleasant if somewhat unmusical sound floated up to us from the lowlands in the distance. This was my last date for hearing the bird, but the Rev. R. H. Tourtel reports that it was heard again at St. George on the 26th. Mr. J. S. Hocart did not once hear the bird this summer.

[May 5th in 1907.]

[No records for being last heard.]

Nightjar.—Mr. E. Rammell reports seeing one of these birds on the evening of May 25th near Les Bemonts, St. Andrew's. The Nightjar although, I believe, a regular summer visitant, is not by any means a familiar or well known bird here, possibly owing to its nocturnal habits.

Jay.—In last year's Ornithological Report, Mr. Marquand was able to put on record that in the Autumn of 1899 or 1900, Mr. G. E. Kinnersly had seen a couple of Jays in the shrubbery at Le Vallon, St. Martin's. This year Mr. Kinnersly reports seeing two of these pretty birds on November 21st at Le Moulin de Haut, Câtel.

Blackstart.—On October 23rd, between Moulin Huet and Petit Port, I chanced upon one of these, when on the wing, remarkably pretty birds. The red patch at the base of the back was strikingly brilliant. On

November 3rd, 1908, I saw a Blackstart at practically the same spot, and Mr. E. D. Marquand also reported seeing several about the same time on the cliffs between Icart and Petit Bot as well as one on the heights above Petit Port.

B. T. ROWSWELL, Sec. Orni. Sect.

Report of Section for Marine Zoology.

There is unfortunately very little to report this year on this branch of our Society's work.

The only serious worker left to us—Mr. Eric Sharp—was only here for part of the year, and now he too has gone.

There are three additions to our list to record :—

- (a) A new sponge—*Leuconia fistulosa*—at Cobo by Mr. Eric Sharp.
- (b) A new anemone, the Glaucous Warty Anemone—*Bunodes Hallia*—in Grande Grève Bay, Sark, by myself. The specimen is at present living in my aquarium.
- (c) Also a distinct variety of the Globe-horn Anemone, red in colour—*Corynactis corallina*. Although this variety has been known to me for many years as occurring in large numbers in the Gouliot Caves, Sark, it has not hitherto appeared on our list.

And yet the year has not been entirely devoid of interest. Thanks to Miss Mellish and Miss Browne a number of the pupils at the Ladies' College have commenced to take an active interest in this subject and have established a marine aquarium. I trust that some of them, at least, may in time become workers for our Society. Towards the end of October I conducted a number of these pupils, accompanied by Miss Fraser and Miss Browne, to Sark with the object of exploring the Gouliot Caves. Unfortunately the day turned out very stormy, very wet and very cold, and great masses of seaweed, carried in by the waves, partially choked the inner caves. Though we were prevented from seeing and obtaining specimens of many things we had hoped to, the visit was of the greatest interest to me.

I have visited these caves nearly every year for seventeen years, but have never been into them so late in the year before, and the change since September, when I was last there, was most remarkable. The walls of one of the inner caves during the summer are closely studded with tens of thousands of *Corynactis*—the little Globe-horn Anemone. On the right side they are almost exclusively of a red variety—*Corynactis*

corallina, on the left side the commoner yellowish-green one—*Corynactis viridis*. Now all were gone. A similar change was noticeable in some of the other caves. In the so-called Grass Cave, the walls of which in summer are so closely covered with Hydroid Zoophytes as to present the appearance of being overgrown with grass; they are commonly mistaken by the ordinary visitor for a variety of seaweed. The walls were now getting bare, only sparsely distributed masses remaining. In another cave, remarkable in summer for the large numbers of the beautiful little Orange-disked Anemone—*Sagartia venusta*—which adorn its walls, one now had to hunt to find any considerable number.

Now the interesting points arise: (1) What becomes of these animals in winter? Do they leave the walls of the cave and retreat into deeper water for warmth? If so, how do they get back again? (2) How can we account for the fact that on the return of warmer weather not only do they return to the same cave as formerly, but the different kinds appear on the same walls as in the previous summer? Why is one wall almost exclusively *Corynactis corallina*, another *Corynactis viridis*, and in the Grass Cave zoophytes? Also how is it that some forms found almost exclusively in these caves do not make their appearance in other sheltered spots in the neighbourhood? If they do not retreat into deeper water on the approach of winter, what becomes of them?

I think that this opens up a most interesting question, and one on which I can find no information in the writings of the various authorities on Marine Zoology. Unfortunately most of these writers do not live permanently at the sea-side, but go down there in the summer for a longer or shorter time; consequently they always see things under very similar conditions. This shows that useful work can be done even in the winter by studying the different changes produced by varying conditions. What place could be more advantageously situated than Guernsey and the neighbouring islands for studying such changes! What we particularly want are a few intelligent and systematic workers who will not merely work for a few months in the summer when the weather is inviting, but who will keep up their observations regularly during the winter also.

Mr. Eric Sharp reports as follows:—

There is scarcely anything to report about Marine Zoology for the past year.

Miss Mellish, the Principal of the Ladies' College, did me the honour of asking me to take the College Nature Study

Class to the shore. Two outings were undertaken, the first to Cobo and the second to l'Islet. On both occasions a large and enthusiastic gathering spent several hours among the wonders of nature. During the visit to Cobo a new sponge was found, *Leuconia fistulosa*. It takes the form of an elliptical knob of twisted white thread standing on a short stalk. The whole is less than $\frac{1}{2}$ -inch in height.

Nothing new was found on the second excursion, but many very interesting creatures were seen. The masses of the small Red Sea-squirt (*Styelopsis grosularia*) which cover the rocks at l'Islet were greatly admired, as well as the beautiful colours and varied forms of *Botryllus schlosseris*, *B. violacea*, *B. smaragdus* and *Botrylloides rubrum*. The small caves which abound on this piece of shore were a source of endless enjoyment to those members who could squeeze into the openings. In one cave species of nearly every class found on our shores are to be seen, a fine colony of *Sagartia venusta* studs a little pool at the base, the beautiful discs of *Corynactis viridis* peep out from among the masses of pendant *Zoophytes* and *polyzoa* on the roof. On a buttress at one side is a huge mass of the grey sponge *Pachymatisma Johnstoni*, while bordering the sea-ward entrance are to be found sponges *Leuconia nivea*, *Dictyocylindrus ramosus*, and a curious form like a small mass of purple crotchet cotton, the name of which I cannot find out.

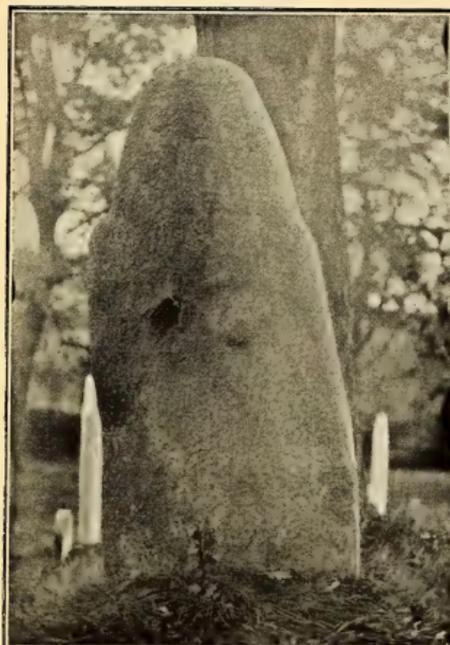
But among all these wonders the two objects which attracted the most attention were the Octopus (*O. vulgaris*) and the large spiny star-fish (*Uraster glacialis*). Another rather interesting capture was a huge specimen of the Spider Crab (*Maiia squinado*), which on being presented to a fisherman called forth the remark from him "that this species was quite rare at that spot, especially one of the size caught." A specimen of Conger Eel (*C. vulgaris*), about 3 inches in diameter, was seen poking its head out of a crack in the rock. On coming back from the shore a tide-washed specimen of *Arctus ursus* (= *Scyllarus arctus*) was found which although somewhat worn was sufficiently perfect to show the curious flattened leaf-like processes on the head.

On the whole the excursions were a great success and many of the ladies took voluminous notes. I hope this branch of nature study will be prosecuted with much zeal and success at the Ladies' College.

A few notes as to the best hunting grounds in Guernsey may not be out of place. For all-round work, Bordeaux, not the harbour, but a cove to the north thereof, although

that has deteriorated even within the last seven or eight years. For rock-loving animals (*Sponges* and *Ascidians* especially) there is no place like l'Islet, or rather the seaward rocks west of Grand Havre. The long ridge of rocks ending in a beacon at Cobo is a splendid hunting ground, whilst Lihou Causeway will afford many hours' work to those who enjoy wading.

Minor hunting grounds are Pezeries Point, Petit Port, Terres Point, Castle Cornet and Belle Grève Bay. For sand burrowers, Havelet Bay is by far the best, rare anemones like *Peachia*, *Cerianthus* and *Halcampus* occurring there, while the crustaceans *Corystes* and *Portunus marmoreus* are also found.



* Fig. 1.—Câtel, Guernsey.



Fig. 2.—St. Martin's, Guernsey.



Fig. 3.—St. Sernin, Aveyron, France.



Fig. 4.—Les Maurels, Tarn, France.

* I am indebted to the kindness of Dr. P. Raymond, editor of *La Revue Préhistorique*, Paris, for the plates of the illustrations of this paper.

OUR STATUE-MENHIRS AND THOSE OF FRANCE AND ITALY.

BY LIEUT.-COL. T. W. M. DE GUÉRIN.

IN our two statue-menhirs, we have most interesting specimens of prehistoric or protohistoric sculpture, unique, so far as our immediate neighbourhood is concerned. Recently the origin and probable date of similar statues and sculptured figures in the valleys of the Seine and Oise, in the Marne, and also in the south-eastern departments of France, have much occupied the attention of French savants. M. Salomon Reinach, Curator of the famous Museum of Saint Germain, in his work on "La Sculpture en Europe avant les influences Greco-Romaines" as well as M. J. Déchelette, Curator of the Museum of Roane, in his recently published "Manuel d'Archéologie Préhistorique," have written on them at considerable length. It may be of interest to us to examine their conclusions and thus gain a better knowledge of our own statues.

First let us glance at the statue-menhir now standing in the Câtel churchyard (Fig. 1.), the rudest and without doubt the oldest in our island. It was discovered during the restoration of the church, in 1878, buried, according to Sir Edgar MacCulloch, about a foot beneath the pavement at the entrance to the chancel. It lay on its side midway between the two walls, with its foot pointing towards the east. Its total length was 6 ft. 6 in. and width at the shoulders 1 ft. 3 in. It was removed from the church and erected in its present position in the churchyard under the trees to the north of the porch. It resembles a natural boulder very rudely sculptured by man. The back is plain and slightly rounded, and on the front side are sculptured two projecting female breasts, and just above them a slightly raised semi-circular object, without doubt, the typical necklace found, as we shall see, on most figures of this type. From the shoulders upwards the stone gradually tapers to the top of the head round which is a small rounded fillet or diadem. No features of the face are at present discernable, but what should be the face and the right breast bear

unmistakable signs of having been defaced by a hammer or chisel.

We will now compare this statue with the early anthropomorphic sculptures in France, found on the props of the "allées couvertes" or dolmens with galleries, of the valleys of the Seine and Oise. That of the dolmen of Aveny, canton d'Écos, arrondissement des Andelys, Eure, is typical of the whole series. It represents a necklace above two female breasts, but no attempt has been made to represent the face. Similar sculptures have been found on the two props of the dolmen of Belle Haye, commune de Boury, Oise. Another on a prop of the dolmen of Le Trou aux Anglais, commune d'Aubergenville, Seine et Oise, shows an advance. Here we see the same typical necklace above the two female breasts, but above it is the addition of a circular head with indications of the brows, eyes and nose. This type thus approaches in details our statue-menhir of the Câtel, and also is we might say the prototype of the famous sculptured figures of the grottoes of the Marne. These grottoes were explored by the Baron de Baye, about the year 1874, and consist in all of 120, artificially excavated in the sides of the hills of the valley of the Petit Morin, near Epernay. They all belong to the Neolithic period, no trace of metal having been found in any of them, but it is probable that they date at the very end of that period, at the verge of the Bronze Age. In every case these grottoes had been used as places of burial. In seven of the most important rude sculptures of human figures and hafted stone axes were found carved upon the walls. Here again, in nearly every instance, we find the same type of female figure, the face being rudely indicated by the brows, eyes and nose only, the neck encircled by a necklace of one or more strings of beads, beneath which appear two projecting female breasts, but no attempt made to represent the body or limbs, or (except in one solitary instance) the mouth. These figures were invariably carved on the walls of the left hand side of the passage or of the anti-chamber leading to the tomb proper, never within the tomb itself. In the grotto of Courjeonnet, there was one rude female figure sculptured on the side of the trench leading to the entrance of the grotto, and another in the vestibule leading to the tomb, the latter figure being the only one on which the mouth was indicated. It has also a necklace of several strings of beads round its neck but as no breasts are represented its sex is doubtful. On each side of the doorway

leading into the tomb chamber of this same grotto, and again within the tomb, are carved hafted stone axes with their cutting edge towards the entrance. Another implement of doubtful character, possibly intended to represent a club, is also sculptured on the wall of the tomb. In the grotto of Croiznard a human figure with a hafted stone axe is sculptured on the left hand side of the entrance of the tomb. In the same grotto is also the most perfect female figure of the series, the centre bead of its necklace bearing signs of having been coloured yellow, probably to represent amber. The presence of these figures in the passages and anti-chambers leading to these tombs seems to show that they represent the guardian deities of the dead.

At Collorgues, near Uzez (département du Gard), another type of these figures, sculptured on flat slabs of stone, has been discovered in a dolmen built up with blocks of stone. The first sculptured slab was found resting on the top of the large stone covering the chamber. It is very rudely carved with a female figure much resembling those of the grottoes of the Marne, but in this case an attempt has been made to represent the two arms, and below them is an object supposed to represent an axe. A second figure sculptured on a slab of stone in the passage leading to the chamber of this dolmen is of the same type but perhaps rather less rudely worked. A quantity of worked flints and other Neolithic implements and fragments of pottery were found dispersed on the surface of the ground round the tumulus. Other very similarly carved stones have been found at Castelnau-Valence, Foissac and Bragassargues, all in the same neighbourhood.

The next group consists of the statue-menhirs of the Aveyron, Tarn and Herault, of which no less than 21 have been discovered by l'Abbé Hermet since 1892. Twelve were found in the Aveyron, six in the Tarn and three in Herault. In 1909 another was discovered in the Bouches du Rhone.

The most perfect example of these statues is that of Saint Sermin, Aveyron (Fig. 3). Its face resembles much in character those of the figures of the Marne and Gard, and round its neck is a necklace of several strings and an object, not yet identified, which does not appear on any of the other statues of the type. The lower part of the face is ornamented with two groups of four straight lines, thought by Déchelette to represent tattoo marks. The back of the statue is not plain, like ours of the Câtél, but is grooved in folds to represent a cloak or mantle. It has been questioned whether these

marks really represent a cloak, as the figure seems nearly naked, not only the breasts and legs in front being visible, but also the shoulders at the back.

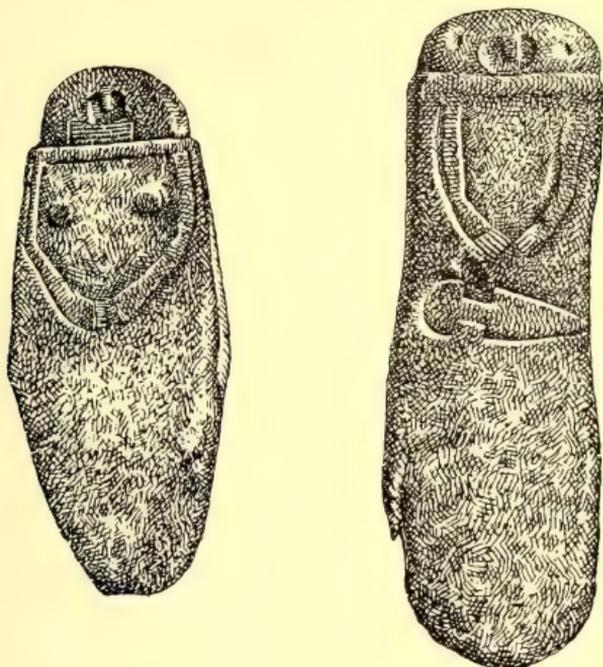
The statue-menhir of Les Maurels, Tarn, (Fig 4.) the two of Pousthomy, Aveyron, and that of Puech-Real, Tarn, show no breasts, so it is difficult to determine their sex. Their details also differ from those of Saint Sernin. On all of them there seems to be a sort of band or baldrick across the breast, and on it a circular ring to which appears to be suspended an elongated triangular object. Déchelette queries whether the latter may be intended to represent a poniard or the other end of the band. A poniard in much the same position appears on several similar statues in Italy. In this case these statues probably represent male divinities. On the breasts of each of them is carved a small object to which various interpretations have been given. It has been supposed by some to represent a small bow and arrow and by others to be a metal fibula. Reinach who takes the latter view also considers the curious marks at the back of the statue of Les Maurels to represent part of a metal torc. Whether this supposition is correct is questioned by Déchelette, who is inclined to think it improbable that any of these objects represent metal, but at the same time he acknowledges that our present knowledge of these statues is too limited to be positive one way or the other.

It is not necessary to go into details on the other statue-menhirs, of which a list is given by Déchelette, but it may be as well to mention in passing that lines of tattooing marks similar to those on the face of the statue of Saint Sernin are also to be seen on the faces of those of La Bessière, Tarn and Bragassargues.

We have noticed that the sculptures of the valleys of the Seine and Oise, and those of the grottoes of the Marne and of the tumulus of the Gard were all associated with places of burial, presumably as guardians of the dead. It has been conjectured that the statue-menhirs of the Aveyron and adjoining Departments were erected with a similar object. The discovery of the statue-menhir of Le Mas d'Azais above a stone kist containing human remains tends to confirm this theory.

Equally rude statue-menhirs have been discovered in North Italy. Of these, nine were found in 1905 at Bacciari, in the commune of Fivizzano, near Spezia, buried in a mound of earth. They were, with the exception of one, found placed in an alignment touching each other. No traces of bones or

pottery were found near them, but beneath them the black greasy nature of the soil seemed to indicate an ancient place of interment. These figures are extremely rude and undoubtedly intended to represent both sexes (Figs. 5 and 6). Though



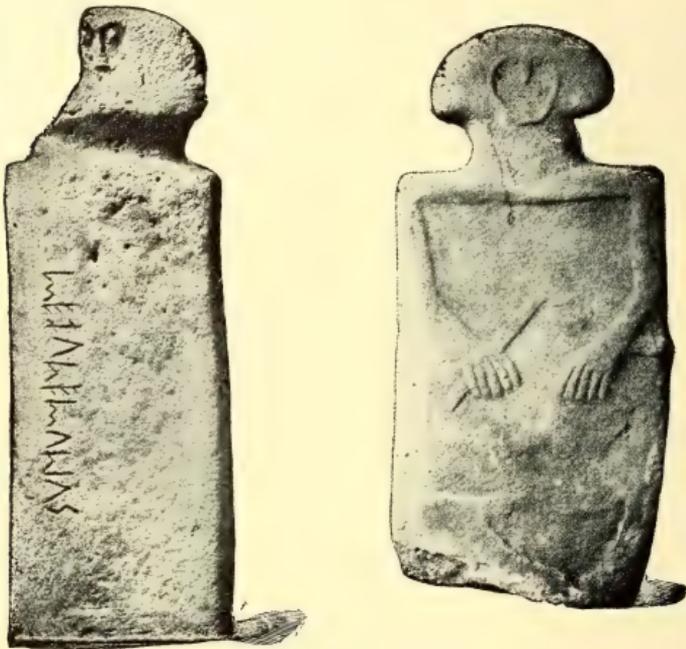
Figs. 5 and 6.—Fivizzano, Italy.

differing slightly in details still their affinity to those of Southern France is easily recognised. The absence of the mouth, the constant representation of the face in a symbolic T form, and the appearance of tattooing on the face of one of the figures all point to a common ancestry. The male statues each bear a poniard resembling those of the early Bronze Age.

Five other similar statues, rather less rudely sculptured, have been discovered in the same commune of Fivizzano. They are undoubtedly of a later date as one of them bears an Etruscan inscription, not necessarily however of the same age as the figure (Fig. 7), and another is sculptured with a warrior armed with the typical sword and axe of the Iron Age (Fig. 8).

We will now turn to our second Guernsey statue-menhir, that of St. Martin's (Fig. 2), which I purposely leave to the last, as I think it will be agreed, on comparing it with those of France, that it is undoubtedly the latest of the series. It

exhibits considerable skill in working such a hard material as our granite. Still in form and in details it shows a continuation of the same traditional type. We find the same projecting breasts and necklace as in all the other female statues of the series. But there is an advance shown in the modelling of the face, and an attempt has been made to represent the neck by making the chin project, and though the features of the face are still very rude, greater care has been



Figs. 7 and 8.—Fivizzano, Italy.

taken in delineating them. The personal ornaments are also more carefully carved. These consist of a row of small circular discs round the forehead and extending once down both sides of the face, but now only visible on the left side. Round the neck is a semi-circle of ray-like projections. Sir Edgar MacCulloch and the Rev. W. C. Lukis thought they represented the folds of a hood, but this supposition is rather improbable and I am inclined to think they represent the typical necklace found on all of the female type of these statues. Possibly they are intended to represent a necklace or torc of bronze plates or pendeloques. M. G. de Mortillet who wrote an article on this statue in *L'Homme Préhistorique* for June, 1910, thought he could distinguish signs of a band

round its body and also traces of legs below it, similar to those represented on the statue-menhirs of Southern France. On a recent examination of it I came to the conclusion that while I could not distinguish any trace of legs, there are undoubtedly on the back and right side of the statue, traces of a band. At about a foot to fifteen inches above the ground are two horizontal lines about an inch and a half apart, the space between them being slightly rounded. The front of the statue is so weather-worn that it is most difficult to trace the continuation of the band, but in line with it there seems to be a slightly raised mark across the stone. The presence of this band shows the great affinity in details of our St. Martin's statue with those of Southern France. There are also some curious indefinite marks carved near the left shoulder below the necklace, but it is impossible to make out their meaning.

On the origin of these statues and the cult they symbolize there is a difference of opinion. Reinach points to a local derivation and traces their development from the rude sculptures of a necklace and two female breasts, of the dolmens of the valleys of the Seine and Oise, through the more advanced figures of the grottoes of the Marne and the tumulus of Collorgues, Gard, down to the more perfect statue-menhirs of the Aveyron and adjoining departments. He will have none of "le mirage oriental" which looks to the Eastern basin of the Mediterranean as the home of the prototype. Déchelette on the other hand accuses Reinach of wishing to trace the whole of the early Eastern civilization to Western sources. He states that in spite of variations of form, variations due to local influences, all these anthropomorphic sculptures are closely related to each other, and may be traced back to the same Ægean prototype; that their dispersion can be traced from Asia Minor, through Spain, as far as the British Isles. But in the dispersion of this divinity in Gaul there is one unexplained fact to be noticed; it has never been discovered in Brittany, so rich in other megalithic sculptures. He questions whether the anti-anthropomorphic influences, which were so strong at a later date, in the time of the Druids, were not already existent in that province. This is a point waiting further elucidation, as in other respects the sculptures of Armorica in Neolithic times are said to present many signs of southern influences. Another fact to be noticed is that the cult of this idol does not seem to have been general in Gaul, but confined to certain isolated centres.

The presence of this idol in the galleries of the dolmens of the valleys of the Seine and Oise, at the entrance of the

tomb-chamber in the grottoes of the Marne and in the tumulus of the dolmen of Collorgues, Gard, would seem to identify it as the guardian goddess of the dead. Broca would see in it the prototype of the mother goddesses of the ancient world.

In tracing the probable eastern origin of this idol, Déchelette compares it with the numerous small statuettes, chiefly of female divinities, found by Dr. Evans and other explorers in tombs of the early Minoan period in Crete, as well as with the idols sculptured on small tablets of marble found by Dr. Schliemann in the II City (the burnt city) of Hissarlik dating from the 1st Bronze Age, B.C. 3000 to 2500. Mr. A. J. B. Wace and Mr. M. S. T. Thompson have also recently found in a Neolithic Station, at Tsangli, in Thessaly, 20 to 30 terra-cotta statuettes of male and female figures, showing that this cult was in existence even at this early period in the East. In South-East Spain and in Portugal, MM. L. & H. Siret and others have discovered in graves and stations of the late Neolithic period, and also in those of the Eneolithic, or Copper Age, numerous idols representing the

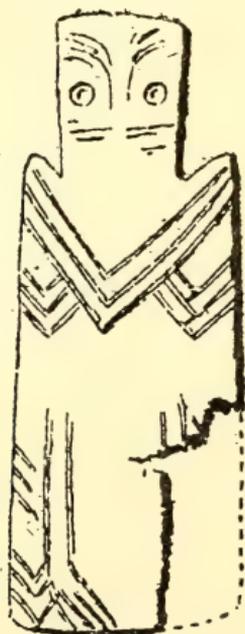


Fig. 9.—Idanhà à Nova, Portugal.

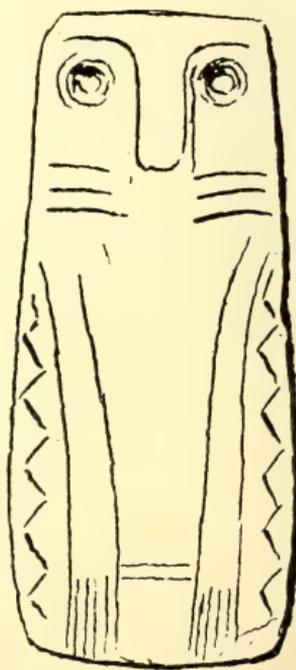


Fig. 10.—Collection Rotondo, Madrid.

human figure in a highly symbolised form, identical in shape to those found by Evans and Schliemann in Crete, Hissarlik

and other places in the Ægean. Fig. 9 gives an illustration of one of these idols found at Idanha à Nova, Portugal. It is engraved on a slab of schist and is almost identical with one, also illustrated by Siret, found in Cyprus.

Fig. 10 represents another found in Spain, now in the Collection Rotondo, Madrid. In details the resemblance of these figures to the statue-menhirs of Southern France is striking. They show the same symbolic treatment of the human features already noticed. The absence of the mouth, and the presence of straight lines of tattoo marks on the lower part of the face, similar to those on the statue of St. Sernin and others in South-Eastern France and North Italy, show an affinity of idea which can only be attributed to an origin from a common prototype.

Recent discoveries have brought to light proof of the great influence of the higher Ægean civilisation on that of Western Europe at the end of the Neolithic period and during the early Bronze Age. Traces of this influence are especially discernable in Spain where numerous objects, beads of callais, pottery, objects carved in ivory, and the small idols above-mentioned, have been discovered in graves of the period closely resembling those of the pre-Mycenean period in the Ægean and at Hissarlik, all pointing to a maritime connection with the East. From Spain and the Mediterranean coast these influences spread northward through Gaul to the British Isles and Northern Europe along, what is thought to be, the oldest route of intercourse between East and West.

Proof of this intercourse between East and West is also to be found in the distribution over wide areas of certain types of vases and other objects of undoubtedly eastern origin. The caliciform vase, for instance, is found distributed from the basin of the Mediterranean, Sicily, Sardinia, Spain, Portugal, and Southern France, to Brittany, the Channel Islands, England and Germany. In the Mediterranean basin, Spain, Portugal and the French departments bordering the northern slopes of the Pyrenees, this form of vase is invariably found associated with gold, or small copper ornaments, or poniards of the Eneolithic or Copper Age. To the north of this line it is, with rare exception, found in dolmens associated with stone implements with no trace of metal, showing that while Spain and Southern Europe had reached the first age of metal at the time of their distribution, Brittany and Western France were still in the Neolithic period. The similarity in form and decoration of this particular vase, wherever it is found, points to its origin from a common type. It does not necessarily

mean, as some authorities would have us believe, that the vases we find were themselves carried immense distances for the purpose of barter, but rather that individual specimens spread along the trade routes from the Mediterranean to the Baltic, and from Spain to the British Isles, and were copied by local potters. This form of vase is but one of many objects that can be traced to an Eastern prototype. A curious type of vase with one handle and a slanting lip found by Schliemann at Hissarlik has also been discovered at Phæstos, Crete, and in Sardinia. Another very distinctive form with a stem, of rather later date, has been found at Abydos, Egypt, at Knossos, Crete, at El Algar in the province of Almeria, Spain, and in Bohemia, but nowhere else in Europe. It would take too long to enumerate all the various forms of pottery or of typical patterns of weapons and ornaments which can be traced to a similar origin; it is only necessary to mention the two and four-handled vases of the early Bronze Age, also found distributed over the Mediterranean basin and all over Western Europe, and the curious spiral decorations, and that of two eyes, found on pottery at Hissarlik in the ruins of the II city, in Spain, France, England, and even as far north as Scandinavia.

It is most difficult to explain the reason why we should find these statue-menhirs in Guernsey when none are to be found in Brittany, as in other respects, in the similarity of the forms of our dolmens, in the forms and patterns of the pottery found in them, and also in the funeral customs of our primitive inhabitants, we have, we may say, proof of the affinity of our culture in Neolithic times with that of Brittany. Further, in the distinctly Breton type of the bronze implements found in our islands, we have also proof of the continuation of this intercourse in the succeeding Bronze Age.

The spread of the cult of this divinity from Spain and the French Mediterranean littoral through Herault, Gard, Aveyron and Tarn on to the valleys of the Marne and the Seine and Oise may be accounted for as they lie on the trade route with the North. Its presence in our island is more difficult to explain. Déchelette maintains that a maritime trade already existed in late Neolithic times between Spain and the British Isles, and that proof of the extension of this trade in the early Bronze Age may be gathered from the fact that more "cachettes de fondeurs" containing the earliest form of bronze axe have been found on the western coasts of France, than in any other part of that country. This being correct then this idol may have reached us through this channel. Or,

on the other hand, it may have come to us through intercourse with the valley of the Seine.

It is difficult to determine the date of our statue-menhirs. All we can say is, that that of the Câtel resembles in type most nearly the sculptures of the grottoes of the Marne and of the tumulus of Collorgues, Gard, and it may presumably have been erected about the same period. As these sculptures of the Marne and Gard are assigned by Déchelette and other French savants to the late Neolithic period, namely, sometime before B.C. 2500, we may not be very far wrong in presuming that ours of the Câtel may possibly be of about that date. On this point, however, it is necessary to state that all these dates are only approximate, and further, it is quite possible that this cult may have only reached our remote island long after it was first established on the mainland. Whether the kindred statue-menhirs of the Aveyron, Tarn and Herault are of the same period or of the early Bronze Age (*i.e.*, B.C. 2500 to 1900) is at present undetermined. Reinach assigns them to the latter, while on the other hand Dechelette inclines to an earlier date. One point is however certain, that is, the cult of which they were the symbol was evidently of comparatively short duration in Gaul, not a trace of it is to be found in the later Bronze Age, or in the Hallstatt, or the La Tene periods of the Iron Age. It vanishes from sight and is replaced by the symbols of the religious beliefs of the Gauls known to us more fully through Latin writers. The only places where this cult seems to have lingered on were among the Ligurians in North Italy, where it seems to have lasted down to the early Iron Age, and possibly in our own island, for it is impossible to suppose other than a much later date than that of the Câtel for our other statue-menhir of St. Martin's. Probably an interval of many centuries separated them. The skill necessary to sculpture hard granite, even in the comparatively rude manner in which it is carved, could only have developed slowly in such a remote spot as our island. It would have required better tools and greater knowledge than was possessed by the makers of the rude statue-menhirs of South-Eastern France. The links in the chain are missing, as we possess no Gaulish sculptures by which to trace its development. Still though we may consider the St. Martin's statue the latest representative of these figures, its affinity to the statue-menhirs of South-Eastern France is indisputable as it shows all the characteristic details of the earlier type.

RAMBLES IN SARK
IN SEARCH OF WILD FLOWERS.

BY E. D. MARQUAND, A.L.S.

No observant visitor to the Channel Islands can fail to have noticed the wonderful profusion of wild flowers and ferns to be met with everywhere, and their remarkable variety and luxuriance. Wherever there is room for them to grow, there they are. Even in the little island of Sark, three miles long and a mile wide, the native flora is an exceedingly rich one; and probably it will come as a surprise to most people to learn that between 400 and 500 different kinds of Flowering Plants are to be found there growing wild. Some of them, it is true, are very small and inconspicuous, so that they readily escape notice unless specially searched for; and some others can only be distinguished by persons who make a particular study of these things. But the vast bulk of the wild flowers of Sark are sufficiently noticeable to attract the attention of even a careless observer; while they cannot but interest the true lover of nature. And both will be all the better able to appreciate and enjoy the beauty of this glorious scenery, if they know something, however little it may be, concerning the plants which form one of its predominant features.

Now although every flower is exquisitely beautiful when it is examined by itself and studied in detail, there are some flowers which give a character to the landscape by their growth in large masses. One of the most striking of these is Gorse, or Furze, which sets the cliffs aglow in Spring with its golden blossoms, and recalls the feelings of Linnæus, the great Swedish botanist, who at the first view of it in England, fell on his knees and thanked God for a sight so glorious. But for a mass of pure unmixed gold, nothing can surpass the flowers of the Ragwort, as seen in great patches here upon the waste land near the sea. Then there is the sheen of silver in the bloom of the Blackthorn, which clothes itself in glistening white while its leaves are yet only in bud. And a few weeks later, in the early summertime, when "the earth has grown an emerald and heaven a sapphire now," a fine expanse of Oxeyes, or Moon Daisies, gleams here and there among the bracken, like a sheet of snow. As summer wanes

the hillsides all along the coast may be literally described as "gleaming in purple and gold," by the intermingling of late flowering Gorse with long stretches of blossoming Heath and Heather.

These two names, by the way, Heath and Heather, are often confused, or employed as if they were synonymous; but the two plants are distinct enough. The former bears bright purple bell-like flowers, and narrow spreading leaves; whereas Heather has much smaller, lighter-coloured flowers, and minute leaves pressed close to the stem. Both of them frequently grow together. Curiously enough, the pretty cross-leaved Heath, sometimes known as Bell Heather, which is so plentiful in the south of England, does not grow in Sark, or in fact anywhere in the Channel Islands, except in one part of Jersey.

Now, suppose we take a walk or two in this charming island, the "gem of the Channel Islands" as the guide-books call it, and note a few of the wild flowers we happen to meet with on the way—some common, some rare, but without particularly specifying the exact localities in which they grow, because that would take away half the pleasure. To walk up to a certain place, and see a rare plant which you were told grew there, is a very tame sort of experience, compared with the delight of discovering the same plant by yourself quite unexpectedly, because there is the added pleasure of wondering whether anybody else in the world knows that it grows in that spot.

As Sark is justly renowned for its magnificent coast scenery, let our first ramble be along the cliffs, where there are large stretches of gorse, heath and bracken interspersed with rugged grey crags and lichen-covered rocks. The winding cliff path leads through tangled masses of bramble, honeysuckle, and wild rose, which rise in little hillocks among the tall fern, and in some places overhang a yawning chasm where you can almost drop a stone into the sea 200 feet below. And surely no honeysuckle was ever more deliciously fragrant, and no blackberries more sweet and luscious than those to be found on these rocky slopes.

At the foot of that boulder yonder, an old weather-beaten Hawthorn bush, gnarled and knotted with age, and bearded with grey lichen growth, rises up amidst a miniature forest of Fetid Iris and Butcher's Broom, both of them striking plants in their way, especially in autumn, when their fruit is ripe. The Iris may be known at once, even if not in flower, by the disagreeable odour of its long sword-like leaves when they are

bruised, and by the large seed vessels which gape open as they dry, disclosing the brilliant orange red seeds within. Butcher's Broom is a stiff, prickly, dark green plant that produces round berries of a vivid scarlet on the back of its leaves. A curious point about this plant is that these so-called "leaves" are not leaves at all, but simply flattened branches ending in a sharp spine, while the real leaves are minute scales hardly visible without a magnifying glass.

One of the most singular of Sark plants is Dodder, a parasite that grows on gorse bushes and other things, covering them with a mantle of silky threads of a fine purplish or yellowish red. It has no leaves, but consists simply of a mass of long slender stems that in autumn are covered with little round bunches of pink flowers. Another very curious plant, not a conspicuous one like Dodder, but quite tiny and insignificant, is a little gem of great rarity in England, and much prized by botanists in consequence, although hardly one person out of a hundred would ever suspect it to be a flowering plant at all. It is the mossy *Tillæa* (these minute things seldom have popular names) and it may be found in dry stony places here and there on the cliffs by those who care to search in early Spring, for it withers and disappears under the May sun. The entire plant is not more than an inch long, but it is of a bright ruby red colour, somewhat like a Stonecrop in miniature, and the flowers are microscopic.

By way of contrast let us now look out for bigger things than these. Here on the hillside is a beautiful cluster of tall and stately Foxgloves, with their dappled purple bells, perhaps the most showy and effective of all the gay blossoms on these cliffs; and there a little further on is another plant that resembles it in growth and general appearance, except that it has yellow flowers. This is the Great Mullein, a soft woolly plant that under favourable conditions will sometimes attain a height of five feet or more.

Perchance in the course of our wanderings we may find a specimen or two of Teasel, upright and rigid, with prickly stem and rough leaves, the upper pair of which are united together where they join the stem, so that they form a basin-like hollow in which rainwater collects, and wandering insects are drowned. By this character alone, and its large round head of lilac-blue flowers, Teasel may always be recognised. But a far more showy plant than this is Viper's Bugloss, with its bristly leaves and handsome trumpet-shaped flowers that are reddish purple when they first open, and then afterwards become deep blue.

At the top of the cliffs in dry places, and occasionally in waste corners in the interior of the island, we are very likely to meet with Hemlock, a plant everybody has heard about, but few people recognise, for there are several others that look very much like it. In all stages of growth, however, Hemlock may be known with certainty by its beautifully divided leaves, and by the stems being quite smooth and marked or spotted with dull purplish blotches. When bruised it has a strong unpleasant smell, but it is a handsome plant, although an extremely dangerous one, because every part of it is highly poisonous. Speaking of poisonous plants reminds one of another species, the Woody Nightshade, or Bittersweet, found commonly in bushy places on the cliffs and elsewhere. Its clustered flowers are very like potato blossoms, having the five purple petals reflexed from a central yellow cone. The Woody Nightshade must not be confused with the Deadly Nightshade, a far more dangerous plant, which, however, does not occur in Sark.

Among the floral treasures of this island there is a small plant which is so exceedingly rare in England (it grows in one locality only, in Devonshire) that it has not earned for itself a popular name, but is known to botanists as *Romulea* (or *Trichonema*) *Columnæ*. It occurs here abundantly on the cliffs where the vegetation is dwarf and scanty, but although the plants occur in profusion in suitable places, only a small proportion of them blossom each year. The flowers, pale purple with a yellow centre, appear early in April; they have very short stalks, and are usually surrounded by a few long, slender curly leaves that spring from a small bulb. Another charming little bulbous plant called Ladies' Tresses shows its delicate spike of white flowers pretty frequently in turfey places during August and September, just the season when the beautiful blue stars of the Autumnal Squill begin to appear.

In looking about for these and other things, the eye is sure to detect a host of flowers that were not noticed before—they seem to spring up everywhere as if by magic—Centauray, Tormentil, Ground Ivy, Field Madder, Cranesbill—it would be easy to name a score of small plants in full blossom scattered all about under one's feet, so that it is difficult to avoid treading them down in walking along.

As there are not anywhere in Sark low-lying commons and sandy seashores such as we find in the other Channel Islands, it accounts for the absence of a good many sand-loving plants that are peculiar to those situations. But by way of compensation there is a grand variety of species

belonging to rocky coasts, most of them plants which are never found far away from the sea, but flourish best when within reach of the cool salt spray. Even a precipitous wall of bare rock is dotted over with small bits of vegetation, wherever a ledge or a cranny affords room for a particle of soil to lodge. Cushions of pink-flowered Thrift, green tufts of Samphire, clumps of Sea Campion, with fluttering white flowers that look like flakes of foam, blue Sheepsbit, tough roots of Portland Spurge, with its reddish stems and yellow-green flowers, Navelwort, Sea Beet, Ivy, and many more, all cling with a tenacious grip to the exposed face of the storm-beaten granite cliff—and thrive. And in places where there is no foothold for even these hardy plants, soft velvety mosses and scaly lichens supply their place as the pioneers of vegetation, and furnish those little splashes of contrasting colour which add so much charm and beauty to the landscape.

The depth and intensity of colour of many flowers that are common on the cliffs and in the hedges, has often impressed visitors on their arrival from the inland counties of England. The bright rose-pink of the Red Campion, for instance, and the clear blue of the Germander Speedwell, always appear to be deeper and more vivid than usual, and this no doubt is owing to the purity of the air and the abundant sunshine. The mere mention of these two common plants suggests the thought of leafy hedgebanks and winding lanes, therefore we may as well see what these have to offer in the way of flowers. But it is puzzling to know where to begin.

The beauty of the Sark lanes is perhaps at its highest just at that glorious season of the year when the Cuckoo and the Swallows return to us from the south, and the two wild flowers that are pre-eminently associated with the merry spring-time—Primroses and Bluebells—appear in all their profusion. Primroses abound on every bank and hillside, and everybody gathers them; but how many of those who gather primroses by the handful have noticed that there are two distinct forms of this beautiful flower, both of them equally common, one with a sort of green pin's-head in the centre; the other with a delicately tinted rosette instead? Bluebells are not quite so abundant, but where they grow thickly, as for instance in Dixcart Valley, they make a splendid display of colour that is hardly to be rivalled. It may be mentioned, in passing, that this plant is the true English Bluebell or Wild Hyacinth, which Shakespeare speaks of as the "azured harebell." But the flower which in Scotland is called the Bluebell is another kind of plant altogether.

In early Spring the banks and hedges are spangled with the golden stars of the Pilewort or Lesser Celandine, flowers that positively dazzle the eyes by their brilliancy when the sun shines upon them. Later on the Hawthorn bushes fill the air with fragrance, and tempt one to gather boughs laden with bloom. Whatever could have originated the stupid superstition that to take home hawthorn blossom always brings bad luck? And how is it that the belief is so deeply rooted in the minds of even well-educated people?

At this time of the year in shady, sheltered places may be seen the dark green arrow-shaped leaves and singular flowers of the Cuckoopint or Wild Arum, a strange looking plant known under fifty different names in various parts of England. A pale green *spathe* or hood protects the delicately tinted club on which the essential parts of the flower are situated; in autumn, when both flowers and leaves have completely disappeared, their place will be taken by the fruit, in the shape of a bunch of red, coral-like berries. The Early Purple Orchis is another striking species that puts forth its handsome blossoms in April; and so is the Green-veined Garlic, an excessively rare plant in England, easily recognised by its clusters of white flowers, and the strong onion-like odour of its leaves.

As summer advances new species appear in rapid succession and almost bewildering variety; but we can detect family likenesses. The Buttercups, and Thistles, and Spurges, and St. John's worts, all more or less resemble each other in the flowers; but when you look closely at them, and compare their leaves and manner of growth, you begin to wonder why you had never perceived before that instead of being all the same kind, they are really quite distinct.

Here on the roadside we meet with a miscellaneous collection of little plants, a mixture of vegetation popularly classed under the scornful designation of "weeds," as if implying that they are beneath notice. One of the commonest of these roadside waifs and strays is the Scarlet Pimpernel, or Poor Man's Weatherglass, so called because it invariably closes its petals on the approach of rain. In one or two places in this island its near relative, the Blue Pimpernel, has been found. It is exactly like the common red one in every respect, except that the flowers are a rich violet blue, and it is always rare. Then there is the Common Cudweed and the Marsh Cudweed, both of them ashey grey and without showy flowers; the Petty Spurge, filled like all the Spurges with a milky juice that blisters the skin of sensitive fingers; the Dead

Nettles, small plants not in the least like nettles, and quite incapable of stinging ; the small Bindweed, with pink funnel-shaped flowers ; two or three kinds of Speedwell, with flowers of clearest blue ; Shepherd's Purse, easy to distinguish by its triangular pouch-like seed vessels ; Cinquefoil, Knotgrass, Silverweed, and several kinds of Dock.

One could easily make out quite a lengthy list of plants that appear to thrive on dusty roadsides ; but nearly all of them are found also as weeds in gardens and cultivated ground in general. In rich soil they grow more luxuriant, as on the borders of cornfields and among agricultural crops ; and in such places other species grow among them, plants like the Corn Cockle, Red Poppy, Small Snapdragon, Sun Spurge, Corn Marigold, Spurrey, and Mercury.

These weeds of the roadside and cultivated ground grow in soil which has been in some way prepared by human operations ; and thus they differ from plants that grow in virgin soil on the cliffs or in places where the ground has never been ploughed or otherwise disturbed by man. The latter are the true natives, the original inhabitants of this region, dating back their ancestry to the remote period when these rocky slopes first became "with verdure clad," and man had not as yet appeared upon the scene. The weeds of our fields and gardens are not true natives by descent, but have all been introduced at a much later date from elsewhere, and always through the direct or indirect agency of man. Even at the present time new species are continually being brought in among agricultural seeds, ballast and produce arriving from foreign countries or from distant parts of our own land ; and some of them succeed in establishing themselves in their new home. But this is a digression. Let us return to our roadside banks and hedges.

Allusion has been made to the almost endless diversity that exists in the shape of leaves ; but there is one peculiar shape which is found only in two British plants, so that it is easy to recognise them by the leaves alone. These are the Wall Pennywort, also called the Navelwort, and the Marsh Pennywort. The leaves in both species are round, and the leafstalk springs from the centre of the leaf instead of from one end in the ordinary way, so that the leaf assumes somewhat the appearance of a mushroom. The Navelwort is very common in Sark, growing in plenty on old walls, dry banks, and thatched roofs ; while the Marsh Pennywort (which has similar but smaller leaves) occurs in wet grassy places or marshy streamsides, and the little white flowers are

generally concealed by overgrowing vegetation. Compare these smooth round leaves with the feathery foliage of Yarrow, the elegantly divided leaves of Fumitory, or the fern-like ones of Hedge Parsley. Little boys and girls will find a delightful amusement during the holidays in collecting specimens of all the different kinds of leaves they meet with, pressing them between old newspapers under a heavy weight until they are thoroughly dry, and then gumming them down in the blank pages of a common exercise book. Very soon an interesting collection of beautiful leaf-forms will have accumulated, recalling many a pleasant walk and recollections of days gone by. And perhaps, who knows? some day this unpretentious bundle of dried leaves may gradually develop into a thoroughly scientific and really valuable herbarium of British plants.

Now it is time to specify two or three of the noteworthy rarities of Sark, and if the incipient botanist in a burst of enthusiasm starts off at once to search for them, and returns unsuccessful, let him not be discouraged, for the plants will not run away but will remain growing where they are, to be discovered another day. First then, the Yellow Pimpernel, an elegant creeping plant with trailing stems, bright leaves and flowers like golden stars. The interesting point about this species is that it grows nowhere in the Channel Islands but in Sark. Then there is the Deptford Pink, with its delicate rosy blossoms, found in a few localities in the interior of the island, but absent in Guernsey and Jersey. To a botanist, however, the greatest prize and treasure of all is the French Cudweed, a continental plant which does not occur anywhere else either in the Channel Islands or in the United Kingdom. It is rather a neat-looking, unobtrusive species, with grey-green foliage and brownish flowers, of the unmistakable Cudweed type. It grows plentifully enough in one or two fields in a certain part of the island which it is better not to specify too minutely lest the plant should be thinned out by thoughtless collectors.

So much harm has been done to local floras in this way by persons who gather plants greedily, that one hesitates to publish the exact habitat of any special rarity. Even in Sark much mischief has been done. The grandest of all the British ferns—the *Osmunda*, or Royal Fern—has been practically eradicated by the persistent digging up of roots, so that at the present day it grows only in one spot on the cliffs, where fortunately it is quite inaccessible. In the same way another beautiful fern, the Sea Spleenwort, has entirely disappeared from most of its former stations, and is now very seldom to be

found growing within reach. Twenty or thirty years ago there were to my knowledge scores of little caverns and recesses on the coast tapestried with this fern from floor to roof—giant roots sometimes, with fronds two or three feet long.

Fourteen ferns grow wild in Sark, of which the most striking and ornamental, as well as perhaps the most widely distributed, is the Harts Tongue. Other fairly common species are the Lady Fern, the Male Fern, the common Polypody, the Black Spleenwort and the Lanceolate Spleenwort. The last named is the best fern that grows here, for it is restricted to the maritime counties of the south and west, and is not found at all in the east of England.

There are five ferns which are decidedly rare in Sark—the Broad Fern, the Angular Shield Fern, the Hard Fern, the Rue-leaved Spleenwort, and the Maidenhair Spleenwort. The similarity of name must not lead to the confusion of the last one with the true Maidenhair Fern, a species which has now become exceedingly scarce in England, and does not grow wild anywhere in the Channel Islands. Finally there is the common Bracken, or Brake fern, that flourishes on the cliffs by the acre, covering them with a mantle of deep green in summer, and ruddy brown in autumn, and always forming one of the principal features of a Sark landscape.

In the course of our erratic wanderings we have not as yet had occasion to follow the course of some little streamlet that winds down a cliff valley on its way to the ocean; nor have we examined any marshy spots and wet corners, swampy in winter, when the rains have come, but in summertime the abode of many a beautiful plant, both large and small. For anyone who really loves wild flowers, and takes pleasure in searching for them, all sorts of little surprises are in store; not so much because the plants are specially interesting from a strictly scientific point of view, but because while sauntering along “in profitable idleness,” as Wordsworth has it, one comes upon them quite unexpectedly in all their native wildness and beauty.

Here in a moist corner, overhung by tangled bushes of hawthorn and bramble, is a plantation of Yellow Flags, with big golden blossoms and erect sword-like leaves, among which rises a tall Water Figwort, noticeable by its square stem and small dark-coloured flowers, much visited by wasps for the sake of their honey. A few yards further off among the rank vegetation which luxuriates in the wet ground, we find the Bog Stitchwort, the Fleabane, the fragrant Water Mint,

and a plant or two of the Small Spearwort, which is really a buttercup, with spear-shaped or lanceolate leaves.

Yellow seems to be the predominating colour among flowers just here, for we shall see in the marshy parts of the valley the square-stemmed St. John's Wort, the Marsh Bird's-foot Trefoil, and the Marsh Eyebright. The sticky clamminess of the stem and leaves of the last-named plant are sufficient to distinguish it; and although very pretty when growing, it is the reverse when dried, for it always turns black. The two large waterplants with succulent stems that grow matted together and overshadow the stream that wets their roots, are the Marshwort and the Water Parsnip. The foliage is bright and cool, but the flat-topped flowerheads of tiny white blossoms are not particularly showy. That tall leafy plant, four or five feet high, with large handsome leaves, is Hemp Agrimony. In September it will expand its big purple flower tassels to attract the Red Admiral butterflies with their gorgeous wings of black velvet spotted with scarlet and white.

Now let us look out for a dripping earthy bank on which mosses and liverworts grow, and not much besides. We shall very likely find there the Bog Pimpernel, a small plant with creeping stems and pale pink flowers; and then going on to some shady recess in the bank partly concealed by the vegetation, and peering in with sharp eyes, we may, if fortune favours us, detect the threadlike trailing stems and tiny round leaves of the Cornish moneywort, a most lovely and delicate plant, fit to decorate the abode of the Queen of the Fairies. This again is one of the rarities of Sark.

Elsewhere on this or some other streamlet bank, as well as in wet places in other parts of the island may be found the ever-charming Forget-me-not, with its lovely light blue flowers, the rose-coloured Lousewort, the violet blue Self-heal, and several other species that love moist situations. Here and there some of these places are quite gay in spring and early summer with the lilac-purple spikes of the Spotted Orchis, and the white blossoms of Lady's Smock, or Cuckoo flowers, as the children call them. And then later in the year, when all these flowers have disappeared and autumn has come, their place will be taken by Willow Herb, and Water Pepper and Brooklime, the last named a most beautiful water plant often mistaken for Forget-me-not, though the flowers are of a much brighter and deeper blue. Those who have patience to search and eyes to see will find in this small island no kind of locality more productive of plant life, in all its variety and

beauty, than the marshy banks and swampy borders of the little cliff-streams that meander among the fernclad hills.

Wild flowers of many colours, shapes and sizes, we have now gathered in the course of our wanderings, and many remarkable forms of floral beauty which we had never noticed before have attracted our attention; but not one of them all is so curious as the one which has been reserved for the last—Duckweed. No one but an expert botanist would imagine that the little plant known as Duckweed is just as truly a flowering plant as a Daisy or a Violet—and yet it is so. In pools and roadside ditches, in old wells and cattle-troughs, the surface of the water is sometimes covered with little detached particles that are crowded together and form a yellowish green floating scum. Each of these little particles consists of an oval or roundish frond or leaflet, which all its life floats upon the water in company with myriads of others, and each frond has a single hairlike rootlet hanging from the under side. Now, the surprising thing is this: that each one of these floating particles is a complete and full-grown plant, although it possesses neither stem nor leaves. Its mode of increase is by budding, and only on very rare occasions it produces flowers; and, as may be supposed, these are of the most rudimentary description.

Here our rambles in Sark in search of wild flowers come to an end. The lover of nature, to whom the “flower in the crannied wall” is a thing of beauty, no matter whether it be rare or not, will continually find here at every turn, and during all seasons of the year, something fresh to admire, linger over, and study. And this need not be only among the flowers; there are gems of exquisite beauty in the delicate mosses that lurk half concealed amid the larger vegetation, or spread their velvet cushions upon the wayside boulders. And strange examples of lowly plant life are met with in the scaly lichens that clothe those stupendous rock masses with broad patches of rich brown, silver grey and olive, or with that glorious orange glow that tips the sea rocks, and, as Ruskin finally says, “reflects the sunsets of a thousand years.”

THE ASCIDIANS OF GUERNSEY.

BY ERIC W. SHARP.

THE shores of Guernsey and the Channel Islands in general have long been known to Marine Zoologists because of their remarkable richness in species. Many eminent and well-known scientists have worked here with great success in their respective branches. Among others may be mentioned Canon A. M. Norman, Dr. Gwyn Jeffries, Mr. J. T. Marshall, W. Joshua Alder and Dr. Bowerbank.

Although all forms of marine life are found here in abundance and variety, none exceed the Ascidians in either plentifulness or striking coloration. These Ascidians form what is perhaps the least known group of marine animals. Very few people, outside the circle of naturalists, have the vaguest ideas as to what they are and what they look like. Hence it has been thought best to give an account in this paper of their appearance, structure and life history.

The name Ascidian is derived from the Greek "Askos," meaning a bottle, and this well describes the form of many species, especially the simple forms. The other name for these animals is "Tunicata," given them because of their thick outer covering or tunic.

The Ascidians are chiefly rock-haunting animals and may be seen on practically any piece of our coast adhering to rocks or seaweed. Some, however, are free-swimming and lead pelagic lives far out in the ocean, while others live buried in the sand.

Many species live solitary lives attached to the rock by their end or side. These are called the "Simple Ascidians," and are generally of large size. *Ciona intestinalis*, a common form with us, may reach the length of about eight inches. In other species the individuals are grouped together into colonies, not embedded in a common covering, but arising from a creeping stem or stolon, which contains prolongations of the blood system. These are known as the Social Ascidi-ans. A third great group is made up of the Compound Ascidi-ans. These are colonies of small animals completely embedded in a common covering. The colonies are often

large and usually brilliantly coloured. In fact the colour of these animals varies between black and white in *Botryllus morio* to brilliant vermilion in *Leptoclinum lacazii*. The free-swimming forms mentioned above are phosphorescent, as are also many of the deep-water species.

One of the large Simple Ascidians may be described as an example of the class. The structure of the individuals in the colonial species is essentially the same as that of a simple one. Let us take the common *Ascidia mentula*.

This is a large form, often five to six inches long, of a red colour and leathery to the touch. This leathery feel is due to the thick outer covering, called the test, which is the protecting layer of the body. In our example it is about a quarter of an inch thick, and small molluscs and crustaceans inhabit holes in its substance. In some species, however, the test is soft and gelatinous. Lining the test is a delicate membrane by which it is secreted.

On pressing the animal two streams of water are ejected with some force. One comes from an opening at or near the apex, called the Branchial Orifice; while the second stream of water is emitted from another opening further down one side known as the Atrial Orifice.

On close inspection the sides of both openings are found to be split into lobes—in our example eight for the Branchial and six for the Atrial. This is an important character because the number of lobes is exact and constant for certain genera and families, e.g., *Molgula*, 6 and 4; *Cynthia*, both 4 lobed; *Ascidia*, 8 and 6; *Diazona*, both 6 lobed; while those of *Clavellina* are not lobed at all.

The branchial aperture is anterior, that is to say, it corresponds with the head region of man, while the atrial aperture is dorsal, corresponding to the back region of man.

The apical opening or branchial orifice leads into a wonderful sac suspended in the cavity of the Ascidian. This sac, which is the pharynx, is called the branchial sac and its walls are pierced by innumerable slits called "stigmata." Its substance is hollowed out by countless blood vessels and the water continually washing through the stigmata oxygenates the blood. Hence the branchial sac is the breathing organ of the Ascidian. The water, after passing through the stigmata, goes into the general body cavity or atrium and escapes through the atrial aperture.

The branchial sac gradually narrows posteriorly and finally leads into the œsophagus and thence to the stomach. The mechanism required to transfer food to the stomach is

most interesting. This food consists of minute organisms floating in the water, and these are strained and filtered out of it by means of a circle of hair-like tentacles, which may be simple or branched, situated within the branchial orifice. Behind this circle there are two closely placed parallel ridges forming a groove, the sides of which are richly ciliated. This groove is filled with a sticky substance secreted by a long, rod-like gland called the "endostyle," lying on the ventral side of the branchial sac. The food particles which have become entangled in the mucus are swept by ciliary action into another canal, called the "dorsal lamina," lying opposite the endostyle and communicating with the stomach. This dorsal lamina may have tags on the margin that in some Ascidians become long processes called "languets." Fæcal matter is ejected with the waste or filtered water.

While speaking about the branchial sac, blood-vessels were mentioned. These join up and take blood to the heart, which is a very different organ from ours. It is simply a slightly swollen tube along which waves of contraction pass, thus forcing the blood on its way. After a certain number of pulsations, about 70, in one direction they cease and recommence in the opposite direction. Hence the blood-vessels become veins and arteries alternately.

The nerves that govern the actions of the animal proceed from a solitary ganglion which is situated between the two apertures. Sense organs are absent, but sensory cells are found in various parts of the body, notably round the orifices. The thin margins of the siphons are apparently the most sensitive regions.

Ascidians are hermaphrodite and the egg gives rise to a free-swimming larva. Great interest centres around this larva, because it tells us a wonderful story, for it proves that the Ascidian parent, although seemingly a mere lifeless, motionless lump of jelly, is in reality a vertebrate in disguise. The larva, which closely resembles a tadpole, swims by means of a long tail; it possesses a notochord supporting a spinal cord swelling anteriorly into a brain; it has a single eye with retina and lens, besides an organ of hearing.

Its swims actively, but for a very short time, usually much less than a day, and then settles down head first and attaches itself by means of cement organs on the head. Then commences the retrograde metamorphosis leading to the full grown stage. The tail is drawn in, the notochord and spinal cord are absorbed or dissolved in the body juices, the brain disappears and the nerve tissue dwindles down to the single

ganglion found in the adult. The sensory organs disappear, but the alimentary canal and gonads increase greatly in size. Thus the adult form gives us no hint whatever as to its relationship with the vertebrates.

Before their life history was known these Ascidiæ were classed with the Polyzoa (Sea-mats) and Brachiopods (Lampshells) under the name of Molluscoida. They were considered to be relations of the Molluscs, but later research has placed them much higher up the scale of animal life. This is a good instance of the importance of knowing the complete life-history of an animal before referring it to one or other of the great groups of animals.

No mention has been made of that remarkable creature known to naturalists as the Lancelet (*Amphioxus lanceolatus*). This has affinities with both the Ascidiæ and the higher vertebrates. It is a fish-like, free-swimming animal about three inches long, of transparent structure. It spends most of its time in the sand but can swim on occasion. It has a notochord stretching from head to tail, besides a dorsal nerve tube, which is remarkable for the fact that it contains sensory spots inside it. The notochord stretches the entire length of the body, instead of stopping off about the middle of the cranium as in the higher Vertebrates. Although these structures are permanent, and not only larval as in the Tunicates, there is a great gap between it and the lowest of the fishes. It has no distinct cranium and so naturalists have proposed to establish for it a class called the Acraniata, while the fishes and other higher forms compose the Craniata.

Turning now from the book to the seashore we must look in many different places to find all the Tunicates in their natural homes. They are ubiquitous, having been found in all seas from the Arctic regions to the Tropics, and from between tide-marks to a depth of over 2,000 fathoms. As an indication of the deep water in which these soft-bodied creatures can live, it may be stated that *Hypobythius calycodes* was obtained in the N. Pacific at 2,900 fathoms or over three miles vertical depth, while *Abyssascidia Wyvillii* came up from 2,600 fathoms off the South of Australia. Both of these species are simple forms.

But although many species live in deep water, the rocks fairly low down the tide range will be found to yield many species of Ascidiæ, while seaweeds and stones are often covered profusely with the compound forms. Vermilion patches are frequently seen coating comparatively large areas; these are colonies of *Leptoclinum lacazii*. Mr. Sinel of Jersey

thinks that colonies of this species constitute the splashes of blood referred to by Victor Hugo in his "Toilers of the Sea" when describing the caves of the Roches Douvres. The industrious stone turner is amply rewarded for his trouble and labour by the rich harvest of Ascidians he reaps. Here are to be found the small patches of a blue species for which Mr. Sinel proposes the name of *Leptoclinum cæruleum*. The beautiful transparent vases of *Clavellina* may often be seen here in company with a smaller relation, *Perophora listeri*. The beauties of the multitudinous species of *Botryllus* to be found on the rocks and stones baffle description, while the simple forms are here in plenty.

Leaving the rocks for the moment and continuing our search among the sandy parts of our coast we find that some few species, of the genera *Molgula* and *Eugyra* chiefly, live entirely unattached and are usually covered with a coating of sand which serves as a protective covering. The *Zostera* beds at or below half tide mark are a splendid hunting ground.

Members of the genera *Molgula*, *Diastoma*, *Botryllus* and *Aplidium* are common on the stems of the *Zostera* or in the sand at their base.

The individuals of this great class are remarkable for their beauty of tint, but unfortunately there is no liquid known that will preserve their colours. The Simple Ascidians are easy to preserve in formalin (a 2% solution of the commercial Formaldehyde is very good), but few of the compound forms make good exhibits, as any kind of preservative fluid alters their appearance. *Botryllus morio*, a black and white species, looks well in formalin, while the beautiful *F. elegans* keeps its colour for a considerable period.

As stated before, any rocky coast will furnish the collector with many species; according to my experience the best hunting grounds are L'Islet, Cobo, Lihou Causeway, Bordeaux Harbour and Pleinmont Point.

I am not aware that any proper list of the Ascidians of these islands has ever been published. In the second edition of Ansted's "Channel Islands," p. 219, there is a short list of bare names, but it is not of much use. That is why I venture to present to the Society the present paper. The list given can only be regarded as a piecing together of the scattered lists which make up our present knowledge of the local Ascidians. It appears to me that if a person with an unlimited amount of spare time took up the search for new species, his efforts would be rewarded by the doubling of the present list. Deep water research around our coasts is badly

needed and is sure to reveal many additional species, while tow-netting ought to add new free-swimming forms.

In the following list will be found records of 76 species, comprising Canon Norman's list of simple forms and the result of my own collecting.

In conclusion I wish to return my thanks to Dr. H. Fleure and Mr. J. Sinel for their kindness in identifying a large number of my specimens, and to Mr. F. Wright for help in collecting. To Prof. Herdman I am indebted for very kindly sending me his "Revised Classification of the Tunicates," which has been of the greatest assistance to me. Anyone wanting a good account of the Tunicates, their habits, structure and life history, is advised to read Prof. Herdman's "Ascidia," which is No. 1. of the Liverpool Marine Biological Committee's memoirs.

TUNICATA.

ORDER I.—ASCIDIACEA.

SUB-ORDER I.—ASCIDIÆ SIMPLICES.

FAMILY I.—MOLGULIDÆ.

Solitary, often not fixed; branchial sac longitudinally folded; branchial orifice 6 lobed, atrial 4 lobed; test usually sandy; stigmata more or less curved, usually in spirals; tentacles compound.

Eugyra globosa (*Han.*). Dredged off Fermain (Jeffreys and Norman). Gonads single, crossing over intestinal loop. Body entirely covered with sand. Test soft, thin and fibrillated

Molgula impura (*Heller*). Channel Islands (Sinel). Havelet and Rocquaine Bays (Sharp). Six folds on each side of branchial sac and small papillæ on each edge of the stigmata.

M. oculata (*Forbes*). Guernsey (Norman). Siphons retracted between folds of test; no sand between siphons.

M. complanata (*Ald. and Han.*) Guernsey, dredged adhering to a dead limpet shell (Jeffreys and Norman).

M. inconspicua (*Ald. and Han.*) Guernsey, dredged (Jeffreys and Norman).

FAMILY II.—CYNTHIIDÆ.

Solitary, fixed, test usually leathery. Branchial and atrial apertures both 4 lobed. Stigmata straight. Tentacles simple or compound.

Microcosmus claudicans (*Sav.*) Guernsey (Alder). Test tough, wrinkled and red. Branchial orifice striped rose and yellow.

Cynthia squamulosa (*Ald.*) Guernsey (Alder). Body oval, pink tinged with lilac. Inner surface of test soft and white.

C. morus (*Forbes*). Guernsey (Alder).

C. ovata (?) Guernsey, dredged (Jeffreys and Norman).

Forbesella tessellata (*Forbes*). Guernsey, dredged off Castle Cornet (Alder). Lihou, Bordeaux, Alderney (Sharp). The body is depressed; test firm and modified to form plates. Colour yellow marked with purplish spots.

F. limacina (*Forbes*). Guernsey (Ansted). Lihou (Sharp). Body much depressed, with orange coloured, coriaceous test. It is marked with dark spots enclosing small warts. Professor Herdman remarks "The *Cynthia limacina* of Forbes is either the same species or very closely related to it, and probably therefore comes also into this genus."

- Styela tuberosa** (*MacGillivray*). Guernsey (Alder). Body conical, pale brown, orifices pinkish, test thick, tough and wrinkled.
- S. mamillaris** (*Gærtner*). Guernsey (Norman). Body irregular and deeply lobed.
- S. pomaria** (*Savigny*). Guernsey (Hodge and Brady). Gouliot Caves (Norman).
- S. humilis** (?). St. Peter-Port, dredged (Alder). Test thin, sandy, and covered with short hairs.
- S. variabilis** (?). Guernsey and Herm (Hodge, Brady and Norman).
- S. obscura** (?). Guernsey, dredged (Jeffreys and Norman).
- S. fibrillata** (?). Guernsey (Norman).
- S. depressa** (?). Guernsey (Norman).
- Styelopsis grossularia** (*Transtedt*). L'Islet, Bordeaux and Castle Cornet (Sharp). Apertures 4 lobed; folds of branchial sac reduced to one on or near the dorsal edge of the right side, the other 7 being quite rudimentary. This species may be seen by thousands at L'Islet. Not so plentiful in Alderney.
- Polycarpa glomerata** (*Ald.*) Vazon and Cobo (Sharp). Very common on seaweed washed up; the rocks at Terres Point are covered with this form. Body sessile. Orifices usually 4 lobed. Branchial sac with four folds or less on each side. In this particular species there are three folds on right side and two on the left.

FAMILY III.—ASCIDIIDÆ.

Solitary, fixed; test gelatinous; branchial orifice 8 lobed, atrial 6 lobed. Branchial sac not folded; stigmata straight or curved. Tentacles simple, filiform.

- Corella parallelogramma** (*Muller*). Guernsey (Ansted). Atrial aperture sessile or on short siphon. Musculature strong on left side.
- Asciidiella scabra** (*Muller*). Guernsey (Alder). Dorsal lamina with edge toothed or irregular. Body attached by a large area. Stigmata 12 in a mesh.
- Ascidia mentula** (*Muller*). Castle Cornet (Wright). Bordeaux, Lihou, L'Islet, Alderney (Sharp). This form is common with us and attains a large size, often six inches. The test is thick and red, with bright red orifices. Atrial orifice more than quarter way down the body. A small bivalve, *Modiolaria marmorata*, is often found in cavities of the test.
- A. robusta** (*Hancock*). Guernsey (Norman). Herm (Br. Tun.) Cobo, in *Laminaria* washed up (Sharp). Test tough with root-like prolongations. Apertures tubular.
- A. rubrotincta** (*Han.*) Guernsey (Norman). Test thin, pellucid and cartilaginous with orifices wide apart.
- A. plana** (*Han.*) Guernsey (Alder). Body smooth, oval, yellow. Test thick and cartilaginous.
- A. Alderi** (*Han.*) Guernsey (Alder). Body conical, yellow. The ends of the blood vessels appear on the surface as red bunches of tubes.
- A. aculeata** (*Alder*). Guernsey (Norman). Bordeaux (Fleure), L'Islet and Lihou (Sharp). Test thin, greenish and covered with spiny processes.
- A. amœna** (?). Guernsey (Norman).
- Ciona intestinalis** (*Linnaeus*). Castle Cornet (Wright). Common at Lihou, L'Islet, Bordeaux (Sharp). Alderney (Sharp). Test thin, yellowish green; siphons highly retractile. Mantle vermilion. This seems to be a favourite home for small animals, both parasitic and otherwise. Three such have come under my notice.

I.—*Drepanophorus rubrostriatus* is a small worm that lives in the interior and which swims in and out of either orifice indiscriminately. Mr. F. Wright was, I believe, the first to record it as living in Ascidia.

II.—*Notodelphys ascidicola*, a small one-eyed crustacean, lives in the branchial sac.

III.—Mr. F. Wright, late of the Guille-Allès Library, discovered a true external parasite. It is a crustacean whose front legs are developed as formidable clasping organs. It has not yet been identified.

This species of Ascidian is easily kept in an aquarium where its habits can be easily studied.

- C. pulchella** (*Alder*). Guernsey, dredged (Norman). Body elongated, cylindrical, and of a red colour. It is highly retractile.
- C. canina** (*Muller*). Bordeaux (Fleure). Lihou (Sharp). Colour brown, mantle vermilion. Attached at one end by short processes of the test.

FAMILY IV.—CLAVELINIDÆ.

Simple Ascidians reproducing by gemmation to form colonies. Each individual with a distinct test, but all communicating by a common blood system contained in a creeping stem or stolon. Tentacles simple; branchial sac not folded; stigmata straight.

Diazona hebridica (*Forbes and Goodsir*). Guernsey, deep water (Alder and Norman). Colony massive, with individuals arising from a massive base. They have no pigmented circle round the siphons.

Clavelina lepadiformis (*Muller*). Guernsey and Herm (Alder). Lihou, Pea Stacks, Bordeaux, &c. Common (Sharp).

Forms beautiful, erect transparent vases streaked with yellow or brown lines.

C. Rissoana (*Milne-Edw.*) Bordeaux (Sharp). 12 to 16 rows of stigmata; white lines of pigment on thorax.

Perophora listeri (*Wieg.*) Bordeaux, Lihou (Sharp). The colonies look like beds of cooked tapioca.

SUB-ORDER II.—ASCIDIÆ COMPOSITÆ (*Savigny*).

FAMILY I.—BOTRYLLIDÆ (*Giard*).

Ascidiozooids short and not divided into regions. Colony usually thin and incrusting. Systems circular, elliptical, or forming branched lines. Test usually soft; branchial sac well developed, internal bars present, stigmata numerous.

Botryllus smaragdus (*M.-Edw.*) Common in Guernsey (Sharp). Alderney. Matrix dark green, stars pale green.

B. violaceus (*M.-Edw.*) Common in Guernsey (Sharp). Alderney (Sharp). Stars and matrix blue with white lines.

B. rubigo (*Giard*). Bordeaux (Sharp). Brown, with red marks.

B. aurolineatus (*Giard*). Bordeaux, L'Islet, Havelet Bay (Sharp). Brown with white and red markings. Ascidiozooids $2\frac{1}{2}$ mms. 8 to 10 in system.

B. myosotis (*Giard*). Havelet Bay (Sharp). This one resembles the familiar forget-me-not.

B. bivittatus (*M.-Edw.*) Lihou (Sharp). Matrix ash-grey, individuals with two yellow rings round mouth and cloaca.

B. morio (*Giard*). Common in Guernsey (Sharp). Alderney (Sharp). Matrix black; stars white.

B. gemmeus (*Sav.*) Lihou (Sharp). Matrix violet-grey; stars yellow or greyish-gold. Systems widely separate.

B. polyelyelus (?). Lihou, Vazon (Sharp). Matrix grey; stars bluish or purple.

Botrylloides rotifera (*M.-Edw.*) Lihou and Alderney (Sharp). Yellow with red marks.

- B. Leachii** (*Sav.*) Pleinmont Point, Alderney (Sharp). Purple with yellow and white marks.
- B. rubrum** (*M.-Edw.*) Havelet Bay (Sharp). Yellow to red. 4 tentacles.
- B. albicans** (*M.-Edw.*) Lihou (Sharp). Pure white.
- B. pusilla** (*Alder*). Guernsey (Ansted).
- B. sparsa** (*Alder*). Guernsey (Ansted).

FAMILY II.—DISTOMIDÆ (*Giard*).

Ascidiozooids divided into two regions, thorax and abdomen. Colony, rounded and massive, rarely incrusting. Systems irregular, inconspicuous or absent. Testes numerous, vas deferens not spirally coiled.

Distoma rubrum (*Sav.*) Bordeaux, Castle Cornet, L'Islet (Sharp). Colony red. More than three rows of stigmata. A red planarian worm may sometimes be seen gliding over this species, thus affording a splendid example of protective coloration. It has not yet been identified.

D. vitreum (*Sav.*) Wall of stomach grooved longitudinally; 12 of stigmata. Guernsey (Ansted). Cobo (Sharp).

Prof. Herdman remarks "*D. vitreum* is either the *D. cristallinum* (Ren.), or closely related to it." Also that *D. rubrum* is either the *D. variolosum* of Gärtner or close to it.

FAMILY III.—POLYCLINIDÆ.

Ascidiozooids divided into three distinct regions. Branchial aperture 6 to 8 lobed; atrial often with atrial languet. Colony usually massive; sometimes incrusting, lobed or even pedunculated. Systems of various shapes. Common cloacal aperture, usually inconspicuous. Branchial sac usually small; stigmata usually small.

Aurantium aurantium (*M.-Edw.*) "This genus or sub-genus seems to differ from *Polyclinum* merely in having the systems compound" (Herdman]. Castle Cornet, Albert Harbour, Terres Point (Sharp).

Polyclinum fieus (*Sav.*) Cobo (Sharp). Post abdomen attached to posterior end of abdomen. Not gelatinous; colour olive green. This species exudes a most unpleasant odour when broken.

Aplidium fallax (*Johns*). Lihou, L'Islet and Bordeaux (Sharp). Atrial languet not bifurcated. Ten grooves on stomach. Surface studded with black and white specks.

A. zostericola (*Giard*). L'Islet, Bordeaux, Lihou (Sharp). Stomach grooves 10 or more; colony not sandy; branchial sac not pigmented. Forms small rounded colonies on *Zostera*.

A. gelatinosum (?). Albert Harbour (Sharp). This forms white, flocculent masses attached to *Zostera*.

Amaroucium Nordmanni (*M.-Edw.*) Guernsey (Ansted). Colony massive; branchial orifice 6 lobed; systems simple, regular, and with few Ascidiozooids. Colour rose.

A. albicans (*M.-Edw.*) Atrial languet tri-lobed. Forms white nodular masses. Lihou, Cobo, Vazon (Sharp).

A. proliferum (*M.-Edw.*) Guernsey (Ansted). Lihou (Sharp). Orange-red fleshy masses, generally lobed, occasionally incrusting.

Morchellium argus (*M.-Edw.*) Common in many places round the coast (Sharp). Alderney (Sharp). Colony pedunculated, systems inconspicuous. Ascidiozooids not distinctly marked into regions. Branchial orifice 6 lobed. Test gelatinous; branchial sac large and well developed. Dark orange or red in colour.

Parascidia Forbesi (*Alder*). Guernsey (Ansted). Ascidiozooids divided into thorax, abdomen and post abdomen. Branchial orifice 8 lobed.

Post abdomen separated from abdomen by a constriction. Colony flat-topped or lobulated; colour amber.

Fragarium elegans (*Giard*). Castle Cornet, Terres Point, Alderney; common (Sharp). Colour rose red lined with white spots. It lives in crevices of the rock.

FAMILY IV.—**DIDEMNIDÆ** (*Giard*).

Colony usually flat, thin and incrusting. Systems complicated and irregular, inconspicuous or absent. Test with stellate calcareous spicules. Testes single and large, vas deferens spirally coiled.

Leptoclinium fulgidum (*M.-Edw.*) Bordeaux, Lihou and Terres Point (Sharp). This forms small red patches under stones.

L. lacazii (*Giard*). Bordeaux, Cobo, Alderney; not very common (Sharp). Brilliant vermilion, forming patches of large size.

L. maculatum (*M.-Edw.*) Common at many places, especially Terres Point and on Laminaria. Alderney (Sharp). This forms white and purple crusts. Vas deferens has 12 turns.

L. gelatinosum (*M.-Edw.*) Vazon, Havelet, Bordeaux, Alderney (Sharp). The only *Leptoclinium* whose substance is gelatinous.

L. asperum (*M.-Edw.*) Vazon and Lihou (Sharp). This forms white and grey patches on stones, &c.

L. listerianum (?). Vazon, Bordeaux and Lihou (Sharp). Forms grey, slimy crusts speckled with black and white.

L. punctatum (*Forbes*). Bordeaux (Sharp).

FAMILY VII.—**POLYSTYELIDÆ** (*Herdman*).

Colony massive or incrusting. No common cloacal cavities present. Ascidi-zooids usually short bodied, large, rarely with a distinct abdomen. Both apertures 4 lobed. Branchial sac large and well developed. Dorsal lamina a plain membrane.

Thylacium normani (*Alder*). Bordeaux (Sharp). Ascidi-zooids with body divided into thorax and abdomen. Colonies formed of individuals projecting above the common fleshy base.

Synstyela variegata (*Alder*). Lihou, Pleinmont Point (Sharp). Colony thin and incrusting. Ascidi-zooids not divided into thorax and abdomen. Completely embedded in common test.

ORDER II.—**THALIACEA** (*Savigny*). SUB-ORDER I.—**CYCLOMYARIA** (*Krohn*).

FAMILY.—**DOLIOLIDÆ** (*Keferstein*).

Body free, more or less barrel-shaped; branchial and atrial apertures terminal and lobed. Mantle containing transverse muscle bands which form hoops surrounding the body. Test rather slightly developed.

Doliolium denticulatum (*Quoy and Gaimard*). In tow nettings in open water, but never in the bays (Sinel). The development of this form is most interesting. The egg develops into the usual tailed larva which gives rise to what is called a "Nurse," which is asexual. This gives rise to three types of buds from a stem or stolon. One is nutritive and feeds the colony; the second sets free animals called "Foster forms," while the third is a sexual form which remains attached to the "Foster forms" for a period and finally develops eggs.

SUB-ORDER II.—**HEMIMYARIA** (*Herdman*).

FAMILY I.—**SALPIDÆ** (*Forbes*).

Body free, elongated; branchial and atrial apertures at the opposite ends. Test well developed. Mantle with well-marked muscle bands which do not form complete rings being wanting ventrally.

Salpa democrataca-mucronata (?). In tow nettings, sometimes plentiful (Sincl). This is a very interesting animal, partly on account of its life history and partly because of its great luminosity. These Salps are found in two forms, hence they show "alternation of generations." A solitary form gives rise by internal budding to a tubular stem which contains prolongations of all the principal organs of the body. This stem becomes segmented into a series of buds, which are set free in groups, when their development is sufficiently advanced. These sets of animals represent the "chain" form in which these Salps are found. The chains were formerly considered to be distinct species, hence the double specific name of many. The members of the chain are sexual and give rise to embryos which develop into simple Salps like their grandparents.

ORDER III.—**LARVACEA** (*Herdman*).

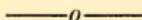
FAMILY.—**APPENDICULARIDÆ** (*Bronn*).

Body more or less ovate, with the longer axis antero-posterior, and having a large appendage (tail) attached to the ventral surface. Test periodically developed into a very large investing capsule which is thrown off from the body after a time.

Appendicularia flabellum (?).—In tow nettings, sometimes plentiful (Sincl). There is no alternation of generations, and no metamorphosis in its life history.

HALLEY'S COMET AS SEEN AT GUERNSEY IN 1835 AND 1910.

BY BASIL T. ROWSWELL.



THE recent visit of Halley's comet to the sun was, from a spectacular point of view, a sore disappointment to the inhabitants of the British Isles. For this, however, there is every reason to believe the comet itself was in no way to blame, but rather that it was owing to our misfortune to be passing just at the critical time through that part of our year when the days were almost at their longest. Comets' tails are very light ethereal things; their light is easily put out by twilight or moonlight. And it so happened that at the time of nearest approach to us the season of twilight reigned in the land; there was no real night in the British Isles, while in addition bright moonlight also interfered with successful observation for the matter of a full week or more. Bad weather, too, in the shape of dull, overcast skies, helped to make matters worse on a good many nights. Further south, and in the southern hemisphere, where much better atmospheric conditions obtained, the comet appears to have been seen to perfection and to have made a really brave show. I have spoken with a gentleman who was in South America at the time, and he said that on many nights the long shaft of light stretching across the heavens was particularly conspicuous and striking.

Of all the heavenly bodies known to us, Halley's comet is perhaps the most interesting, and that for several reasons. First there is the host of historical associations connected with its many appearances down the ages. Then there is also Halley's famous calculation of the comet's orbit, and his bold assertion that the bright body which he and his contemporaries had seen in 1682 was a return of two big comets which had crossed the sky in 1531 and 1607 respectively. And last, but by no means least, there is his celebrated prediction that the same body would again become visible in 1759. It did, as we know, appear as predicted, when it was very properly named after the distinguished astronomer, and interest in its movements, past and to come, became world-wide.

Its next apparition was in 1835, and about this visit, as seen at Guernsey, I am able to say something, having looked

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through the local papers of the time for possible paragraphs on the subject. A search through the *Star* failed to bring to light any allusion to the famous heavenly body. The *Comet*, however, did refer to the phenomenon in two interesting paragraphs which are reproduced below. They are from the issues for October 16th and 19th respectively of that paper. The writer, F. C. L., was Col. Frederick Corbin Lukis, F.S.A., the celebrated archæologist, whose valuable Museum has recently been presented to the States by his son, the late Captain F. du Bois Lukis.

HALLEY'S COMET.

This interesting Comet, which has so long occupied the attention of astronomers, was distinctly visible here on Saturday evening last, the 10th instant, without the aid of the telescope. When first observed on the above night, its situation in the heavens was nearly north, somewhat to the eastward of the star Alpha (Dubhe), in Ursa Major, commonly known as the Great Bear or Charles' Wain. Its appearance was like that of a star of the second or third magnitude, having a pale halo or nebula surrounding the body. At times, when the darkness of the sky was most perceptible, there was a faint appearance of the tail in a direction oblique to the plane of the horizon, raised about 25 degs.

The comet was visible until near midnight, although the moon had then illumined the heavens, and as the constellation of Ursa Major declined to the west, it assumed a more upright position with regard to the star Dubhe, and seemed visibly to be approaching it.

On Sunday night, about the same hour, Halley's comet again became visible, but assumed a more brilliant aspect, having the tail more distinct to the naked eye. It had, however, altered its position, having left the vicinity of the star Dubhe and passed above the stars Delta and Alioth, with which it then formed an equilateral triangle.

Some conception of its velocity may be formed, when it is stated that in the space of twenty-four hours it had thus changed its position *one inch on a 12 inch Celestial globe.*

Guernsey, 12th October, 1835.

F. C. L.

On Thursday evening, the 15th inst., about 7 o'clock, this comet was again visible; the state of the weather, however, prevented its being generally observed for any length of time.

Its place in the heavens was in the west, having travelled in the space of four days at the same rate as mentioned in our last account—about midway of a line drawn from Alpha (Lyra) to Arcturus (Bootes) would nearly fix its situation on a globe—on the above evening, *i.e.*, in or near Corona Borealis.

At the rate of velocity with which it now moves, in 24 hours more it will intersect the line of the orbit described by the comet of 1811 at nearly a right angle.

For the space of a few moments the tail of the comet was distinctly seen, and extended upwards to a very considerable distance.

F. C. L.

Guernsey, Friday, October 16, 1835.

As the perihelion passage, or nearest approach of the comet to the sun, occurred on November 15th, 1835, the above observations were made previous to the dash round that orb. And as it is a well-known fact that comets make their best show after, not before the event, this may account for the evidently poor display made by the 1835 appearance. After the perihelion passage the comet was observed only at southern observatories. This year, on the other hand, the body passed nearest to us after perihelion when, had other things been equal, everything was favourable to a fine spectacle being presented. But unfortunately, as it happened, other things were not equal and disappointment resulted.

About the middle of May, 1836, the famous wanderer became lost to view on its long journey to the confines of the solar system, and for the matter of three-quarters of a century nearly, public interest in the comet waned, to be revived once more in 1909 because of the announcements by astronomers that another visit was due. Expectation at once rose to a high pitch in many quarters as to who should be the lucky individual to first sight and announce the approach of the historic body. At last, on Sunday, September 12th, the comet declared its arrival on a photographic plate at Heidelberg in Germany, and Prof. Max. Wolf had the honour of telling the world that the long expected visitor had at length come within range of the camera.

Following this welcome announcement, the scientific papers during the next few weeks published interesting paragraphs giving particulars, with date, of the comet having been photographed at one after another of the big Observatories, then of its having been seen visually by this observer and that with instruments of gradually decreasing power. Some of us in Guernsey courted failure by trying to emulate the doings of observers in other places and possessed of better instruments than our own, and for many weeks, nay months, were forced to possess our souls in patience.

In this manner and with hope still awaiting fulfilment, the year 1909 was gathered to its fathers and 1910 saw the light. Still we persevered in our small way and on every clear evening, when we could manage it, searched the critical part of the sky for sight of the visitor. Success came at last on Monday, January 10th, to my friend, Mr. E. Rammell, in town, who that evening fixed the comet in his glass. Two days later, on Wednesday, January 12th (exactly four months after its discovery), I did the same at St. Martin's, and saw a very faint, ill-defined nebulosity, whitish in colour and difficult

to hold continuously but, all apparent shortcomings notwithstanding, Halley's comet at last! the comet of comets! the comet which heralded the fall of Jerusalem, was probably seen by S. Peter, was such a conspicuous object in Europe the year of the Conquest, and whose regular returns every three-quarters of a century have been traced back to before the commencement of the Christian Era. These and other thoughts rushed to my mind as I gazed at that indistinct patch of fluffiness in the constellation Pisces on that rough January night, which was cold as well, for hail showers were being borne along on a high N.W. wind, and flashes of lightning from the cumuli clouds illumined the darkness at times.

My next look at Halley's was on Saturday evening, January 22nd, when, in spite of moonlight, it was possible to glimpse it with the help of binoculars. This date is memorable because the Great Daylight Comet (1910*a*), then at the height of its magnificence, was first seen in all its beauty at Guernsey. A week later (Saturday, January 29th) I had the good fortune to observe both comets on the same evening at St. Martin's. Low down in the western sky was the unexpected stranger, both the head and long tail of which were clearly visible to the naked eye—it was altogether a most striking object. After watching it disappear below the horizon I fixed up a telescope and with a little searching “picked up” Halley's, then in the immediate neighbourhood of the planet Saturn. The weather was good for observing and it was less difficult to hold the comet in view. In appearance it presented the same ill-defined whitish nebulosity observed on the former occasions.

Cloudy nights, moonlight, and various engagements prevented my getting any view of our visitor during February, and in March it had approached so near to the sun as to make a search for it with small instruments useless. On the 25th of that month, Good Friday, the comet passed behind the sun as seen from the earth, or, in other words, was in conjunction with that luminary. This ended the first or “evening” phase; to see the famous comet now meant very early rising, for after “conjunction” it became a morning star. The first news of its having been seen as such came from the Cape, and ran:—“Capetown, Friday (April 8): Halley's comet was sighted at 5.50 this morning, and was visible for ten minutes on the eastern horizon before fading in the daylight. . . . The comet is brighter than it was in February and will increase in brightness daily, but is still invisible to the naked eye.”

On Saturday, April 16th, I began my search, a search that did not immediately prove successful as the following selected extracts from a diary will show :—

April 17 (Sunday).—Out at 4.15 a.m. and walked to the Calais Lane with small telescope. Sky much clearer than yesterday, but horizon lined by a deep bank of cloud. The sky was practically shut out to a height of from 20° to 25° in the critical part, and the comet was not seen.

April 19 (Tuesday).—Looked out of the window at 2.30 and 4 a.m., but sky was seen to be again densely overcast so did not get up.

It was on April 19th, by the way, that Mr. Collenette delivered an instructive lecture on Halley's Comet in the Guille-Allès Lecture Hall to an overflowing and highly interested audience. The next day (Wednesday, April 20th) the comet was in perihelion—that is at its nearest approach to the sun.

April 21 (Thursday).—Awake at 4 a.m. and was surprised to find the weather all cleared up and Venus a fine object in the E.S.E. Dressed quickly and went to the Calais Lane. The dawn however was growing rapidly and the stars had faded; it was too late to hope to see Halley's.

April 23 (Saturday).—Got up just before 3 a.m., but finding on looking out of the windows the sky to be quite overcast went back to bed.

April 24 (Sunday).—Was again awake at 3 a.m. and looked out of the windows, but only to see an overcast and starless sky. A high wind was also abroad. Without thinking twice about it went back to bed at once.

April 27 (Wednesday).—Got up at 3 a.m. and found the weather conditions apparently very favourable. Calm was prevailing and there was a slight white frost. The sky was clear except for a bank of cloud some 10° deep lining the eastern horizon and some haze above this. At 3.45 the birds burst into song (the cuckoo included) and Venus shot up from the mist, but I did not pick up Halley's. Gave up the search at 4.30 and returned home sadly disappointed.

I learned afterwards that Mr. N. P. Stedman, of Hauteville, caught the comet on this morning with binoculars and had it under observation from 3.30 to 4.10 o'clock.

April 30th (Saturday).—Another fruitless quest in spite of, to all appearances, perfect seeing conditions when I left Les Blanchés for the Calais Lane at 2.30 a.m.—bright starlight and a clear waning moon. However, if I was unsuccessful, Mr. Rammell was highly successful at Les Cotils, for he found the object at 3.18 and followed it with the help of binoculars until 3.55. Mr. Rammell says it was not visible to the naked eye. Mr. Stedman also saw it at 4 o'clock.

At last, three days later, on Tuesday, May 3rd, success came my way. By agreement I met Mr. Rammell at the top of George Road at 3 a.m. Lovely starlight prevailed, the weather was almost perfect for astronomical observations—

and at 3.18 the celebrated comet cleared the mists of the horizon and came into view. From that hour until 3.52 o'clock we had the visitor (as before, fluffy, ill-defined and tailless), under observation with the help of binoculars and telescopes. Could not say positively that the object was visible to the naked eye.

In connection with this little expedition an incident occurred which I think is worth recording. As I was walking briskly along the road to keep my appointment with Mr. Rammell, and while still on the St. Martin's side of Morley chapel, I stumbled over a cat in the dark. The little thing was very friendly and, quite unasked or encouraged, followed me across the Fort Road and remained with us during the whole hour we spent at the cross roads, purring loudly and rubbing itself against us and against the tripod of the telescope in very evident pleasure and good fellowship. When, after packing up our instruments at 4 o'clock, we moved off down Colborne Road pussy came with us too, but disappeared when Mr. Rammell and I said good-bye at the junction of the roads near Manor House.

To our friend, Mr. John Linwood Pitts, belongs the honour, I believe, of first seeing Halley's comet with the naked eye at Guernsey. This was on Sunday morning, May 8th, from his home in Les Canichers. To my disgust I overslept myself that morning and did not wake until 5 a.m., altogether too late an hour to get up and go comet-hunting.

The next morning, Monday, May 9th, after some three to four hours of very wakeful sleep, I got up at 2.30 and left Les Blanchés at 2.40 for the Calais Lane provided with telescope and binoculars. Did not then know of Mr. Pitts' success of the previous morning, but felt very hopeful for sky was beautifully clear between drifting clouds, and Gamma Pegasi, the guiding star to the comet's position, distinctly visible. To my unbounded delight at 3 a.m. the comet came into view from behind a cloud I had been watching closely and, with breaks, I followed it easily with the naked eye until 3.47 and with the binoculars until 4 o'clock. I estimated the object as of second magnitude, nebulous in appearance and with pronounced condensation towards the lower, or sun end, distinctly oval in shape with (in the binoculars) indications of a short bushy tail.

The next morning while out of doors endeavouring to get another view of the comet, I made an interesting natural history observation. The cuckoo is noted for being a lazy bird, and as regards nest-building is really so I suppose.

As an early riser, however, or at any rate as an early singer in the matter of greeting the approaching dawn, I have noticed before now that he is by no means last in the field. On this particular morning the pleasant sound fell on my ear at 2.45 o'clock and, at 3, when owing to much haze I gave up the search for Halley's and went indoors again, the bird was still calling cuckoo, cuckoo, while as yet none of the other songsters stirred.

Because of bad weather I succeeded in getting one other view only of the comet during its phase as a morning star. This was on Wednesday, May 11th, when I with three other enthusiasts obtained a few feeble telescopic glimpses between 3.15 and 3.40 o'clock from our garden at Les Blanchés.

Eight days later, on Thursday, May 19th, the much talked-about and, in some quarters, not a little dreaded transit of the body across the sun's face occurred. Astronomers were expecting great things from the event and hoped to see the comet projected as a dark spot against the bright surface of the sun. Then too there was the possibility, so it seemed, of the earth plunging through the comet's tail, should that lengthy appendage be a certain number of million of miles long—when according to some authorities wonderful things might be expected to happen from a meteorological as well as from an astronomical point of view. So everybody was on the *qui vive*—some full of scientific curiosity, others full of fear and trembling. And now that it is all over and the danger past, astronomers are disputing amongst themselves as to whether the earth did or did not pass through the dreadful tail. Nobody appears to know. Nobody it seems is able to affirm one way or the other and we shall probably never know for sure. Of one thing, however, astronomers are satisfied, viz., that the nucleus was not seen in transit at those observatories able to watch the sun at the critical time.

At Guernsey fine clear moonlight prevailed on the evening preceding the day of the transit, and at 9 o'clock and for half-an-hour or so afterwards several long shafts of whitish light were observed rising far into the sky from the sun's position below the horizon. These rays were seen by Mr. Collenette, Mr. Rammell and myself, and Mr. Collenette inclines to the opinion that they were a portion of the comet's tail in which the earth was then immersed. Some amongst us were curious enough to stay up that night in the hope of seeing something, but the only thing witnessed was a change of weather. By 11 o'clock the fine, clear moonlight was all at an end for cloud came up very quickly after 10 and a faint

lunar halo became visible. Rain fell after midnight and some lightning occurred, while towards morning a thick fog developed. To those on the watch no positive manifestations of the presence of the tail of Halley's comet were seen.

And now began the third and last phase in this year's visit of the celebrated heavenly body. The comet, after the transit, once more became an evening star as in the early months of the year but with this difference: *then* it was rushing sunwards, *now*, having made due obeisance to its lord and master, it was hastening away on its long journey into the depths of inter-planetary space. And in so doing it passed comparatively very close to us on Friday, May 20th, the day of the funeral of our lamented King Edward VII. On that date the comet and the earth were rushing past each other at a distance of only 14 millions of miles.

Nothing was seen of the visitor at Guernsey that evening, but the following day, Saturday, May 21st, a few enthusiasts saw it. By agreement I met Mr. Rammell at Les Bemonts at 8 p.m. and after waiting patiently for the western sky to clear, we saw the historic body with the naked eye from 9.10 to 9.30 o'clock, when cloud again shut it out. It was a very disappointing spectacle indeed; absolutely tailless, only a faint yellowish-white nebulosity of about magnitude 3; certainly a much fainter object than when I saw it in the early morning of the 9th. Bright moonlight, however, had doubtless something to say in the matter.

On the Sunday evening the comet was invisible owing to cloud and haze, but on the Monday (May 23rd) no cloud and very little haze interfered with observation, and hundreds of eyes in all parts of Guernsey were turned to the west sky in search of the visitor. At 8.45 it was just possible to see it with the naked eye, and it remained distinctly in view until 10.30, then disappeared in the mists near the horizon. To most people it was again a very disappointing sight for no tail was visible, and against the twilight and moonlit sky the celebrated comet did not show up with the brightness one had been led to expect it would now do. Perfect weather for watching its movements continued to prevail night after night until Friday, the 27th, on which evening we obtained our best view of the wanderer.

From the popular standpoint a comet is no comet at all unless it exhibits a tail, and in the early days of this week it looked very much as though Halley's would depart without vouchsafing to us residents in the Channel Islands a view of that important part of its make-up. But no, on the Wednes-

day the tail came into view at Guernsey, and although extremely faint and only to be glimpsed at short intervals, several of us were confident of having been able to trace the delicate ray to a distance of about six degrees that evening. The following night it was longer—roughly some ten to fifteen degrees in total length—and plainly visible to the naked eye.

On the Friday (May 27th) the comet was seen without the help of glasses from 8.55 to 11.5 p.m., and a further and decided increase in the brightness and length of the tail was apparent, which stretched away from the nucleus in a gentle slope for a matter of from twenty to twenty-five degrees, and the nucleus (or head) was estimated as of about the second magnitude. Projected against the west sky, immediately below that well-known group of stars the Sickle in Leo, the whole made a very pretty picture. The night was beautifully starry and, the twilight having perceptibly faded, the tail was best seen between 10 and 10.40 o'clock. After this hour it slowly sank from view. As already stated we in Guernsey obtained our best view of the comet on this date.

Very indifferent weather now followed, and frequently for several nights in succession no observations were possible because of cloudy skies. When, however, favourable conditions obtained, a steady falling off in brightness both of nucleus and tail was all too apparent.

On Friday, June 3rd, the visitor was once more seen very clearly. With binoculars the body was "picked up" as early as 9.15, and it became visible to the unassisted sight at about 9.30. From 10 to 11 o'clock a tail from ten to twelve degrees in length could be glimpsed at intervals with the naked eye, but very soon afterwards the whole faded away in the horizon mists. The sky was gemmed with stars that night and summer lightning was occurring low down in the east, but the strong twilight prevailing must have considerably dimmed what would otherwise have been a much brighter object.

This date really closes the interval during which the comet was best observed and which began on May 23rd. It is also the last occasion, I believe, on which the tail was seen, while June 7th was, as far as I have been able to gather, the last day on which the nucleus was visible to the naked eye. With binoculars I saw it for the last time on Monday and Tuesday, June 13th and 14th, when, because of bright moonlight, it was only just possible to glimpse it momentarily. Whether it would still have been visible in small instruments

with the passing of the moonlight we shall not know, for cloudy nights succeeded the waning moon and proved as effectual an hindrance to observation as our satellite's light. At some of the world's big observatories Halley's comet is still (December, 1910) under observation, but to all intents and purposes it has passed from our view, and many years must wax and wane ere it again shines, an interesting object, amongst the stars in our night sky.

Halley's comet, says *Knowledge* for March, 1911, is still under observation and is being assiduously followed by Professor Barnard with the forty-inch Yerkes' refractor. It is now of the fourteenth magnitude, round, 32 seconds in diameter, slightly condensed, but without a visible nucleus. It is considerably further from the Sun than when photographed in August [? September], 1909, and yet is two magnitudes brighter, showing that the physical brightening at perihelion persists for some time. Professor Barnard has hopes of keeping it in view till the end of the year; it will then be far outside the orbit of Jupiter, which it will cross in April next. It will remain invisible for seventy-four years, and will probably be detected in August, 1985, passing perihelion about February, 1986.

OUR HEREDITARY GOVERNORS.

BY LIEUT.-COL. T. W. M. DE GUERIN.

WE are apt to forget that in the middle ages the government of the Channel Islands differed much from ours at present. For over two hundred and seventy years, from 1200 to 1471, there was but one Governor, except in a few isolated cases, for all the Islands, who was usually styled "custos" keeper or warden, and whose powers were much greater than those of our modern Lieutenant-Governors. During the 13th century, for instance, not only was the Warden the military governor of the Isles, but he was also the Bailiff, the President of our Royal Court—a combination of offices by no means peculiar to our Islands, but also to be found in many of the free towns, bastides or bourgades of Gascony, as well as employed by Edward I. after the conquest of Wales. The constables of the castles which he built to keep the Welsh in check, being also *ex-officio* the mayors of the free towns that grew up round them. As our Warden was always a great baron and often held high posts at Court, and sometimes even acted as Seneschal of Gascony, as well as Governor of the Isles, he was frequently absent, and then his powers were exercised by his lieutenants, two officers of his own appointment, usually one for each island. It was only as late as 1292 that the bailiffship of the Islands became permanently separated from the office of Governor, William de Saint Remy being the first Bailiff of Guernsey by Royal Patent.

Our early Governors usually held their office for an annual sum, or farm, paid to the crown, which varied in amount considerably from time to time. Occasionally we find the Islands granted to prominent persons as a reward for their services to the king on a different tenure. These enjoyed the whole of the surplus royal revenue, after paying for the garrisons and repairs of the royal castles in time of peace. The Islands were held in this manner by Henry de Trumbleville, 1233 to 1240, Otho de Grandison, 1275 to 1328, and Edmund Duke of York, 1396 to 1415. The first with title of Lord of the Isles and the two latter with only that of Warden. Again at other times the Channel Islands were given in appanage to Royal Princes. First to Prince Edward, afterwards

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Edward I, who held them from 1254 to 1272, and later in 1318 to Prince Edward, afterwards Edward III. The grant to the latter was made on a false rumour of the death of Otho de Grandison and became void on his return to England.

In the 15th century yet another mode of tenure was adopted and the Isles were granted to Royal Princes in fief with remainder to their heirs male. This form of tenure in fief was a revival of the first system of governorship adopted by King John when he gave them to Pierre de Préaux in 1200. The princes who held the Isles in this manner were John, Duke of Bedford, Regent of France, 1415-1433, and Humphry, Duke of Gloucester, 1435 to 1446. These were hereditary governors, but as neither left any descendants the Isles fell to the crown at their death. It is hardly correct, however, to say that the Lordship of the Isles fell to the crown on the death of the Duke of Gloucester, as the year previous, on the 24th November, 1445, Henry VI. had granted the reversion of them to Henry de Beauchamp, Duke of Warwick, who had been his playfellow as a boy and upon whom, when he came of age, he had heaped honour upon honour, creating him in rapid succession Marquis, and then Duke of Warwick, as well as King of the Isle of Wight. There is an important difference in the Letters Patent, granting the lordship of the Isles to the Duke of Warwick, from those of his predecessors. Theirs contained a remainder to their heirs male, his a remainder to his heirs, and in consequence, as we shall see, the Isles passed in succession to two ladies of the de Beauchamp family. Though the tomb of the Duke of Warwick at Tewkesbury Abbey bore the proud inscription of King of Wight, Gardsey and Jardsey, he never enjoyed the two latter for, as we have already stated, he died a few months before the Duke of Gloucester. On the latter's death, in 1446, Lady Anne de Beauchamp, the Duke of Warwick's infant daughter, became Lady of the Isles, and on the 24th February, 1447, the king appointed John, Lord Beaumont, Grand Constable of England, and Ralph Botiler, Lord Sudeley, as Governors of the Isles, during her minority. Shortly after he gave the Duke of Suffolk custody of her person and of all her possessions until she came of age. The Duke then proceeded to name a new Governor of his own, Sir William Bertram, to look after his interests in the Isles, and obtained the king's approval to this appointment on the 13th November, 1448. The king however adding a proviso "provided the appointment did not interfere with the rights of the Lords Beaumont

and Sudeley in the Isles." We were therefore in the possession of no less than three Governors, but unfortunately we have no means of ascertaining how they settled their conflicting claims. Lady Anne de Beauchamp's tenure of the Isles was brief, as she died in July 1449. Her heirs were her four aunts, the daughters of Richard, Earl of Warwick, namely: Margaret, wife of John, Earl of Shrewsbury, Eleanor, wife of Edmund, Duke of Somerset, Elizabeth, wife of George Neville, Lord Latimer, and Anne, wife of Richard Neville. To these the king granted the livery of the lordship of the Isles of Jersey and Guernsey on the 12th July, 1449. The youngest, Anne de Beauchamp, wife of Sir Richard Neville, was however sister of the whole blood to Henry, Duke of Warwick, being the only other child of Richard, Earl of Warwick, by his second wife Isabel, Countess of Worcester, daughter and heir of Thomas le Despencer, Earl of Gloucester. As such she was by English law nearest of kin to the Duke and inherited the bulk of his honours and estates. On the 23rd July, 1449, a few days after the death of the Duke's only daughter, Richard Neville were created Earl of Warwick, but this patent was revoked, and on the 2nd March, 1450, he and Anne de Beauchamp, his wife, were created conjointly Earl and Countess of Warwick, with remainder to her heirs, and at the same time they were granted all the honours and possessions of Henry, Duke of Warwick, with the exception of his Marquisate and Dukedom. These Letters Patent which have recently been published in the Calendar of Patent Rolls of Henry VI. explain a point which puzzled Havet when writing his list of "Seigneurs et Gardiens des Iles Normandes," why no Letters Patent could be discovered creating Richard, Earl of Warwick, Lord of the Isles. As we now see he became possessed of them in right of his wife as heir of the Duke of Warwick. He is mentioned as Lord of the Isles of Guernsey and Jersey in Letters Patent of the 18th July, 1451; but a few months after, on the 24th September, 1452, we find the king appointing a royal Governor for the Isles, John Nanfan. It has been supposed that the Earl of Warwick had already fallen into disgrace for his adherence to the Yorkist party; but this cannot have been the reason as we find him appointed to various offices by the King after this date. Further, there have recently come to light two letters styling him Lord of the Isles of Guernsey and Jersey during the time of John Nanfan's governorship, showing that though the latter was Governor, appointed probably for the defence of the Islands against the French, still

the Earl was not deprived of his rights as Lord of the Isles. The first of these documents is dated the 12th February, 1453, and is a letter of the Earl's in favour of Thomas de la Court, of Guernsey, Seigneur of Trinity Manor, Jersey, granting protection to him and his household from all molestations of his enemies: these enemies being his cousins the de Saint Martins, whose ancestors had held the Manor for centuries and who seem to have deeply resented its sale by Thomas de Saint Martin, Seigneur of Trinity, to his brother-in-law, the above-mentioned Thomas de la Court. The second document is a letter of the Royal Court of Jersey of 1456, referring to the petition of Collette de la Roque, mother of Janequin de Saint Martin, demanding that the Vicomte be ordered to certify to Otys Colin, Lieutenant of the Castle of Goury, that the said Janequin was and is under the protection and safeguard of the King and of "Monseigneur de Warryck, Seigneur des Isles," as she has reason to doubt and fear the said Otys. Otys Colin, who is here rather contemptuously referred to as "soy disant Lieutenant" had been Lieutenant of John Nanfan in the Isles.*

We gather from the Patent Rolls of this period some interesting details of the history of John Nanfan. He had seen long service during the wars with France under Henry V. and became attached to the household of Richard, Earl of Warwick. He was taken prisoner in France, and on his release was appointed governor to the Earl's infant son Henry, afterwards Duke of Warwick. For these services he was appointed Constable of Cardiff Castle by Isabel, Countess of Worcester, the Duke's mother, and later forester of Glamorgan by the Duke when he came of age, and also was awarded a pension of £60 a year by the King. He was deprived of his office as Governor of the Isles by Parliament, 33,

* NOTE.—The following extract from the recently published Calendar of Patent Rolls, Henry VI., 1452-1460, clearly shows that the Earl of Warwick was Lord of the Isles only in right of his wife. It is dated after his attainure in 1459, hence the reference "late by reason of Anne, his wife, Earl of Warwick, &c."

Patent Rolls, 38, Henry VI., Part II, memb: 24.

March 12, 1460, Westminster. On the petition of Thomas, son and heir of Thomas de la Court deceased, of the isle of Guernsey, showing that in September, 1452, Thomas de Seintmartin, esquire, of the isle of Gersey, then lord and possessor of a fee called "la Trinité" in Gersey, because he and Thomas, his son, were taken prisoners by the king's adversaries of France, in order to deliver their bodies from captivity, obtained license of the officers of the place to sell the said fee, and sold it to the said Thomas de la Court, the father, in fee for a sum of 680 scutes of gold, which Thomas de la Corte the father paid, which sale Richard Nevill, late by reason of Anne, his wife, earl of Warwick and lord of the said Isles, ratified by letters patent dated 18 January, 1452, but the petitioner now fears that the sale may be reputed invalid owing to an ordinance said to have been made in the duchy of Normandy on the king's behalf, whereby if any man sell lands and immoveable possessions, and within the following year and day withdraw from the king's obedience, such sale shall be void, and the said Thomas de Seint Martin did so withdraw:—the king has ratified the said sale.

By p.s. &c. and for $\frac{1}{2}$ mark paid in the hanaper.

Henry VI., which first assembled on July the 9th, 1455, when Richard, Duke of York, was appointed Protector of the kingdom. The Isles then reverted to the sole charge of the Earl of Warwick. In spite of the revocation of his appointment we find John Nanfan still styled Governor-General of the Isles in several Letters Patent of 1455 and 1456, so it is probable that he continued to act as Governor under the Earl. We also find him appointed by the king, on the 16th August, 1456, as collector and receiver of customs and subsidies in the Channel Islands, and again on the 24th September, 1457, he was re-appointed Governor-General of the Isles for a term of ten years. How far this appointment interfered with the rights of the Earl is most difficult to determine, owing to the disturbed condition of affairs at this period. The dissensions between the rival houses of York and Lancaster soon led to a renewal of the civil war, and on the disastrous defeat of the Yorkist party at the battle of St. Albans in 1459, the Earl of Warwick and Edward, Earl of March (afterwards Edward IV.) fled and after many adventures succeeded in reaching Guernsey and from thence took refuge in Calais. Immediately after his flight the Earl of Warwick was attainted and all his honours and estates were declared forfeited, including "*insulam nostram de Gersey cum omnibus aliis Insulis.*" John Nanfan was for the third time appointed Governor on the 12th May, 1460. The triumph of the Lancastrians was short-lived, as Edward IV. and the Earl of Warwick soon returned, and the fatal battle of Towton saw the destruction of their hopes.

Whether there is any truth in the story that Margaret of Anjou sold the Channel Islands to Louis XI., as the price of his support to the fallen Lancastrian cause, is uncertain; anyway, in the summer of 1461 the French under Surdeval invaded the Channel Islands, captured Mont Orgueil Castle and nearly the whole island of Jersey, and even attacked Castle Cornet. History accuses John Nanfan, the Lancastrian Governor, of having betrayed Mont Orgueil Castle to the French, and the support which De Brezé, the French Governor, received from many of the leading families of Jersey, notably the members of the de Saint Martin family, gives colour to the idea that there must have been a considerable French or Lancastrian party in that island.

Up to the present all those who have written on our Governors have considered John Nanfan to be the last Governor of all the Channel Islands. This view is, however, now

proved to be incorrect as we find that they must have been restored to Richard, Earl of Warwick, along with all the other possessions of the House of de Beauchamp on the 12th December, 1461. Proof of this is to be found in two charters, one of the 21st March, 1464, in which he is styled "Comte de Warrewyk et de Salysbury Seigneur de Glamorgan et Morgannok et des Isles de Guernesey et de Jersey," granting to Thomas de la Court the forfeited lands of his cousins John, Guille and Raulet de Saint Martin in Jersey, which had escheated to the Earl as Lord of the Isles, on their adherence to the king's enemies, the French. The other of the 12th August, 1466, is an *inspeximus* and confirmation by the Earl of a letter of sale to John Henry of Guernsey, of a mill at the Vrangue, by William Bertram, Governor of the Isles under the Duke of Suffolk, guardian to Lady Anne de Beauchamp, dated the 7th May, 1449. These letters are of great value; they not only prove that the Earl of Warwick was restored to the lordship of the Isles by Edward IV., but give us some idea of the extent of his power and privileges. They show that these hereditary Seigneurs were absolute owners of the Isles, and were possessed of what had been previously royal privileges and possessions. To them fell the escheated lands of traitors and they disposed of them to whom they would without any reference to the crown, they sold and confirmed the sale of a royal mill as their own private property, and further, as we have seen, they issued letters of Protection under their own seal to people of the Isles and ordered their officials to take cognisance of them as if they were royal personages.

There is not the slightest reason to suppose that Richard, Earl of Warwick, was not in possession of the Isles at the time of his death at the battle of Barnet, 1471. The fact that a Jerseyman, Geoffrey Walsh, Seigneur of Handois, who was Captain of Castle Cornet in 1456, and who is said to have been Captain or Lieutenant of Guernsey in 1468, was killed in the same battle fighting under the Earl, tends to show that he was still possessed of them.

What exactly happened concerning the government of the Channel Islands on the death of the Earl of Warwick is uncertain. Richard Harliston, who had recaptured Mont Orgueil Castle in 1468, was certainly acting as Captain and Governor of Jersey in December, 1474, when he ordered Thomas de la Court, son of the Thomas last mentioned, to be given possession of Trinity Manor and the rest of

his father's lands in Jersey, on account of his father's services at the siege of Mont Orgueil. Harliston's exact position is not clear, as in the Gascon Rolls, 13th January, 1477, he is officially appointed Captain and Governor of Jersey "because he had recovered the castle from the king's enemies"—a phrase one might expect to find in an original grant but would hardly look for in an extension of office. As far as Guernsey is concerned we seem to have had no Governor from the time of the death of the Earl of Warwick until 4th November, 1477, when William de Courteney was appointed Captain.

On this point it must be noted that George, Duke of Clarence, who had married Isabel, eldest daughter of the Earl of Warwick, was advanced to all the titles and dignities of the said Earl on 25th March, 1472. Further that he was attainted and died in the Tower in the year 1477, when we find the first Letters Patent appointing separate Governors for both Guernsey and Jersey. Did he also hold the lordship of the Isles? This is a point awaiting solution.

In 1487 we get the last glimpse of Lady Anne de Beauchamp, Countess of Warwick and Lady of the Isles. The astute Henry VII. declaring that it was "abhorrent to God and man that children should supplant their parents and deprive them of their inheritance," brought the aged Countess from the convent where she had taken refuge, after many vicissitudes subsequent to her husband's death, and with great pomp restored her to possession of all her titles and manors, including the lordship of the Channel Islands. A few days later, on the 3rd December, 1487, she renounced in favour of the king all her inheritance including "the islands and lordship of Jernesey and Guernesey and the castles and manors of Gurry, Cornet, Serk, Erme, and Aureney, in the islands aforesaid." And so the craftiest of the Tudor monarchs robbed the widowed Countess and her grandson, the last male heir of the White Rose, in a strictly legal manner.

THE RAINFALL OF GUERNSEY FOR THE YEAR 1910.

BY MR. A. COLLENETTE, F.C.S.

A REFERENCE to last year's paper on the rainfall will explain my reasons for believing in advance that 1910 would be wet. The event has justified; the forecast for 1910 has proved to be nearly 10 inches in excess of the average and the largest annual total since 1882. With these figures before us we are justified in anticipating a smaller rainfall for 1911, probably not lower than the average.

Following the sequence of dry and wet years a little further I have prepared a table (5) in which I have collected the 10 years of lowest rainfall in the 68 years' records, and I find that seven out of the ten were succeeded by two years of successively greater totals. In the three exceptions the first succeeding year is one of greater rainfall.

It is possible that we have two or more short periods overlapping and confusing each other, which may be disentangled later. It is worthy of note that the means of these years vary between the minimum and 1st year about 10 inches, then the difference between the 1st and 2nd year falls to 3 inches. If we consider the 7 years which agree we find that the rise from minimum to maximum is roughly 8 inches in each successive year.

The only very dry month in 1910 was September, which was 2.65 inches below its average. On the other hand, January, February, October and November were very wet, the last month being over 6 inches in excess of its average and proved to be the wettest November we have on record.

There were several very wet periods, notably one at the end of the year involving the last 83 days, out of which 74 were wet. Not only did it rain day after day, but heavy falls were experienced in October and November; three days in October gave 3.8 inches and three days in November gave 3.1 inches (see Table 3). If we exclude the rainfall of these 6 days we remove more than 1.7th of the total for the year.

[1910.]

As regards the distribution of rainfall over the year Table I shows that January and February contributed 23%, October, November and December over 48%, leaving only 29% for the remaining seven months.

The distribution of rain over the whole island is shown in Table 2. There are, owing to the somewhat partial distribution of the heaviest falls, differences which throw some of the stations a little out of their former proportionate values. For instance, Hautnez collected only 85%, Grange 85% and L'Ancrese 79% of the Brooklyn totals, whereas last year their proportions were 90%, 95% and 96%. In the case of L'Ancrese the moving of the gauge from Mr. Hocart's at Les Mielles to Fort Doyle (Mr. E. O. Catford) may possibly account for a part of the loss. In the other cases the gauges have not been moved.

As regards wet days this year has given as many as the previous wettest and the number, 232, exceeds the average by 51. The stations vary among themselves as much as 62 days (181 to 243).

In Table 7 I have collected the results of the measurements in Alderney and Sark (as kindly provided by Mr. Rowswell) and I compare them with the falls on the roof of the Library, where the fall for the year has been 2.39 inches less than at St. Martin's Road.

A month's total (October) is missing from the Alderney returns and the gap has been filled by crediting the island with 7 inches for that month, which seems to be a consistent quantity, but of course this is done merely to be able to use the returns of the other months and must not be taken as correct.

TABLE I.
RAINFALL AT ST. MARTIN'S ROAD, 1910.
Inches.

1910.	Rainfall.		Previous Records.		Greatest fall in one day.		Proportion of the month's falls to the year's total.		Wet Days.		
	Monthly Totals, 1910.	Monthly Totals, 68 years Averages.	Highest.	Lowest.	Amount.	Day.	1910.	Normal.	1910.	Averages.	
		Difference of 1910 from Averages.									
January ..	5.54	3.77	+ 1.77	7.90	0.79	0.76	23rd	12.0	10.3	27	19
February..	5.00	2.64	+ 2.36	6.19	0.08	0.57	14th	10.8	7.2	27	16
March	2.03	2.54	- 0.51	6.44	0.34	0.81	11th	4.4	7.0	10	16
April	1.39	2.36	- 0.97	5.13	0.23	0.23	24th	3.0	6.4	16	14
May	2.33	2.15	+ 0.18	4.64	0.02	0.43	11th	5.0	5.9	21	12
June	1.96	2.02	- 0.06	5.03	0.43	0.61	6th	4.3	5.5	13	11
July	2.83	2.14	+ 0.69	6.58	0.12	0.89	24th	6.1	5.9	16	11
August ..	2.33	2.40	- 0.07	6.01	0.33	0.55	18th	5.1	6.6	20	12
September	0.36	3.01	- 2.65	9.39	0.25	0.16	15th	0.8	8.2	6	14
October ..	7.55	4.93	+ 2.62	11.04	1.92	1.61	13th	16.3	13.4	21	19
November	10.75	4.45	+ 6.30	9.08	0.88	1.23	16th	23.3	12.3	29	19
December	4.10	4.10	—	11.47	0.80	0.68	14th	8.9	11.3	26	19
The Year..	46.17	36.51	+ 9.65	56.96	25.04	—	—	100.0	100.0	232	182
Wettest ..	10.75	4.95	+ 2.65	11.47	—	1.61	Oct.	23.3	13.4	29	19
Driest	0.36	2.02	—	—	0.02	—	—	0.8	5.5	6	11

TABLE II,
DISTRIBUTION OF RAINFALL OVER THE ISLAND 1910.

1910.	South & South East.			East.		South-West.		North-East.	Whole Island
	St. Martin's Road.	Les Blanchés. St. Martin's.	Hautnez, Forest.	Villa Carey, Grange.	Colborne Villa, Rohais.	Les Héches, St. Peter-in-the-Wood.	Villiaze, St. Saviour's.	Fort Doyle, L'Ancrese.	Means of all Stations.
	1	2	3	4	5	6	7	8	9
January	in. 5·54	in. 5·12	in. 4·49	in. 5·28	in. 5·45	in. 5·43	in. 4·76	in. 4·62	in. 5·08
February	5·00	4·80	4·12	4·94	5·45	4·79	4·63	4·47	4·78
March	2·03	1·93	1·67	1·93	1·88	1·38	1·77	2·39	1·74
April	1·39	1·46	1·38	1·11	1·34	1·79	1·58	1·22	1·41
May	2·33	2·22	2·06	2·20	2·13	2·02	1·99	1·67	2·08
June	1·96	1·99	2·30	1·96	2·18	2·09	2·03	1·90	2·05
July	2·83	2·50	2·43	2·62	2·73	2·60	2·48	2·41	2·57
August	2·33	2·31	2·22	2·28	2·26	2·03	2·26	1·90	2·20
September	0·36	0·35	0·35	0·39	0·37	0·24	0·34	0·14	0·31
October	7·55	7·59	6·41	7·52	7·63	6·29	6·82	6·70	7·06
November	10·75	11·13	10·36	10·20	10·29	8·80	10·53	8·53	10·07
December	4·10	4·14	3·59	3·89	3·94	3·89	3·87	3·65	3·88
The Year	46·17	45·54	40·36	40·32	45·72	41·31	43·06	36·65	43·23
Comparisons ..	100	96	85	85	99	89	93	79	94
Wet Days	232	243	225	215	221	224	223	181	220
Observers	Mr. A. Collenette.	Mr. B. Rowsell.	Waterworks Co.	Dr. F. Carey.	Mr. T. Guilbert.	Mr. F. Lilley.	Waterworks Co.	Mr. E. O. Catford.	

TABLE III.
FALLS OF ONE INCH, AND OVER, AT ALL STATIONS,
with quantities measured at all stations on same day.

Inches.

Dates.	Guernsey Stations numbered as in Table II.									Alderney.	Sark.	Guille-Allès Library.
	1	2	3	4	5	6	7	8	9			
January 23.....	0.76	0.83	0.72	0.71	0.78	1.08	0.82	0.69	0.80	—	—	—
March 11.....	0.81	0.76	0.71	0.84	0.81	0.44	0.76	0.76	0.65	0.70	0.76	0.76
June 8.....	0.35	0.32	0.36	0.39	0.45	0.23	0.21	0.67	0.33	0.49	0.49	?
October 11.....	1.23	1.23	1.06	1.17	1.03	0.72	0.87	1.00	1.03	1.08	1.11	1.10
" 13.....	1.61	1.53	1.35	1.67	1.67	1.25	1.50	1.45	1.50	?	1.84	1.61
" 27.....	1.02	1.07	1.10	1.02	1.10	1.18	1.14	0.86	1.06	?	?	?
November 16.....	1.23	1.43	1.20	0.96	0.90	1.00	1.15	0.64	1.04	?	1.07	?
" 23.....	0.94	1.00	0.77	0.90	0.84	0.88	0.76	0.79	0.85	1.14	1.00	?
" 30.....	0.98	0.85	0.75	1.05	1.04	0.54	1.11	0.95	0.90	1.02	1.00	?

? Details not supplied.

Drought at St. Martin's Road—15 dry days from March 19th.

Partial drought " " —28 days, total fall 0.22 inch.

VERY WET PERIOD.

October 10th to December 31st inclusive. 9 dry days. 74 wet days.

TABLE IV.
AVERAGE ANNUAL VALUE OF RAINFALL.

The Year included.	No. of Years.	Dry or Wet.	Rainfall of Year.	Average of full Period.	Effect of each year on Average.
			Inches.	Inches.	Inches.
Previous	58	—	—	36.62	—
1901	59	Very Dry.	27.97	36.54	-0.08
1902	60	Dry.	33.98	36.52	-0.02
1903	61	Wet.	40.88	36.62	+0.10
1904	62	Wet.	37.72	36.62	—
1905	63	Dry.	34.12	36.59	-0.03
1906	64	Dry.	33.43	36.46	-0.13
1907	65	Dry.	34.00	36.50	+0.04
1908	66	Very Dry.	26.22	36.32	-0.18
1909	67	Dry.	34.00	36.29	-0.03
1910	68	Wet.	46.16	36.51	+0.22
Whole period of 10 years.....	—	Dry.	34.84	-0.11	—

TABLE V.
YEARS OF MINIMUM AND MAXIMUM RAINFALL WITH THE TWO SUCCEEDING YEARS.

Years of Minimum Rainfall.		Years of Medium Rainfall following Minimum.		Years of Maximum Rainfall 2 years after Minimum.	
Year.	Inches.	Year.	Inches.	Year.	Inches.
1844	27.6	1845	33.3	1846	42.5
1847	29.2	1848	48.0	1849	36.4
1851	29.3	1852	49.1	1853	34.9
1854	29.9	1855	30.4	1856	34.3
1858	25.0	1859	43.4	1860	48.0
1864	32.6	1865	43.3	1866	44.4
1870	27.0	1871	36.2	1872	56.9
1887	28.7	1888	37.4	1889	33.2
1901	27.9	1902	33.9	1903	40.9
1908	26.2	1909	34.0	1910	46.2
10 Years.	Mean 28.3	10 Years.	Mean 38.9	10 Years.	Mean 41.8
7 Years.	Mean 28.0	7 Years.	Mean 36.3	7 Years.	Mean 44.7

The seven years' totals do not include the lines beginning with the years 1847, 1851 and 1887.

TABLE VI.

PREVIOUS YEARS OF LOWEST RAINFALL WITH THE 5 YEARS BEFORE AND AFTER THE MINIMA.

In.	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
56											
46								48.04			
36	34.98						43.41				
26		29.29	30.42	30.36	31.90				31.22	32.50	34.47
						25.03					
In.	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875
56											
46								56.96			
36	43.30	44.43									
26			37.07	34.76	32.99		36.26		37.72	35.38	36.28
						27.05					
In.	1903	1904	1905	1906	1907	1908	1909	1910			
56											
46								46.16			
36	40.88	37.72									
26			34.12	33.43	34.00		34.00				
						26.22					

TABLE VII.
 RAINFALL OF ALDERNEY AND SARK, 1910.
 Compared with the Elevated Gauge on the Guille-Allès Library,
 Communicated by Mr. B. Rowswell.

Months.	Rainfall. Inches.			Wet Days.		
	Alderney, by Mr. W. J. Picot.	Sark, by Capt. Henry.	G. & A. Library, by Mr. B. Rowswell.	Alderney.	Sark.	Library.
January	4.40	3.94	5.26	24	24	24
February	4.73	3.97	5.13	26	25	24
March	2.98	1.60	1.84	7	6	9
April	1.64	0.97	1.19	13	11	13
May	2.29	1.97	2.29	16	19	20
June	1.64	1.84	1.98	11	13	11
July	2.37	2.41	2.65	13	16	15
August	2.10	2.00	2.29	15	16	17
September	0.20	0.29	0.38	6	5	5
October	7.00 ?	7.09	7.15	20 ?	18	20
November	8.79	10.15	9.94	21	27	28
December	3.85	2.81	3.67	20	23	23
Totals	41.99	39.04	43.77	192	203	209

SUNSHINE IN GUERNSEY.

BY MR. A. COLLENETTE, F.C.S.

THE year has again proved to be a year of small sunshine, the total being 138 hours less than the average. There have been, in the 17 years during which sunshine has been registered in the island, four only with smaller totals.

We now have on record

5 years with totals under 1,800 hours.

4 " " " of from 1,800 to 1,900 hours.

3 " " " " 1,900 to 2,000 hours.

5 " " " over 2,000 hours.

The extremes of the whole period are shown in Table 2. The range in the annual totals being 491 hours. We thus know, although the period is short, that our sunshine can vary from year to year as much as 500 hours.

The months of July and August narrowly escaped being records of low sunshine, July being 3 hours and August 6 hours only in excess of the previous lowest figures.

The coldness and sunless summer is once more somewhat remarkable, for while the winter months January, February, March and December were above their averages, April to September inclusive were deficient in sunshine.

The deficit of these summer months amounted to 177 hours, equal indeed to the whole sunshine of September this year, and July which should have contributed 270 hours gave practically 80 less. August followed with a loss of 50 hours. On the other hand March gave a surplus of 45 hours.

Last year July was 47 hours in deficit, that is in two years we have a total of 127 hours out of the 680 due, that is a mean annual loss during those two years of 63, on an average of 340 hours.

Going backward I find that the reduction of the average in July is considerable, and to show that I have prepared a new table (3) comparing the values of the averages of this and the other summer months.

The loss here shown does not exist in the winter months the averages of which have either remained stationary or have increased.

This absence of sunshine is serious, but we may comfort ourselves by believing that the loss will be made up and that warm and favourable summers will in due order succeed.

I consider that the columns in Table I of the percentage of the year's total of each month and the value of the day in each month are not without interest. The falling off is well shown by the fact, giving July for instance, of the day in that month yielding a mean value of 6.1 hrs. against 8.7 in the averages, and further that 1910 gave a value for the day

TABLE I.
DURATION OF SUNSHINE AND
Campbell-Stokes

1910.	SUNSHINE.							
	Monthly Totals. Hours.			Percentages of the Possible.			Mean Daily Values.	
	1910.	Seventeen Years' Averages.	Highest Records.	1910.	Averages.	Highest Records.	Hours.	
							1910.	Averages.
January	60.9	58.2	82.5	23	22	31	1.9	1.8
February ..	88.4	85.1	118.9	32	30	42	3.0	3.0
March	194.0	148.7	228.4	53	40	62	6.2	4.8
April	189.0	195.2	260.8	46	47	63	6.3	6.5
May	217.7	248.5	339.4	46	52	72	7.0	8.2
June	240.8	247.5	314.4	50	51	65	8.0	9.0
July	190.5	269.5	339.9	39	55	70	6.1	8.7
August	192.1	242.2	325.6	43	55	73	6.2	7.8
September ..	169.2	185.7	269.4	45	49	72	5.6	3.8
October	119.7	115.4	154.5	36	34	46	3.8	3.7
November ..	58.4	69.8	113.9	21	25	41	1.9	2.3
December ..	52.3	45.4	75.1	19	17	30	1.7	1.4
The Year ..	1173.0	1911.0	2215.0	39	43	50	4.8	5.2

over the whole year of 4·8 hrs., when it should have been 5·2 hrs.

It will be noted that the sunless days, which in the averages number 45, have this year mounted up to the relatively high figure of 57. Of course a considerable advance in the cloud column was to be expected, and is found as 6·4 instead of 5·3 (Scale 0 to 10).

TABLE I.

PREVALENCE OF CLOUD.

Recording Instrument.

SUNSHINE.			Sunless Days.		Sunniest Days.			CLOUD.	
Difference between 1st and 2nd Columns.	Proportions of the Year's Total.				1910.		Previous Record.	Scale 0 to 10.	
	Hours.	1910.	Averages.	1910.	Averages.	Hours.		Date.	Hours.	Averages.
+ 2·7	3·6	3·3	13	10	7·6	30th	8·2	7·6	6·6
+ 3·3	4·9	4·4	5	6	6·6	8th	9·7	6·7	6·2
+ 45·3	11·2	7·7	2	3	10·9	28th	11·8	6·8	5·5
— 6·2	10·7	10·2	3	1	12·0	26th	13·8	6·1	4·8
—20·8	12·3	13·2	0	1	14·7*	24th	14·5	6·1	4·5
— 7·3	13·5	12·9	2	1	15·1	3rd	15·6	6·1	4·8
—79·0	10·7	14·1	5	0	14·2	4th	15·0	6·6	4·6
—50·1	10·8	12·6	1	1	12·3	10th	14·4	6·5	4·5
—14·5	9·5	9·7	2	1	11·8	8th	12·4	5·5	4·6
+ 4·3	6·7	6·0	5	4	9·1	14th	10·8	4·1	5·9
—11·4	3·2	3·6	8	7	6·1	2nd	8·8	7·3	6·4
+ 6·9	2·9	2·3	11	11	5·7	14th	7·9	7·3	5·8
—138·0	100	100	57	46	15·1	June	15·6	6·4	5·3

* New Record.

TABLE II.
SUNSHINE RECORDS.

Months.	Monthly Totals.		Sunniest Day.		Averages.			
	Highest.	Lowest.	In each Month.	Date.	Sunniest Day.		Gloomiest Day.	
					Mean.	Day.		Mean.	Day.
January	82.5	28.7	8.3	26th, 1899	3.13	26th	0.91	21st
February	118.9	44.6	9.7	26th, 1899	5.44	28th	1.74	6th
March	228.4	83.7	11.8	30th, 1907	7.43	26th	2.77	8th
April	260.8	129.3	13.6	24th, 1905	8.41	23rd	4.30	3rd
May	339.4	181.3	14.7	24th, 1910	10.84	4th	6.47	21st
June	314.4	191.7	15.6	20th, 1905	10.35	27th	5.63	1st
July	339.9	187.2	15.0	7th, 1898	11.21	4th	6.55	25th
August	325.6	186.4	13.9	12th, 1900	10.45	2nd	5.86	27th
September	269.4	107.3	12.4	3rd, 1895	7.52	7th	4.10	28th
October	154.5	85.2	10.8	1st, 1898	5.24	14th	2.10	30th
November	113.9	39.9	8.8	3rd, 1908	4.05	5th	1.04	29th
December	71.5	17.9	7.9	25th, 1905	2.88	28th	0.53	16th
The Year	2215.3	1724.5	15.6	20th June 1905	11.21	4th July	0.53	16th Dec.
	1899	1894						

TABLE III.
THE REDUCTION IN HOURS OF SUNSHINE DURING THE LAST
SEVEN YEARS OF THE SUMMER MONTHS.

Period.	Hours of Sunshine.				
	Averages.				
	May.	June.	July.	August.	September
Averages for					
11 years.....	261	270	287	254	191
12 „	253	258	283	245	190
13 „	257	253	282	244	186
14 „	251	254	280	245	189
15 „	246	250	280	244	189
16 „	244	249	277	243	188
17 „	250	248	274	245	187
17 „	248	247	269	242	186
Loss	13	33	18	12	5

NOTES ON THE RAINFALL AT SARK AND ALDERNEY DURING THE YEAR 1910.*

BY BASIL T. ROWSWELL.

THE year 1910 will stand out in the annals of local Meteorology as one of excessive rainfall. As far as my own Station at Les Blanchés in this island (Guernsey) is concerned the total measurement for the twelve months, viz., 45·54 in., exceeded the average of the 10 years, 1894-1903, by no less than 11·59 in. Of the 17 years during which rainfall observations have been taken at Les Blanchés, 1910 was by 7·34 in. the wettest year of the series, and its total exceeds that of 1908 (24·33 in.), the driest of the seventeen, by 21·21 in. October with 7·59 in. of rain and November with 11·13 in. (aggregate 18·72 in.) together represent no less than 55 per cent. of the year's average total. Five one-inch rainfalls were measured at Les Blanchés during October and November, the heaviest downpour of the year, 1·53 in., occurring on October 13th. Only one really dry month was experienced, September, the full rainfall of which was but 0·35 in.

In writing of 1910 as having been excessively wet, one should do so guardedly. The year began with two very wet months, but these were followed by a long interval of just ordinary rainfall. As a matter of fact there was nothing to point to the year being one of extraordinary rainfall until the advent of November when, however, it became abundantly clear that the accumulated fall for the twelve months would certainly be an unusually heavy one and that 1910 would finish up with a "grand total" unknown at Guernsey for very many years.

Incidental reference has been made to the great rainfall shortage of 1908. This was followed in 1909 by a further, if much smaller, loss, but together the deficiency for the two years reached the big figure of 11·25 in. This alarming drought, however, was more than wiped out by the 11·59 in.

*The incidental references in these Notes to the Rainfall Station at Les Blanchés are included merely for the sake of comparing the Sark and Alderney figures with those at a Guernsey Station. B.T.R.

excess in the 1910 rainfall. There is every reason to believe that excesses and deficiencies of rainfall always balance themselves in time. Sooner or later, no matter how great the departure from the normal may be, a restoration to par occurs.

The year 1910 began with a distribution of atmospheric pressure which had in it great possibilities for the making of fine weather in the Channel Islands; everything seemed to point to the likely development of a cold snap. But it never came off, for after a week of wavering uncertainty the tide turned in the direction of "unsettled," which as the days advanced became more pronounced in every respect and, in the end, made the month one of marked cyclonic activity, variable temperature and heavy rainfalls.

In all the islands very little rain fell until the 11th when the first big fall of the year occurred, and a stiff gale with heavy thunderstorm was reported from Alderney. Lightning and thunder also occurred at Guernsey between 6 and 7 p.m. that day. Very heavy rain again fell on Sunday, the 23rd, in connection with the passage of a deep Atlantic disturbance. The measurements were: Sark, 0·67 in.; Alderney, 0·83 in.; Guernsey (Les Blanchés), 0·83 in.

From Guernsey on Wednesday, the 26th, the adjacent French coast and Alderney were observed to be thickly covered with snow. In confirmation Mr. Picot's weekly report stated that a heavy fall of snow had been experienced at Alderney during the night from the 25th to the 26th. On the 26th itself an interesting peculiarity in rainfall was noted, for while Capt. Henry at Sark reported a perfectly dry day, and 0·01 in. only of rain fell at Guernsey (Les Blanchés), a "steady snowfall" yielding 0·35 in. of water in the gauge, occurred at Alderney during the "afternoon and evening." Roughly from four to five inches of snow are represented by Mr. Picot's measurement given above. On Saturday evening, January 29th, the Great Daylight Comet (1910*a*) was seen at Alderney; it was also seen at Guernsey the same day.

February proved mild but exceedingly unsettled. Both at Sark and Alderney it was the wettest February of the five years 1906-1910; at Les Blanchés it was the wettest month of the name since 1900. Out of the 28 days rain was measured on 25 at Sark, 26 at Alderney and 27 at Les Blanchés. Lightning occurred at Alderney on the 7th, "thunder and lightning" during the evening of the 20th,

and "thunder and hail" on the night of the 23rd. Another peculiarity in the distribution of the rainfall was noted on the 21st for while long showers, giving 0·27 in. at Guernsey (Les Blanchés), and 0·28 in. at Sark, fell in this part of the Bailiwick, Alderney escaped with a paltry 0·01 in.

With the advent of March much drier weather set in and nearly the whole of the month's rainfall occurred in the second week. On the 11th a downpour amounting to three quarters of an inch roughly, fell in the three islands. Two days before this date Alderney had been deluged with a fall amounting to 0·82 in., while Les Blanchés and Sark received respectively 0·42 and 0·41 in. only. Different in amount, however, as the rainfalls were on the 9th, a much greater difference was noted on the 12th, and on this occasion again Alderney came in for the bigger quantity. Here the measurement was 1·03 in. and Mr. Picot reported "thunder, lightning, rain extraordinary." At Guernsey and Sark where, by the way, no electrical disturbance was experienced but a dull sunless day the rainfall totalled 0·20 in. at Les Blanchés and 0·12 in. at Sark! In the six days ending March 12th Alderney received 2·68 in. of rain, Guernsey (Les Blanchés) 1·58 in., and Sark 1·39 in. From the 19th to the end of the month the weather was absolutely dry at all the stations. The dry interval came to an end at Guernsey and Alderney on the 2nd of April and at Sark on the 3rd. This was the longest rainless spell of the whole year in the islands. On April 4th when 0·05 in. of rain fell at Guernsey (Les Blanchés) Sark had 0·14 in. and Alderney as much as 0·37 in. April was more or less an unsettled period all through, but with deficient rainfall. At Sark, where Capt. Henry measured a total of less than one inch, it was the driest of the last five Aprils, but at Alderney the month was drier in 1906.

May was an unsettled month for the time of year. Rain fell almost daily during the first three weeks, but the fourth week was fine and absolutely dry both at Sark and Alderney. This is the week during which Halley's comet was best seen in the islands. Smart hail showers fell at Alderney and Guernsey on the 7th and 8th, and on the 14th Alderney experienced the "tail-end rain" of a heavy thunderstorm raging in the Channel, north of that island, at 8 p.m. At Le Huret, Mr. Picot's station, the gauge collected 0·08 in. only of water.

In the early part of June two severe thunderstorms visited the Bailiwick, the first, which, (at Guernsey) com-

menced late in the evening of Monday the 6th and prevailed until well into the morning of the 7th, appears to have been heaviest in this island, 0.70 in. of rain falling at Les Blanchés and as much as 0.97 in. at Les Hêches, St. Peter's-in-the Wood. At Sark, Capt. Henry measured 0.49 in. only as a result of the storm, while Alderney escaped with a paltry 0.03 in. There the disturbance must have been of the slightest for Mr. Picot's description of the day's weather was merely "thunder and lightning at night." Two days later, however (on the 8th) when the second thunderstorm occurred Alderney abundantly made up for what it had lost on the earlier occasion for the observer's note ran: "severe thunderstorm, 8.30 p.m., tropical downpour;" and the tropical downpour was nothing less than 1.08 in. At Sark only 0.45 in. of rain fell in the storm and at Les Blanchés still less, viz.: 0.32 in. In another part of Guernsey (L'Ancrese) 0.67 in. was measured. At Guernsey and Sark, by the way, the thunderstorm prevailed during the afternoon, but at Alderney in the evening.

On the 27th of June, by a curious coincidence, 0.05 in. of rain fell in the three islands, but on the 29th while 0.08 in. only fell at Alderney, Sark had 0.26 in. and Guernsey (Les Blanchés) 0.32 in. Very great differences in rainfall are noted from time to time in the Channel Islands and that quite apart from a thundery state of the weather when, as is well known, places but a short distance apart will frequently show a marked diversity of rainfall. For instance, on the 9th of June no less than 1.32 in. fell at St. Aubin's, Jersey, against 0.31 in. at Les Blanchés, 0.33 in. at Sark and 0.14 in. at Alderney.

July was an abnormally cold month for the time of year and it proved a wet period as well. Both at Sark and Alderney it was by a long way the wettest July of the five years 1906-1910, and the total measurement in each island (see Table) was practically the same. A week and two days of absolutely dry weather was experienced beginning on the 6th, but from the 15th onwards continuously wet and rough conditions prevailed, rain falling almost daily and frequently heavily.

The unseasonable weather of the last half of July spread into August which ran its course to the tune of deficient sunshine, low temperature and frequent showers. Again in both of the smaller islands it was the wettest month of the name since rainfall observations were commenced in 1906. A thunderstorm occurred during the evening of Sunday the 14th,

both at Alderney and Guernsey. As far as Guernsey is concerned the storm was a slight one; in each island the rainfall was the same, viz. : 0·06 in.

The next month, September, was the driest of the twelve, and more than that. The figures show it in fact to have been to date the driest month on record (since January, 1906) at both Sark and Alderney. At Guernsey (Les Blanchés) it was with May, 1905, the driest month since May, 1896. The dry weather notwithstanding there was no drought in the technical acceptance of the term for a little rain fell at all the stations on the 14th, and more heavily at Sark and Guernsey on the 15th. Beginning on the 16th, however, a run of twelve dry days was enjoyed everywhere.

In October a most regrettable break in the records occurred at Alderney. From the 2nd to the 29th inclusive no measurements of rainfall were made at Le Huret. The interruption in the observations is all the more to be regretted, occurring as it did at a time of unusually heavy rainfall when a comparison of the daily falls at this Station with those at Sark and Guernsey would have been particularly interesting. Fortunately, however, the observations were resumed before the beginning of November—a month, as far as any rate as Guernsey is concerned, of almost unprecedented rainfall.

The change from dry to wet—a change destined to last to the end of the year—developed suddenly on October 10th and the weather at once became excessively unsettled. Already on the 11th the Sark gauge collected 1·11 in. of rain, and two days later (Thursday, the 13th), when also a great N.E. gale raged, the amount was no less than 1·84 in. As a daily fall this latter is the biggest reported either from Sark or Alderney in the five years 1906-1910. At Guernsey (Les Blanchés) 1·23 in. fell on the 11th, and 1·53 in. on the 13th. October at Sark was to-date a record for wetness (7·09 in.) and it is rather curious that it immediately followed the month holding the record for drought, viz., September with 0·29 in. only of rain. This is for the five year period, 1906-1910.

Unusually wet as October proved itself it was nothing compared with the torrential downpours that deluged the Bailiwick throughout November. The grand total for November, in Guernsey and Sark at any rate, is one that will take a lot of beating. At Alderney the figure is much lower but appears to be in agreement with observations taken at Totland Bay in the Isle of Wight and at other

places on the south coast of England all of which show a much smaller November rainfall than was experienced at Guernsey and Jersey. The reduction in the November rainfall northward of Guernsey is well shown in the following table which gives the totals for October and November at the several places named. The October figures are included merely on account of that month having been (though on a smaller scale) a very wet period also.

1910.	Jersey.	Guernsey.	Sark.	Alderney.	Isle of Wight.
	St. Aubin's.	Les Blanchés.			Totland.
	in.	in.	in.	in.	in.
October	5.53 ...	7.59 ...	7.09	?	5.05
November	10.85 ...	11.13 ...	10.15 ...	8.79 ...	4.14
Totals	16.38 ...	18.72 ...	17.24 ...	?	9.19

HEAVIEST DAILY RAINFALL IN NOVEMBER.

1910.	Jersey.	Guernsey.	Sark.	Alderney.	Isle of Wight.
	in.	in.	in.	in.	in.
November ...	1.21 ...	1.43 ...	1.07 ...	1.14 ...	0.82
	23rd	16th	16th	23rd	30th

Jersey (St. Aubin's) had two one-inch rainfalls during November; Guernsey (Les Blanchés), two; Sark, three; Alderney, two; Isle of Wight (Totland), none.

This month, probably more than any other in the five year period (1906-1910) covered by the observations, was rich in differences of daily rainfall over the Bailiwick. Some of the more striking of these differences are tabulated below:

		Sark.	Alderney.	Guernsey.
		in.	in.	Les Blanchés.
		in.	in.	in.
November	3rd	0.66	0.28	0.65
	5th	0.01	0.05	0.49
	6th	0.78	0.12	0.65
	15th	0.28	—	0.35
	16th	1.07	0.75	1.43
	23rd	0.80	1.14	1.00
	24th	1.00	0.99	0.69
	27th	0.16	0.63	0.17
	29th	0.64	0.49	0.78

On the evening of Saturday, November 5th, when thunder and lightning occurred here, Mr. Picot reported "thunder, evening," at Alderney. The following day his report ran: "S.W. gale, rain, thunder, lightning," and for the 7th: "thunder, evening, and rain." At Guernsey thunder

and lightning was noted during the evening of the 7th, but none occurred on the 6th. A terrific thunderstorm with much hail (the worst visitation of the kind at Guernsey for some years) prevailed during the early evening of Tuesday, November 15th. Alderney not only escaped this electrical disturbance altogether, but the day was reported as quite dry in that island.

December brought no improvement in the weather which continued very unsettled and rainy almost to the end. The passing depressions deposited much less rain than had been the case in October and November, but the type of atmospheric pressure remained persistently cyclonic, westerly and mild. The Table shows that the normal condition of things was reverted to again as regards distribution of rainfall, Alderney getting the larger and Sark the smaller amount.

The very unfortunate break in the continuity of the observations at Alderney in October leaves blanks in this paper which it is impossible to fill, as for instance the total of rainfall for the year in that island, the number of rain days and other particulars. And for the same reason there can be no comparison of the year as a whole in the two islands. This much, however, can be gathered from the observations: that Sark continues to hold its own as the driest of the three islands, and that Alderney takes the middle position, leaving Guernsey to head the list as the place of heaviest rainfall.

I cannot conclude these fragmentary remarks without once more acknowledging my indebtedness to Capt. Henry, of La Vallée du Creux, Sark, and to Mr. W. J. Picot, of Le Huret, Alderney, who have now for five years so devotedly interested themselves in the rainfall of their respective island and sent me regularly weekly returns of the observations taken.

ABSOLUTE DROUGHTS IN 1910.

An Absolute Drought, as defined in *British Rainfall*, is a "period of *more than* 14 consecutive days, no one of which is a rain day."

Sark.

March 19 to April 3 = 16 days.

Alderney.

March 18 to April 2 = 16 days.

PARTIAL DROUGHTS IN 1910.

A Partial Drought, as defined in *British Rainfall*, is a "period of *more than* 28 consecutive days, the mean rainfall of which does not exceed .01 in. per day."

Sark.

August 31 to September 30 = 31 days with a total of 0.31 in. of rain which fell on 6 days.

Alderney.

August 29 to September 30 = 33 days with a total of 0.33 in. of rain which fell on 7 days.

LONGEST RAIN SPELL IN 1910.

Inclusive dates giving the longest unbroken succession of rain days for the year.

Sark.

January 8 to 21 = 14 days with a total of 2.55 in. of rain.

INCH RAINFALLS IN 1910.

These have been tabulated on account of their unusually large number.

Sark.	Alderney. (Probably incomplete.)	Guernsey. Les Blanchés.
Oct. 11...1.11 in.	March 12...1.03 in.	Oct. 11...1.23 in.
„ 13...1.84 in.	June 8...1.08 in.	„ 13...1.53 in.
Nov. 16...1.07 in.	Nov. 23...1.14 in.	„ 27...1.07 in.
„ 24...1.00 in.	„ 30...1.02 in.	Nov. 16...1.43 in.
„ 30...1.00 in.	„ 24...0.99 in.	„ 23...1.00 in.

In 1906 and also in 1907 Sark registered one one-inch rainfall, none were recorded in 1908, but two in 1909. At Alderney none were registered in 1906, two each in 1907 and 1909 and one in 1908. At Guernsey (Les Blanchés) the number and distribution of one-inch rainfalls for the four years 1906-1909 is exactly the same as for Sark.

[See next page for the Rainfall Table.]

SARK AND ALDERNEY RAINFALL, 1910.

Months.	Monthly Totals.		Rain Days.		Heaviest Daily Rainfall.		Falls of 0·50 in. and above.	
	Sark.	Alderney.	Sark.	Alderney.	Sark.	Alderney.	Sark.	Alderney.
	in.	in.			in.			
January	3·94	4·40	24	24	0·67 23rd	0·83 23rd	1	1
February	3·97	4·73	25	26	0·45 25th	0·49 14th	—	—
March	1·60	2·98	6	7	0·70 11th	1·03 12th	1	3
April	0·97	1·64	11	13	0·17 12th	0·37 4th	—	—
May	1·97	2·29	19	16	0·37 11th	0·51 19th	—	1
June	1·84	1·64	13	11	0·49 6th	1·08 8th	—	1
July	2·41	2·37	16	13	0·75 24th	0·71 24th	1	2
August	2·00	2·10	16	15	0·45 18th	0·58 28th	—	1
September	0·29	0·20	5	6	0·13 15th	0·11 29th	—	—
October	7·09	?	18	?	1·84 13th	?	3	?
November	10·15	8·79	27	21	1·07 16th	1·14 23rd	8	7
December	2·81	3·85	23	20	0·40 14th	0·64 14th	—	1
The Year	39·04	?	203	?	1·84 Oct. 13th	?	14	?
Totals for 1909 ..	26·13	32·99	146	157	1·38 June 3rd	1·55 Nov. 15th	14	15
„ 1908 ..	18·51	24·02	155	150	0·62 Feb. 16th	1·04 Apl. 24th	1	6
„ 1907 ..	26·15	28·84	178	188	1·11 Nov. 25th	1·15 Oct. 1st	6	7
„ 1906 ..	26·07	28·63	161	168	1·16 June 28th	0·85 Nov. 8th	10	15

GUERNSEY

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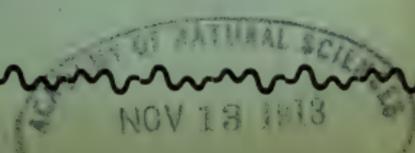
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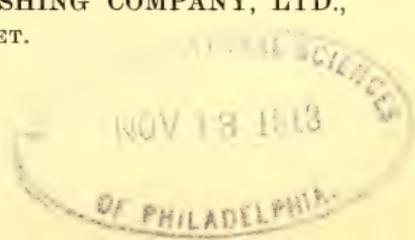
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1911.

Guernsey :
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BORDAGE STREET.

1912.



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LIST OF MEMBERS (1911).

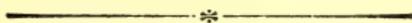


- 1891—Aikman, Dr., M.D., C.M., L.R.C.S. Queen's Road.
 1903—Aikman, Mrs. Queen's Road.
 1903—Aikman, Miss Queen's Road.
 1904—Allès, Mr. G. F. Gothic Cottage, St. Martin's.
 1897—Ashburne, Miss R. Granville House.
 1911—T. B. Banks High Street.
 1903—Benson, Dr., M.D., C.M., F.R.C.S.,
 Edinburgh Saumarez Place.
 1882—Bichard, Mr. T. M. Gazette Office.
 1904—Bishop, Mr. Julius, Jurat of the
 Royal Court Grange.
 1903—Bishop, Dr. Henry Draper, M.D.,
 M.R.C.S., L.R.C.P. '7, Grange Road.
 1907—Bisson, Mr. T. The Laurels, Vale.
 1904—Blampied, Mr. C. La Fosse, St. Martin's.
 1910—Blicq, Mr. J. E. Brock Road.
 1907—Bostock, Miss Smith Street.
 1909—Browne, Miss Mary, B.A. Ladies' College.
 1911—Brownsey, Mr. Pollet.
 1907—Buller, Dr. Carlson Crescent, Southampton.
 1889—Carey, Mr. F. Summerland, Mount Durant.
 1890—Carey, Mr. J. J., late M.I.C.E.,
 F.R.G.S. Cobo.
 1897—Carey, Miss E. Cambridge Park Road.
 1908—Carey, Mr. T. W. Somerset Place, Queen's Road.
 1891—Carey, Mr. William, Bailiff of
 Guernsey Queen's Road.
 1890—Carré, Miss B. Elm Grove.
 1911—Carruthers, Dr. J. College Terrace.
 1907—Chalmers, Mr. A. L. Corbière, St. Pierre-du-Bois.
 1911—Cheeswright, Miss E. S. The Studio, Sark.
 1882—Collenette, Mr. A., F.C.S. Fort Road.
 1882—Collings, Colonel A. H. Grange.
 1890—Collings, Miss M. B. 24, Saumarez Street.
 1882—Cole, Miss R. 39, Canichers.
 1906—Corbin, Dr. E. K., M.R.C.S. Saumarez Street.
 1908—Corbin, Miss R. Stanley Road.
 1899—Cromartie, Mr. D. B. Norfolk Lodge, Doyle Road.
 1912—Curtis, Mr. S. Carey, A.B., I.B.A. Mont Saint, St. Saviour.
 1893—De Guérin, Lieut.-Col. T. W. M.,
 Jurat of the Royal Court Le Mont Durant, Mount Row.

- 1893—De Guérin, Miss C. M. Le Mont Durant, Mount Row.
 1906—De Jersey, Colonel Grant.. . . . Grange Lodge.
 1882—De La Mare, Mr. C. G. Croûtes.
 1882—Derrick, Mr. G. T. King's Road.
 1894—De Saumarez, Lord 43, Grosvenor-sq., London, S.W.
 1893—Durand, Colonel C. J. Grange Villa.
 1906—Falla, Mr. A. Les Hauteurs, Vale.
 1904—Fleure, Dr. Herbert J., D.Sc... . . University College, Aberystwyth.
 1908—Foote, Advocate W. H. 6, New Street.
 1896—Foster, Miss F. A. Granville House.
 1905—Guilbert, Mr. T. J., States Surveyor Rohais.
 1882—Guille, Miss S. Cressington, Gravées.
 1893—Harvey, General.. . . . Oakleigh, Mount Durand.
 1906—Henry, Mr. S. M. Mount Row.
 1893—Hocart, Mr. J. S. Les Mielles, Vale.
 1911—Hocart, Mr. A. J., Jurat of the Royal
 Court Blanc Bois, Castel.
 1906—Irish, Mr. John W. B. Elm Grove.
 1903—Kelson, Mrs. Doyle Road.
 1884—Lee, Rev. G. E., M.A., F.S.A. . . . George Place, Union Street.
 1882—Le Cocq, Mr. Saumarez Clifton Lodge.
 1893—Le Cocq, Captain Beau Séjour, Cambridge Park-rd.
 1903—Le Mottée, Colonel G. H., Jurat of
 the Royal Court Hauteville.
 1911—Le Pelley, Mr. J. Q. Vauvert.
 1882—Lowe, Rev. F. E., M.A., F.E.S.,
 Membre de la Société Lepidop-
 tère de Genève St. Stephen's Vicarage.
 1911—Luff, Mr. E. A. La Chaumière, Brock Road.
 1903—Maclean, Mr. E. F. H. La Bigoterie.
 1894—Mainguy, General F. B., Jurat of
 the Royal Court Les Rocquettes.
 1888—Marquand, Mr. E. D., A.L.S... . . 46, Kimbolton Road, Bedford.
 1896—Marquand, Mr. H. E. Star Office.
 1907—Mauger, Mr. H. E., H.M.'s Sheriff King's Road.
 1900—Mellish, Miss A. L., M.A. Ladies' College.
 1911—Metman, Mr. Naftiaux, St. Andrew's.
 1908—Moon, Miss A. King's Road.
 1905—Naftel, Mr. A. M. 13, George Road.
 1907—Nicolle, Mr. E. T. 3, Norfolk Terrace, Jersey.
 1899—Penfold, Rev. J. B. V. Grange.
 1889—Penney, Rev. W. C., M.A. Elizabeth College.
 1882—Pitts, Mr. J. L., F.S.A. (Normandy) Canichers.
 1906—Randell, Miss Clara Grove End, Doyle Road.
 1896—Robilliard, Mr. P. E. La Piette.
 1903—Robinson, Dr. E. L., M.R.C.S.,
 L.R.C.P. Melrose, Gravées.
 1911—Ross-Taylor, Dr. 1, Queen's Road.

- 1904—Rowswell, Mr. B. T... .. Les Blanches, St. Martin's.
 1911—Ryder, Colonel F. J... .. District Office.
 1883—Sharp, Mr. W. "Sherborne," Rocquettes.
 1907—Sincl, Mr. Joseph 12, Royal Crescent, Jersey.
 1912—Smith, Miss W., B.Sc. Ladies' College.
 1911—Smith, Mr. W. H. North Esplanade.
 1909—Spencer, Mr. R. P. Brock Road.
 1911—Standen, Miss Helen..
 1903—Tanner, Mr. F. L., L.D.S., F.R.C.S. Vauvert House.
 1905—Tanner, Mrs. Vauvert House.
 1893—Tourtel, Rev. R. H., M.A., B.D.,
 F.S.A. (Normandy) Torteval Rectory.
 1906—Végeais, Miss Brock Road.
 1912—Warren, Mr. J. P., B.Sc... .. 10, Mount Row.
 1903—Wild, Dr. H. S., M.R.C.S., L.R.C.P. Gravées.
 1908—Woolcombe, Dr. Robert Lloyd, M.A.,
 LL.D., F.R.G.S., M.R.I.A. .. 14, Waterloo Road, Dublin.

TRANSACTIONS OF THE SOCIETY.



The Eighth Annual Soirée of the Society was held in the Lecture Hall of the Guille-Allès Library on February 14, 1911. As on previous occasions the entertainment consisted of short lectures interspersed with instrumental and vocal music. The artistes were Miss R. Edmonds, Miss A. Phillipp, Mrs. Campbell and Mr. H. F. Morres, to whom, with the lecturers, and Mr. F. Tanner, who was responsible for the organization, the best thanks of the Society are due.

The President of the Society, Col. T. W. M. de Guérin, referred to the aims of the Society, whose work, he thought, compared favourably with that of similar societies on the mainland.

It had lost from various causes some of its most zealous workers, who could ill be spared from such a small community. He trusted that the membership would continue to increase, and that the Society's work would not be crippled for want of funds. He suggested that the idea, discussed some time ago, of obtaining phonographic records of the island patois which is fast dying out, should be carried into effect. Colonel de Guérin concluded by reminding the audience of the very valuable relics of the past to be seen in the Lukis Museum.

Mr. W. Sharp followed with a most interesting paper on "Animal Mimicry." In this he gave many instances of animals, birds and insects which, to escape the attention of their enemies, adapted themselves in such a wonderful manner to the trees, leaves, branches, soil, &c., on which they rested, that it required very careful search to see them.

Mr. A. Collenette gave a short lecture and demonstration on "Matter," with vacuum tube experiments. This was extremely interesting, Mr. Collenette dealing with his subject in a most lucid manner.

The last lecture was by the Rev. F. J. S. Wyeth, B.Sc., M.A., who dealt with "The Elephant and his Ancestors." The learned lecturer traced clearly the various stages in the evolution of the present types of elephants. The lecture, as well as Mr. Sharp's, was illustrated by a number of lantern

pictures. Mr. Wyeth's remarks, which were rather lengthy, were, however, very heartily applauded.

This terminated a very successful evening at 10.35.

Monthly Meeting held on March 15th, 1911, Colonel T. W.

M. de Guérin, President, in the chair.

Five new members were elected, viz.:—Jurat A. J. Hocart, Miss Helen Standen, Miss E. S. Cheeswright, Mr. E. R. Colbron and Dr. Ross-Taylor. Two other members were proposed for election.

Col. de Guérin showed a photograph of a sculptured stone representing the Crucifixion over a doorway at Courtil Rozel, Mount Durand.

Mr. H. E. Marquand showed photographs of a curious old Guernsey "crasset" recently discovered at the Vale.

Miss E. Carey then read a most interesting paper entitled "An eminent Guernseyman: Sir Henry de Vic." Miss Carey's paper is printed in the current volume of the *Transactions*.

A discussion on the proposed exploration of caves in the island then followed. The principal speaker was Mr. J. Sinel, of Jersey, who gave many details of the success which had attended the exploration of a large cave in the sister island.

Monthly Meeting held on October 18th, 1911, Colonel T. W.

M. de Guérin, President, in the chair.

The attendance was large. Several curiosities were shown, including fragments of neolithic pottery, flints, &c.

Colonel de Guérin read a letter from Mr. J. J. Carey asking that the Society should endeavour to save the old tower near La Hougue du Pommier, at the Castel, from falling into pieces.

Colonel de Guérin was requested by the Society to consult Mr. Hocart, the proprietor of the tower, and see what arrangements could be arrived at with a view to its preservation.

Two excellent photographs of the tower were exhibited at the meeting.

Mr. A. Collenette read a paper entitled "Notes on the geological results of the summer excursions." See page 278 of this volume.

One of the most interesting objects exhibited during the evening was a core of syenitic granite from the Grand Camp

quarry (see Report of Geological Section, page 267, and Mr. Collenette's remarks on page 285).

At the close of the paper a very hearty vote of thanks was moved to Mr. Collenette for his valuable address.

The shaft and core have been secured for the Guille-Allès Museum.

Monthly Meeting held on November 15th, 1911, Colonel T. W. M. de Guérin, President, in the chair.

The President reported that the old tower had been satisfactorily restored, at the cost of £2, under the supervision of Mr. J. J. Carey.

Mr. B. T. Rowswell exhibited a magnificent specimen of the larva of *A. atropos*, which had been found in a garden at the Fosse André. It is apparently the first record of the uncommon brown form of this larva.

Mr. Rowswell read a lengthy and most interesting paper which included a correspondence in the *Zoologist* of 1872 as to whether Guernsey birds were British.

Mr. Rowswell prefaced his paper by relating a remarkable fact that had come under his observation last October, when he detected a starling imitating the cry of the wryneck.

Colonel de Guérin then read a report he had received from Mr. E. T. Nicolle, Secretary of La Société Jersiaise, on the most recent researches which had been made in La Cotte Cave, St. Brelade's, Jersey.

A vote of thanks was accorded to the Société Jersiaise for their kindness in furnishing this Society with the report, which will appear later in the *Transactions* of La Société Jersiaise.

Annual General Meeting held on December 13th, 1911, Colonel T. W. M. de Guérin, President, in the chair.

Mr. W. H. Smith, G.W.R. Co., who had been proposed and seconded at the November meeting, was unanimously elected.

The Council's Annual Report was read by the hon. secretary and the Treasurer's Report by Mr. C. G. de la Mare.

Colonel de Guérin reported that he was in communication with Mr. Reginald Smith, of the British Museum, in connection with the cachette, near Mont Chouet, and would probably have something to report about it at a future meeting.

Mr. B. Rowswell passed around for inspection three relics of the year 1805, consisting of framed codes of signals and stations of officers and men on board a British warship. All had been beautifully painted by a naval officer of the above-mentioned date. The signals, &c., were all of local interest.

The Entomological Report (prepared by the Rev. F. E. Lowe) was read by Mr. W. Sharp; the Geological Report by Mr. C. G. de la Mare; Marine Zoology Report by Mr. F. Tanner, and the Ornithological Report by Mr. B. Rowswell. All the Reports mentioned above were adopted. No Folklore Report was read.

Mr. C. G. de la Mare was re-elected Treasurer, and Mr. H. E. Marquand re-elected Secretary.

Messrs. B. Rowswell and J. L. Pitts were appointed Auditors.

On the proposition of Mr. Tanner, seconded by Mr. W. Sharp, the whole of the Council were re-elected.

During the evening Mr. Collenette suggested that an excursion be made to Perelle to investigate the geological strata there.

The meeting terminated at 9.20.

Monthly Meeting held on January 24th, 1912, Colonel T. W. M. de Guérin, President, in the chair.

This meeting, as usual, was devoted to Mr. A. Collenette's annual paper on the Rainfall and Sunshine of the previous year.

Previous to this an interesting painting of the Rock masses at Jerbourg Point, the work in 1858 of Captain Keeling, was passed around for inspection.

Mr. Collenette referred to a remarkable discovery he and Mr. S. C. Curtis had made of the remains of an ancient beach at extreme low water in Vazon Bay. From measurements taken this beach is at the same level as a beach found at a considerable depth whilst a well was being sunk near Rocquaine Bay.

Mr. Collenette then read his paper on the "Rainfall and Sunshine of 1911." This was illustrated by a large number of diagrams shown on the screen by means of the electric lantern.

The paper will be found in the *Transactions* for the year 1911.

A hearty vote of thanks to Mr. Collenette for his valuable paper was moved and adopted by acclamation.

Report of the Council, 1911.

In presenting its Report for the year 1911 the Council has much pleasure in stating that the work of the Society has been successfully carried out on its usual lines. In addition to the indoor meetings a number of excursions have been made to different parts of the island. These were, as a rule, well attended, and much interesting work was done, though the hope (raised by the success of the Jersey people in this direction) of finding evidence of human occupation in neolithic times in some of the caves on the south coast was not realized. An account of the geological work done during the year will be found elsewhere in this volume.

Mr. J. Hocart having kindly offered to conduct the members of the Society and friends to various points of interest in the neighbourhood of L'Ancrese and Fort Doyle, two excursions were organised to visit them. On the first occasion an ancient subterranean chamber at Mont Cuet, L'Ancrese, was visited. This was discovered some years ago by Mr. Hocart, and in it were found fragments of a two-handled vase of unglazed pottery. This is now in the Museum of the Guille-Allès Library. These fragments have recently been submitted to Mr. Reginald Smith, of the British Museum, and, in his opinion, they are probably mediæval, and parts of a cooking-pot, but the two handles and the thinness of the pottery are unusual in such vessels of that period. The chamber itself is bottle-shaped, and excavated on the side of the hill. Its dimensions are as follows:—Depth, 18 feet; chamber, 8 feet deep and 3 feet 8 inches in diameter; neck or vertical shaft leading to chamber, 10 feet deep, with a diameter of 18 to 20 inches. The sides of both chamber and shaft are lined with dry masonry of water-worn stones. Its use is at present undetermined. The party then visited La Chaise au Prêtre at Crève Cœur, and thence proceeded to Fort Doyle.

On September 13 an excursion was made to the Houmet Paradis, near Bordeaux Harbour, where Mr. Hocart pointed out the remains of an éperquerie, or ancient fish-drying house. The party then visited the remains of the foundation of the Chapel of St. Magloire in the neighbourhood. Also the site of La Croix Bernard. On September 30 the Society visited the Manor House of Anneville, a short history of which was given by the President (vide paper by the President, Colonel de Guérin, on "Feudalism in Guernsey," *Transactions*, 1909, page 58). The old manor house is now used as a stable.

Its gothic porch, which is in an excellent state of preservation, much resembles that of the west end of the Vale Church, and is probably of the same date. Till quite recently the Feudal Court of Anneville met in this building. At the back of the manor house are the remains of the Chapel of St. Thomas d'Anneville. Unfortunately its appearance has been quite spoilt by its being converted into a shed.

The Garenne d'Anneville was next visited. This ancient warren, which is about 100 yards square, is surrounded by a moat containing water, crossed in one place only by a roughly constructed bridge, its object being to prevent the escape of the rabbits. It was probably constructed by Sir William de Chesney who, in 1260, was granted by Prince Edward (after Edward I. of England) then "Lord of the Isles," the right of free warren on his manor. The present Seigneur of Anneville, Mr. W. Faschen Andros, still holds the garenne.

The usual interest has been maintained at the indoor meetings, and the annual soirée was from all points of view a brilliant success, affording much pleasure to a very large audience, and a substantial increase to the Society's funds, and the Council takes this opportunity of thanking those ladies and gentlemen to whose efforts this success was due.

The membership, which at the beginning of the year was 81, has risen to 87. The Council would gladly welcome to the ranks of the Society those who would take an active interest in Botany, Entomology, and especially Marine Zoology. So far the losses the Society has recently sustained in these departments have not been made good.

From the Hon. Treasurer's statement it will be seen that the excursions were very costly, and financially did not pay, yet in spite of this there is a satisfactory balance.

The Council wishes to express its thanks to the Council of the Guille-Allès Library for their continued kindness.

Exchanges with the Society's Library.

The following works have been received during the year in exchange for the Society's *Transactions*, and it is gratifying to note that these exchanges cover a much larger field than ever before :—

Journal of the Torquay Natural History Society.

Annual Report of the Smithsonian Institute.

Bulletin de la Société Jersiaise.

Handbooks I. and II. Horniman Museum.

9th Annual Report of the Horniman Museum and Library for 1910.

- Proceedings of the Academy of Natural Science of Philadelphia.
—Vol. XXIII., January to March, 1911.
- Pamphlet : Finland—its Autonomy and Fundamental Laws.
- 6ième Fascicule du Journal de Jean Chevalier—Société Jersiaise.
- Bulletin del Laboratorio in Portici.
- From the British Museum :—
- Guide to Mushrooms—Poisonous or Worthless Fungi.
 - Animals, Plants and Minerals mentioned in the Bible.
 - British Hymenoptera of the Family of Chalcididæ.
- Journal of the Marine Biological Association of Plymouth
—Vols. VII., VIII., IX. (Part I.)
- Bulletin of the Lloyd Library, Cincinnati.
- Transactions of Wisconsin Academy—Vol. XVI., Parts 1 to 6.
- From Mr. John Parkinson :—
- Rocks of La Saline—Northern Jersey.
 - Rocks of the South-Eastern Coast of Jersey.
 - Diabase at Sorel Point, Jersey.
 - Pyromerides of Bouley Bay, Jersey.
- Actes des Etats de Jersey—Société Jersiaise.
- Report of the Librarian of Congress—Washington.
- Report on the Progress and Condition of the U.S. National
Museum for year ending June, 1910—From Mr. Joseph
Sincl.
- Report on the Exploration of the Paleolithic Cave, La Cotte,
Jersey, which appeared in *Man* for December, 1910.
- Proceedings of the Academy of Natural Sciences of Phila-
delphia.—Vol. LXIII.
- Travaux Scientifiques du Laboratoire de Zoologie et de Physio-
logie Maritime de Concarneau.—Tome II., Fase 1, 2, 3, 4,
5, 6, 7 and last.
- Société Jersiaise :—
- Actes des Etats de l'Île de Jersey—1780-1785.
- Library of Congress, Washington :—
- Annual Report, 1911.
- Smithsonian Institute, Washington :—
- Annual Report for year ending June 30, 1910.

ABSTRACT OF THE TREASURER'S ACCOUNTS

From December 15th, 1910, to December 13th, 1911.

Dr.	£	s.	d.	Cr.	£	s.	d.
Balance of last year's Account	12	2	3	Expenses connected with Soirée.....	1	9	6
Proceeds of Soirée.....	7	12	6	Cost of <i>Transactions</i>	27	0	0
Copies of <i>Transactions</i> sold	3	1	6	Binding set of <i>Transactions</i> for Soc.'s use	0	15	0
Subscription for 1910	0	7	6	Collection of Subscriptions	1	7	9
Members' Subscriptions for 1911	32	5	0	Expenses connected with Excursions..	7	1	7
Proceeds of Excursions	3	8	3	<i>Star</i> Publishing Co., printing, exclud- ing that connected with Excursions..	3	6	11½
Interest on Deposit at Bank, less stamp	0	8	1	Caretaker.....	0	15	0
				Balance in hand to new account.....	17	9	3½
					£59	5	1

Examined and found correct,

December 14th, 1911.

J. LINWOOD PITTS, }
BASIL ROWSWELL, } *Auditors.*

C. G. DE LA MARE, *Hon. Treasurer.*

Report of the Entomological Section, 1911.

The year 1911 has not presented much that is new to the Society concerning Entomology. This is not altogether surprising. First, because as the years go by, it is evident that there must be fewer discoveries to make; secondly, because as the Island becomes more covered with buildings and glass, we have a far smaller and less prolific area to deal with; and, thirdly, unfortunately there are at present very few persons among us interested in Entomology who may be relied upon to record their observations. The first white butterfly that came under my notice was on March 22, *Pieris Rapæ*, a late date. On May 15 I took a full fed larva of *Axglia putris*, at Icart, which emerged on May 28th. This insect is reputed to pass the winter in the chrysalis stage and the moth to emerge in June or July. The above, therefore, seems to be an abnormal occurrence. This year we are able to congratulate ourselves on the return of that rare immigrant, blue *Lampides bæticus*, the Pea-pod Argus. I first saw it on August 11th flying round *Colutea arborescens* in my garden. On being captured it proved to be a battered female and was instantly liberated, but it suggested the promise of a late autumn brood fed up in the Island. And this hope was fulfilled. On September 5th there were six specimens flying in the garden, and after that the species became abundant both with me and in the Candie Grounds until the end of September. I was successful in obtaining a good supply of eggs from caged females. These hatched, but all the larvæ were lost through neglect owing to my being much engaged at the time over other matters. This was the more to be regretted as Mr. N. C. Rothschild and his assistants of the Thring Museum were eagerly awaiting the opportunity of observing the early stages of this insect for publication.

On August 16th I took an extremely small and perfect female specimen of *Pieris Napi*, measuring only 28 mm. in wing expanse. The capture at Stäffa, near Zurich, of a number of similar dwarf specimens of this insect is the subject of an interesting note by Mr. P. Muschamp (Entom. Record, p. 273, of this year). He proposed the name *minima* for this aberration, but it appears that the Belgian entomologist, Mons. L. Lambillion, had already given the name *napella* to those examples of *P. napi* measuring 28 mm. in expanse in his *Catalogue of the Butterflies of Belgium*, 1903.

But perhaps the most interesting entomological event of 1911 was the finding of a larva of *Acronycta aceris* close to S. Stephen's Church by the Rev. C. B. Lucas. This insect

has not before been recorded for Guernsey in any stage and is therefore an addition to our lists. On October 9th I received a remarkably fine and perfect specimen of the Death Head moth, *A. Atropos*, from Mr. R. Luff. And so late as November 13 Mr. Cohu, of Fosse l'Andry, brought me for identification a larva of the same species which he had found feeding on jasmine. It was the first I have seen of the uncommon brown form of the larva, the usual colour being a rich green.

General remarks: I have met with one specimen of *Colias Edusa* this year. The abundance of the small copper *C. Phlaeas* was noticeable here in September as in many parts of England. Other agreeable and not infrequent visitors to flowers in the evening have been the Humming-bird Hawk and the Convolvulus Hawk. Owing to the prolonged summer there appears to have been at least one additional brood both of *Pararge megera* and *P. Egeria*, v. *intermedia*. Of the latter I took a singularly dwarfed specimen. In the *Entomologist* Mr. H. G. Lekay, of Upper Tooting, records the capture in Guernsey of a perfect female specimen of *Argynnis lathonia*, the Queen of Spain fritillary, on August 7th. This capture, though not notified to the Society, should, I think, be placed on record in our local Report.

FRANK E. LOWE, Sec. Ent. Sect.

Report of Folklore Section.

THE PASSING OF GUY FAWKES.

There being a scarcity this year of miscellaneous matters connected with Guernsey Folk-Lore, it may be interesting to record the gradual local decadence and passing away of the Guy Fawkes legend and celebration.

There seems to be no existing record of the actual introduction of this celebration into the Island, but probably the practice was brought over from England in the early years of the Nineteenth Century, when a considerable number of farm-servants and other workmen are said to have immigrated from some of the southern counties, bringing certain of their own customs and festal observances with them—of which this Guy Fawkes commemoration is believed to have been one.

The most curious and interesting part of the matter, however, is, that this new introduction—which, of course, in itself really meant nothing to the Islanders—very quickly absorbed and took the place of a much older annual celebration

of their own. From time immemorial it had been customary on the night of the 31st of December for the boys and young men of the Island to have in their several parishes a kind of funeral procession, in which they carried a log of wood down to one of the sea-beaches and there solemnly buried it. Yet this customary visit to a cold and gloomy sea-beach, on a bleak December night, could hardly have been regarded as a very gay or festive occasion; while the name of Budloe or Boodloe which was given to this wooden log, probably did not then suggest to many of the participants the real origin of the custom, which was the ceremonial interring of the old *Bout-de-l'An*, or the Old Year's End. Altogether it must have been a very lugubrious sort of affair. Hence when the new arrival appeared, with its accessories of a warm and cheerful bonfire, &c., instead of the dark, damp and depressing sea-beach of the older dispensation, it is perhaps not surprising that the change was heartily welcomed and soon grew into popular favour. The average boy dearly loves a bonfire, and that for many reasons, one of which is that he can roast potatoes in it; and anyone who remembers how good those potatoes used to taste, will need no further arguments to convince him of its merits.

The change once effected, the new celebration rapidly developed. After burning the Guy on the Fifth of November, some of the more adventurous spirits proceeded also to burn the Budloe at the end of December. This innovation proved much more cheerful. Then the old term Budloe was gradually grafted on to the newer Guy, and the older ceremony dwindled, while the newer one survived. So matters went on, processions were started, fancy costumes were adopted by the processionists, the lieges were loyally enjoined to "Remember, Remember, the Fifth of November," and they cordially responded to the invitation. Thus matters progressed vigorously for about a century.

Between forty and fifty years ago, when I first spent a winter in the Island, I recollect that the St. Martin's Cavalcade—which always seems to have been the chief procession in the Island, though other parishes also had them—used to come through the town, call on the Lieutenant-Governor, the Bailiff and several other leading residents, while one of the processionists, at each stoppage, would fire off the doggrel verses given below or some other very similar loyal effusion. This generally elicited congratulations and refreshments from those visited, and ultimately the procession reached St. Martin's by a somewhat round-about route. And there the

Guy was burnt. The following copy of the verses referred to is transcribed from a printed circular kindly lent me by Mr. B. T. Rowsell :—

KIND FRIENDS.

We take the liberty again to ask you to—

REMEMBER! Remember! the 5th of November,
 The gunpowder treason and plot;
 We see no reason, why gunpowder treason,
 Should ever be forgot.
 Six and thirty barrels laid down below,
 The Houses of Parliament to overthrow;
 There Guy Fawkes waiting the appointed time
 With match in hand to fire the mine,
 Thanks to the friends true to their King,
 Was not allowed his light to bring,
 But on arriving on the spot,
 Was foiled in his outrageous plot,
 And thus the enemies of our land,
 Before the judges had to stand,
 And to their cost they quickly learned
 The fate they had so richly earned.

So now appealing to your aid,
 To help the efforts we have made,
 We hold our annual fête to-night,
 And burn our Guy Fawkes by torchlight.

*Trusting, kind friends, to your liberality to assist us in this
 Demonstration,*

We are, yours faithfully,

ST. MARTIN'S TORCHLIGHT PROCESSION.

GOD SAVE THE KING.

Tozers, Printers, Guernsey.

Some years ago the processionists were forbidden to march through the town because of the disorder that ensued. Not that the processionists themselves were disorderly, but because their spectacular display attracted a very undesirable following of loafers and others who indulged in rough and objectionable horseplay. Roasted apples used to be thrown at passers-by, and so were small paper bags filled with flour, which bags were supposed to burst when they hit the person aimed at, and the flour was scattered over his clothing. These rowdy practices have however gradually died away, and indeed the general interest in the whole affair has for years been becoming less and less, while this year (1911) the two Constables of St. Martin's for the first time officially forbade the procession on any of the public roads of their own parish, so that the celebration at St. Martin's, at any rate, is probably now finally ended.

The Thanksgiving Service that used to be held on every Fifth of November in the Episcopal Churches, was discontinued in 1859 by Act of Parliament.

[A very interesting article on the Guy Fawkes celebration in Guernsey, by Miss Edith Carey, appears in *Folk Lore* for March, 1908 (Vol. XIX., No. 1, p. 104), accompanied by an illustrative photograph of the St. Martin's Cavalcade of 1903 drawn up outside the Duke of York Hotel.]

Report of the Geological Section, 1911.

1.—*Rue Cauchée, St. Martin's.*

The cutting back of the bank showed the usual roughly stratified alternation of sands and clays. The sands are in lenticular patches, but the clays are in continuous layers.

2.—*Miellette Quarry, near Norman Point, St. Sampson.*

By recent workings in this quarry the raised beach has been exposed and found to be more extensive than previously supposed. It belongs to the 50 foot level and slopes north. No ground as high exists between it and the sea, so that when the beach was formed this hill must have bordered the shore. The upper layers pass into sand and gravel, and are covered by about six feet of sandy loam passing into the soil. The beach is again seen in an abandoned quarry to the north-west, and the pebbles scattered over the adjoining fields point to the existence of the deposit over a considerable extent.

3.—*Mont Cuet, Vale.*

A singular core of rock about 40 feet long was found in working the quarry known as "Grand Camp." This core was oval in section measuring on an average 14 by 9 inches. The rock is syenitic granite and does not differ appreciably from the matrix from which it was entirely separated, except that the grain of the part of the matrix in contact with the core is somewhat finer. The surfaces are as smooth as if waterworn, and show slight marks of fluting as though the core had been forced through the rock forming the matrix. A special paper on this curiosity will be found in another part of these *Transactions*.

4.—*Small abandoned Quarry in lane from Fauconnaires to Côtel Church.*

The inclusions of fine grained diorite and gneiss in the Cobo granite are worth notice.

5.—Corbière, Forest.

Porphyritic gneiss with numerous veins of felsite and diorite is here found. One of these veins at the foot of the cliff, weathered white, and had altogether an appearance different from the others, suggesting aplite.

6.—Mont Cuet.

In a quarry near the martello tower a raised beach at 50 feet elevation has been noted in close proximity to the deposit at 25 feet elevation previously noted.

7.—Maison de Bas, Vale.

Another exposure of the 50 ft. beach is seen in the quarry behind the above house.

A paper was read before the Geological Society of London on the 22nd November, 1911, by Professor Bonney and the Reverend Edwin Hill, containing their latest views on the rocks of Guernsey, and the other islands of the Bailiwick. One of their conclusions was that there existed in Guernsey and Alderney a dioritic magma, which underwent differentiation from basic rocks, such as Bon Repos in Guernsey and Fort Albert in Alderney, to the so-called granites, which they suggested might be the more acid terms of a differentiation series.

The well-known mass at Pleinmont resembling greenstone had been proved to be sedimentary, and was considered to be, like the Jersey argillites, of Brioverian age (this term is derived from the ancient name of St. Lô). The gneiss of Guernsey, a pressure modified granite, was considered by the authors to be the oldest rock in the island, followed in succession by the diorites, the hornblendic granites and the aplitic microgranites. Then came the diabase dykes and the quartz felsite dykes, which may possibly be of the same age as the acid lavas below the Jersey conglomerate, although in Alderney diabase dykes cut the Grès feldspathique (sandstone). The mica traps are probably late palæozoic.

C. G. DE LA MARE, Sect. Geol. Sect.

Report of the Marine Zoology Section, 1911.

At present this is a section without workers; consequently there is, unfortunately, but little to report this year.

Three years ago I reported the discovery of a small colony of little blue anemones in Sark. They have now, I regret to say, all been carried off by collectors, the last remaining three going this summer while I was there.

In my report last year I referred to the disappearance of some of the forms of animal life in the winter and their re-appearance in the same spots the following summer. I referred in particular to two walls in the inner Gouliot Caves, one of which was covered almost exclusively with tens of thousands of *Corynactis Viridis*, the other equally covered with *Corynactis Corallina*—two varieties of the little Globe-horn Anemone. On visiting the caves at the commencement of last winter I found these two walls apparently perfectly bare. A similar disappearance was observed of several other forms, notably in the so-called "Grass Cave," which is the home of countless thousands of Hydroid Zoophytes.

The difficulty was not to account for their disappearance so much as their re-appearance in approximately similar numbers in the same spots. As a result of that report I received several interesting communications from well-known naturalists, confirming my observations, though they had never had the opportunity of observing such large numbers as I had.

I had brought several small colonies home and kept them in my aquarium where I closely watched them. On the first Saturday in April—a few days before our only real snow-storm last winter—I again visited the Gouliot Caves to verify my observations. I have never seen these caves so free from water as on this occasion. The pool—some three feet deep—which has ordinarily to be waded through in order to reach the inner caves was now perfectly dry. The explanation of the mystery I was trying to solve was perfectly simple. These creatures don't leave their old habitats although they disappear. On the approach of cold weather they commence to contract and to lose their colour until they become mere specks, almost indistinguishable in appearance from the rock on which they dwell.

Doubtless this is a wise provision of nature; for when we remember what a large proportion of their bodies consists of water, we can readily imagine what would be the result of a hard frost.

Now, however, with nearly all the water expelled from their bodies, they are fairly safe.

I tried the effect of slightly warming the water in my aquarium, and almost immediately the *Corynactis* commenced to swell out and to resume their natural colour.

In July I observed a specimen of the "Sea-horse" (*Hippocampus brevirostris*) clinging by its tail to a tuft of sea-weed (*Zostera*) a little to the N. of Bordeaux harbour. Although I was able to get several times within a foot of it, I was unable to catch it. At the October meeting I showed a specimen of the so-called "Glass-crabs," which is now known to be only the condition in which the young cray-fish first emerges. When first obtained it was perfectly transparent and probably only a day or two old. During the week that I managed to keep it alive two distinct eyes appeared and also a decided yellowish pigmentation became visible. It will be added to our Museum.

A remarkable sight was to be seen on Saturday, Dec. 9, at low tide, on the beach at the right hand side of the Castle Breakwater. Just above low-water mark were thousands of the curious little sucker-fish (*Lepadogaster Cornubiensis*) and amongst them several specimens of the much rarer form (*Lepadogaster Montaguii*).

The only other occurrence worthy of being reported is the unusual number of sharks and whales which have visited our coasts this summer.

Several Blue Sharks were seen or taken in the fishing nets at Rocquaine—one over 16 feet in length.

They are generally described as sleeping by day and going on their marauding expeditions by night; but one which favoured us with its attention, while fishing from the Grande Moie Rocks off the East Coast of Sark in September proved that it, at all events, was not above stealing a meal even at mid-day; in its efforts to do so coming so close to the rocks that it was possible to hit it with the rod.

During October a couple of whales visited Cobo Bay, where they disported themselves for three days, easily visible from the shore.

F. L. TANNER, Sec., Marine Zoology Section.

Report of the Ornithological Section, 1911.

In the paper I read at our last monthly meeting (November) entitled "Are Guernsey Birds British?" (which, as you will remember, was based on a correspondence which ran through several months of the *Zoologist* of 1872), I incidentally mentioned that the volume also contained a number of local Ornithological Notes contributed by Mr. Cecil Smith and Miss C. B. Carey. The notes refer to the arrival and departure of the migratory birds that visit our shores at

different seasons, and also include references to the occurrence of rare and occasional visitors.

For instance the shooting of a White-tailed Eagle (*Haliaeetus albicilla*) at Alderney about the 1st of November, 1871, and another at Bordeaux Harbour, Guernsey, on the 14th of the same month, are made the subject of special paragraphs by both Miss Carey and Mr. Smith. I may add to this that in our Society's *Transactions* for 1908, Mr. E. D. Marquand has put on record that specimens of the White-tailed Eagle were killed at Alderney in November and December, 1899, and another on November 6th, 1908.

Starlings, numerous now almost as the sparrow, were evidently not by any means so in the sixties and early seventies. Writing about them Mr. Smith said: "These birds, though the large numbers appear to be only migrants, must still be considered as partially resident, for, although I did not see any of them myself during my visit in the summer of 1866, I have seen several of their eggs in collections which were taken in the island. In Alderney I heard also that they were very numerous, more so than they had been for many years."

And in another number of this volume of the *Zoologist* (March) Miss Carey wrote: "Altogether my notes for this month are very meagre. One or two things, however, have occurred which are perhaps worth noticing. The first of these is that in the field close to the house I observed a flock of Starlings on the 6th of December [1871]. Starlings are never very common here, and are generally seen in the country."

In the September issue Miss Carey stated that she had seen Choughs on the cliffs on June 14th [1872], a fact which is worth noticing now as the bird seems to have disappeared from our midst. I have never seen one myself, and in the Ornithological Report published in this Society's *Transactions* for 1908, Mr. E. D. Marquand said: "Can any one say whether the Chough still occurs in Guernsey? According to Smith it was a common resident here thirty years ago, but I have met with no one who has actually seen a specimen of late years, and my own search all along the south coast has so far been fruitless. But Choughs occur in Sark, and bred there two years ago."

Cecil Smith was of the opinion that the Chough should be protected, for writing to the *Zoologist* about our local "Seabird Preservation Act," and after enumerating the "*Oiseaux de Mer*" which it was the wise object of the *Ordonnance* to

protect, he said: "I hope also, as in the English Act, the name of the Chough may be added, for this interesting and beautiful bird seems, as in our own parts, to be on the decrease; it cannot perhaps be said to be "utile aux pêcheurs," but that small objection would, as before observed, apply to many of the birds mentioned."

If space and time allowed I should like to make further references to the interesting notes in this 1872 volume of the *Zoologist*, but I must now pass on and tell you about the 1911 observations on our birds of passage. And first, just one word about the weather. The sudden burst of extraordinary cold in the first week of April, with its accompaniment of blighting frosts and severe blizzard-like snowstorms, is doubtless still fresh in your memories. The visitation occurred just at the time of the arrival of some of the migrants, and although most severe towards the end of the first week of April (the *mean temperature* at Les Blanchés on Thursday, the 6th, was actually as low as 30·2 degrees, with maximum and minimum respectively of 32·6 and 28·2 degrees), the cold snap prevailed from the 3rd to the 14th inclusive. The little Chiff-chaff and the Wryneck were with us at the time, —both of these birds, in fact, were heard earlier than usual—while the Cuckoo put in an appearance just after the temperature had returned to a normal condition. But the effect of the very unusual and very severe cold for the time of year on bird life generally was most striking, and the practically entire absence of all singing amongst our feathered friends (which just before had been in full spring song) was particularly noticeable, especially from the 5th to the 9th.

My own records, which are mostly confined to St. Martin's, have been supplemented as last year by notes from Mr. J. S. Hocart, of Les Mielles, Vale, and from the Rev. R. Tourtel, M.A., of Torteval, to whom, as also to Jurat G. E. Kinnersly, Jurat G. H. Le Mottée, Miss Boley, Mr. G. F. Allès, Mr. E. Durman and Mr. G. J. Tourtel I am indebted for valued additions to my own rather restricted field of observation.

Chiff-chaff.—On March 22nd, a perfect spring day, calm and sunny, I saw and heard a Chiff-chaff in the Vallon trees at St. Martin's, in the early morning, and during the afternoon of the same day I heard another in the Bon Air grounds overlooking Fermain Bay. This is the Society's earliest recorded date for the arrival of the bird. It is one of the first of the summer migrants to reach our shores and one of the last to leave, while unlike the Wryneck and Cuckoo which give up singing in July the pleasant note of the little Chiff-chaff continues to be heard right up to the end of its sojourn with us. On September 25th last the bird was still *en evidence* everywhere, and my last date for noticing the cry was October 5th along the St. Martin's road.

Wheatear.—This bird was first seen by Mr. Hocart, at the Vale, on April 1st. Wheatears, if I mistake not, are always more numerous at the north of the island and along the low sandy shores stretching from l'Anresse Common to Pleimont, than inland or on the tall cliffs of the South coast. On May 1st I saw one flying low over a field of grass along the Fort-road, and during the afternoon of the 9th one was feeding on the Petit Port cliffs at St. Martin's, where occasionally throughout the summer I saw a pair. Mr. Hocart's last date for seeing the bird in his neighbourhood was October 23rd. Towards evening of October 12th I saw one close to the Model Yacht Pond, near Castle Cornet, one at the Jaonnets on the 19th, and the last on October 31st on the Petit Port cliffs. This is by six days our latest recorded date for seeing Wheatears.

Wryneck.—This always very welcome bird of the springtime is reported by Mr. E. Durman as having been heard on March 28th at the Grande Rue, St. Saviour's. This again constitutes a record, for the earliest date given in our *Transactions* (1903, 1910) is March 29th. At St. Martin's the well-known cry was first heard by Mr. G. J. Tourtel on April 2nd at Calais, and just a week later by the Rev. R. H. Tourtel at Torteval. My own date for first hearing the bird (at Moulin Huet) was April 14th, Good Friday, while at the Vale Mr. Hocart did not hear one until the 22nd. In connection with the Wryneck's visit to the island this year Mr. Hocart has written me as follows: "Wrynecks were very few at the Vale this year. When their nesting time came they disappeared. I consider the reason of this is that there are now so few old trees, and the Starlings having monopolised those that yet remain, the Wrynecks went in search of other quarters." Mr. Hocart gives no date for last hearing the bird. At Torteval Mr. Tourtel did not hear the bird after July 9th. At St. Martin's I continued hearing the cry at intervals and at different spots up to July 15th, when it fell on my ear for the last time while strolling on the Fermain Cliffs in the early morning.

Cuckoo.—Easter Monday, April 17th, seems to have been the day of arrival of the Cuckoo at Guernsey and Sark, for my notes show that it was heard for the first time, and at widely-separated spots on this day. Miss Boley reports hearing the bird at 6.30 o'clock that morning in the Sausmarez Manor grounds at St. Martin's, and an hour later I was listening with pleasure to one announcing his arrival at Moulin Huet. During the afternoon, and when in the neighbourhood of St. Apolline's Chapel at St. Saviour's, I again heard the familiar call, and Mr. Hocart heard it at the Vale. As regards Sark, the *Evening Press* of the 21st was my informant, for in it I read: "The Cuckoo was heard at Sark on Easter Monday." At Torteval the bird was heard by Mr. Tourtel on the 20th. In all parts of the island the Cuckoo announced himself from four to six days earlier than in 1910. As with the Wryneck, to many people the Cuckoo's note is heard for far too short a period of the year, and long before we have had time to grow weary of the sound the two months and a half during which the bird reminds us that he is sojourning in the land have slipped by, and the pleasant call is heard no more. This year Mr. Hocart's last date for the Vale was June 23rd, and six days later, on the 29th, Mr. Tourtel heard the bird for the last time at Torteval. These are practically the same dates as those on which it was last heard in those districts in 1910. At St. Martin's, we were apparently more favoured, for I still heard the call on July 1st at Les Blanchés, on the 3rd in the Vallon trees (a favourite spot of this songster) and again at the same place on the 5th, when as a last effort the bird said "cuckoo" four times. Last year I heard the bird in the same trees almost daily up to the 9th of July.

Swallow.—In connection with the arrival of the Swallow Mr. Hocart wrote me: "On Easter Sunday, April 16th, it being a very fine day, I went on Hougue Nermont, opposite Houmet Paradis, to see if the Swallows had arrived along the coast (as they are credited by the Vale people with

making their first appearance there) but did not see any. I told my errand to an acquaintance who was on the hill at the time. I had not long returned home when he telephoned me that shortly after I left he had seen three coming from over the sea." Next day Mr. Hocart saw several flying around Les Mielles. Mr. Derrick also saw some near the Coupée, Sark, on Easter Sunday. On Easter Monday afternoon (April 17th) while out in the country with my brother-in-law, Mr. G. F. Allès, we watched several Swallows flying about over some fields between St. Apolline's Chapel and the coast, at St. Saviour's, and the same evening we both saw another at La Planque, St. Martin's. As far as my own observations go Swallows did not become numerous until the second week in May—on the 9th of that month however I saw quite a number on the Petit Port cliffs. As regards their departure I observed them to be exceedingly numerous up to and including October 12th, after which fewer were seen, and on the 19th very few indeed. Between the 19th and the 25th, I did not see a single Swallow, but on the latter date saw a solitary one at the Vardes, near Colborne-road. On the 29th some were flying round the old Camps Mill, St. Martin's, and also at Les Blanchés, during the early afternoon. On the 31st I saw several in the neighbourhood of the mill at the top of the Ruettes Brayes, and the last on Thursday afternoon, November 9th, near the Tunnel at La Vallette. Mr. Hocart reports seeing a large flight of Swallows going south on the evening of September 26th, after which date the birds were in fewer numbers at L'Ancrese, and he saw the last on October 23rd.

House Martin.—Again, as last year, I have the record of my own observations only to give you. The first House Martins I saw were on April 27th when quite a number of these interesting little birds were sporting about near the Bathing Places. On May 9th they were numerous on the Petit Port cliffs at St. Martin's. About the departure of the House Martin my Notes are scanty, but I saw some in Fermain Green Lane on October 17th, then none apparently until Sunday, the 29th, when two or three were flying round St. Martin's Church Tower at 10.40 a.m. Last year I saw one as late as November 15th, and in 1908 on November 17th.

Sand Martin.—Sand Martins are never very plentiful here so that their occurrence is worth putting on record. On May 9th I saw a single bird on the Petit Port cliffs, and on the 23rd of the same month I saw several flying about over the Fermain cliffs in the early morning. Cecil Smith considered the Sand Martin to be merely a spring visitant to Guernsey, not remaining to breed, but only halting here for a few days on its journey north. And in the Ornithological Report for 1909, Mr. E. D. Marquand mentioned having seen some in April and May, but not later, and added that he had not observed Sand Martins at Guernsey for several years previously.

Swift.—On May 8th, a hot, sunny morning, I saw a Swift circling the Town Church Tower, evidently one of the little band that yearly takes up residence there. By the 11th the company was apparently in full force for I saw quite a number chasing each other round the tower and battlements, screeching loudly as they flew. My last dates for seeing these very interesting members of the swallow tribe were August 17th, one near the Doyle monument at Jerbourg, and August 25th, one flying over the Candie-road at St. Andrew's in the evening. This, I should like to add, is a most unusually early date for last seeing Swifts, and the fact, too, that none were seen between the dates given above is extraordinary. I have seen Swifts in some years in the second week of September, and in 1907 Mr. E. D. Marquand saw one as late as September 26th.

Swallow Tribe.—Early on Tuesday, May 23rd, a sunny and warm morning with gentle west breeze, I had the pleasure of watching Swifts, Swallows, House Martins and Sand Martins flying about together over the Fermain Cliffs. It was a particularly interesting sight, and they looked a very

happy family party, as mingling and intermingling they passed one another and glided about over the furze and bracken-covered cliff in graceful flight. It made one think of the gathering together of the clans.

Corncrake.—The scarcity of the Corncrake at Guernsey in recent summers has been the subject of remark in these Reports since 1907, and this year again there is little, if any, improvement to report. On May 4th Mr. G. F. Allès heard one at the Côtes Aumones, St. Saviour's, and on the 16th in a field opposite Morley Chapel. Mr. E. Rammell heard the bird at St. Saviour's on the 14th of the same month, and on the 25th I heard one at Les Hubits, St. Martin's. The last reported date for hearing the bird this season was June 24th, when the Rev. R. H. Tourtel heard the cry very distinctly near the Bourg, Forest. I may add that Naturalists are remarking upon the decrease of the Corncrake in England as well, for a writer in *Knowledge* for May said that this bird, once abundant and common, must now be considered scarce over a wide area including Berks and the Thames Valley, Oxfordshire, Bedfordshire, Staffordshire, Surrey, and Hants. "The scarcity," he continued, "is attributed to destruction of the birds and their nests by mowing machines, by birds being killed by flying into telegraph and telephone wires, by unseasonable summers and wetten meadows along the Thames and its tributaries. But the question may well be asked why the species holds its own in the West of Scotland, where such conditions are quite as prevalent as elsewhere in the country."

Common Crossbill.—Col. G. H. Le Mottée, of the "May Trees," Hauteville, reports that he saw a Crossbill in his garden towards evening of July 13th, and one again the following day. On each occasion the bird showed no fear and allowed him to approach almost to within touching distance. Col. Le Mottée's gardener informed him that the birds (a pair) had been frequenting the garden for a whole week previous to this date. There is no mention in the *Transactions* of the occurrence of the Crossbill here, but Smith, in the "Birds of Guernsey," records it as "an occasional visitant to all the islands, and sometimes in considerable numbers, but, as in England, it is perfectly irregular as to the time of year it chooses for its visits." According to the late Sir Edgar MacCulloch many years will sometimes pass without a single Crossbill being heard of at Guernsey. Writing from Jersey on the subject, in reply to a query of mine, Mr. Sinel said: "Yes, the Crossbill occurs here and is both a resident and a visitor. Just now (July 30th) there are a good many about."

Nightjar.—The Nightjar has, apparently, been neither seen or heard this summer. My friend, Mr. E. Rammell, was frequently out in the country during May and June on the look-out for the bird, but without success.

Quail.—Jurat Kinnersly shot a Quail at Jerbourg, St. Martin's, on July 25th. I happened to meet him that morning and he showed me the bird and called it "a rarity." In 1907 the *Transactions* record the occurrence of the Quail in several different parts of the island.

Ring Ousel.—Two or three of these autumnal visitants were seen by Jurat Kinnersly on September 30th at the extreme end of Jerbourg, and he tells me that he saw some in the same part of St. Martin's about the same time last year. The Ring Ousel never seems to halt here during the Spring migration, all the reported instances of its occurrence are in connection with the Autumn migration.

Moorhen.—For some winters now a Moorhen has taken up its residence in the grounds at Sausmarez Manor, St. Martin's. I saw the bird on Sunday afternoon, November 5th. It disappears in the Spring and is supposed to be one of several Moorhens imported into Saumarez Park, Côtel, a few years ago.

Kingfisher.—I saw a couple of these pretty little birds (or the same one twice) skimming over the water at Bordeaux on August 4th. In the bright sunshine then prevailing the birds' beautiful plumage showed up to perfection. I again saw a Kingfisher at Bordeaux on the 19th of August, probably one of the two I had seen on the earlier date.

Starling.—A very interesting instance of mimicry in the Starling has come under my observation this autumn, the facts of which are given in the following letter which appeared in *Nature* of October 26th, and in *Country Life* of November 4th.

A STARLING'S DECEPTION.

"Three weeks ago, or to be quite correct, on September 22nd, I was considerably startled and surprised, on going into the garden at 9.30 a.m., at hearing what I thought to be a wryneck's call in a tree not many yards off. I listened, and in a few minutes the cry came again clear and distinct as one hears it in the Spring and early Summer. I was astonished, knowing it to be a rare thing to hear the wryneck after the middle of July. I approached the tree (in which two or three starlings were chattering and whistling) and tried to get a sight of the supposed wryneck, but did not, although the call was repeated several times. I put down my failure to the thickness of the foliage and the ivy-grown trunk somewhere in the midst of which the bird was doubtless in hiding.

"Well, the next morning, and on several days following, the unseasonable, but otherwise very pleasant note continued to be heard and always from the same tree, and, apparently, in association with the starlings, for I noticed that the cry invariably came after one of the starlings had whistled. The whistle, in fact, seemed to be the signal for the wryneck to sing.

"It struck me as being altogether very curious, and I determined to, if possible, find out more about it. So one morning (September 27) I resolved to investigate the matter more closely. Standing under the tree, and after a little patient waiting, I got a starling well into view and watched him carefully. Wagging his head from side to side he chattered and cackled for all he was worth, then came the whistle and immediately afterwards the wryneck's note, in uttering which I quite distinctly saw the quick movement of the beak. And so the mystery was solved. I waited, hoping to see a repetition of the performance, but the bird, I fancy, caught sight of me and flew away. On two or three of the following days I tried to catch him in the act again, but was not successful. In the early days of October the cry was not heard, at any rate by myself, but it fell on my ear once more and for the last time on October 6, and from the same tree.

"Starlings are great mimics, I believe, and I am wondering if this particular bird has been reared in the immediate vicinity of a wryneck's nest and so caught the note from the parent wryneck? However this may be, I thought the incident would interest your readers and perhaps elicit additional facts of a similar nature from some of them.

"I may add that in 1901, from August 19th to September 10th, a friend and myself heard almost daily what we firmly believed to be a wryneck's cry. It surprised us certainly, but, other than being very interested in hearing the unseasonable note, we never properly investigated the matter. The question now arises, were we and the neighbours deceived by a starling in 1901, as I was so nearly deceived by one this autumn."

BASIL T. ROWSWELL.

Les Blanchés, St. Martin's, Guernsey, Oct. 18th.

A writer in the *London Globe* of November 3rd, under the heading of "Latest Science Jottings," commented upon this curious instance of bird mimicry as follows:

STARLING IMITATES WRYNECK.

In an interesting letter to *Nature* Mr. Basil Rowswell, writing from Guernsey, tells how he has heard the starling imitate the wryneck. On September 22nd, he was surprised to hear what he took to be the wryneck's call clear and distinct as it is usually heard in spring and early summer. Yet, as the writer points out, it is a rare thing to hear this bird after the middle of July. After careful watching, Mr. Rowswell was able to satisfy himself that the notes came from a starling. The imitation was heard again at intervals up to October 6th, and it is suggested that the starling may have been brought up near a wryneck's nest. The starling is known to be a great mimic, and the wryneck's call may well have been learned by this particular starling in the way suggested.

OTHER BIRD MIMICS.

The blackbird and thrush are perhaps the starling's favourite models. But it may also sometimes be heard to imitate the beautiful notes of the curlew. It may be suggested that it learns these during those migratory movements which take it away from our chimney tops to associate in great flocks with curlews and peewit on the moors and upland pastures. Other of our native birds are imitators in a smaller way. The blackbird has been known on rare occasions to crow like a cock, as well as to cackle like a hen. But it is curious that the bullfinch, which in captivity seems to be one of the best imitators, has no song of its own, nor is it known to imitate any other in a state of nature.

BARRINGTON'S EXPERIMENTS.

The faculty of imitation being so strong in many birds, it has been suggested that young birds learn the peculiar song of their kind by direct imitation of their parents. And many years ago the Hon. Davies Barrington, a friend and correspondent of Gilbert White, tried some interesting experiments. He reared linnets under skylarks, titlarks, and woodlarks, and found that in every case they learned the song of their foster parents. Some of them thus reared were afterwards hung in a room with linnets, singing their own songs for three months without losing their acquired song. Another of Barrington's linnets learned the song of the African vengolina.

BASIL T. ROWSWELL,
Sec. Ornith. Section.

NOTES ON THE GEOLOGICAL RESULTS OF THE SUMMER EXCURSIONS.

READ BY MR. A. COLLENETTE, F.C.S.

These notes will refer to the following subjects: (a) Caves; (b) Rocks; (c) Superficial Deposits.

Caves.

I MAY remind you that it was determined to use the summer excursions of the year, to search for caves which might offer some chance of being worked successfully for indications of Prehistoric Man. The subject was chosen owing to the success which had been met with in Jersey.

In our *Transactions* for 1893 (folio 254) there is a note of the primary excavation of the Goats' Cave in Jersey, by Mr. J. Sinel, but the work of a thorough examination was not undertaken until 1909. I find at the foot of that note these words written by our then secretary, Mr. W. Sharp: "Possibly some of the caves in Guernsey would repay an examination of this kind."

I do not think that our Society has altogether neglected the subject, but our *Transactions* prove that although we have visited the most promising caves we certainly have made no organised effort to bring their hidden treasures to light.

The work of this year may be said to be preparatory, that is, we have viewed caves with the object of discovering where we could work effectively.

Our labour has been confined to the following districts and caves.

1.—THE CAVE AT LES TIELLES has been visited twice with the result that it was considered to offer only slight chances of success. This cave has been described in the *Transactions* each time it has been visited. On page 13* in the volume for 1895, the following dimensions are given on the authority of Mr. J. J. Carey: length, 60 feet; height, 18 feet, and 20 feet wide, at the entrance, tapering down to 6 feet high and 4 feet wide, with its floor well above high water mark.

The cave is due to the disappearance of an intrusive dyke by weathering. The original length was probably twice

* See also Vol. 1896, folio 88.

its present one for the cliff falls away there at a rapid rate. Originally the cave may have been an important one, and may have been occupied by man. The appearances favour the idea that the occupied portion has been undermined and eaten away by coast erosion.

A cave at a higher level over the natural arch was attempted, but owing to the want of a rope it could not be entered.

In the above quoted note Mr. J. J. Carey speaks of the second cave as follows: "This cave is larger than the one above mentioned, and was the resort of a man who for one week escaped the Custom House Officers in the good old smuggling days."

We are now possessed of a good rope thanks to our President, and must give early attention to this very promising cave.

2.—THE CAVES AT LA CORBIÈRE (*Creux des Arrétins*). These have been visited and described and two visits have been made this year. On the first visit the party missed the caves by going down the cliffs on the East side instead of on the West, and the geological detail proving interesting, the caves were neglected. On the second visit the floor of the lower cave was worked over.

It was proved that the cave had been thoroughly worked, that the fine earth floor had been removed and cast up at the back leaving only a stony bottom. The party carefully worked over the whole of the earth left and were rewarded by the discovery of a good specimen of a worked flint, a description of which will no doubt find its way into the *Transactions*. It therefore seems to be demonstrated that the cave has been occupied by Prehistoric Man. The implement is of the Neolithic Age. The work established, once and for all, the fact that nothing more is to be obtained from these caves.

3.—By means of a motor boat in September the whole coast from Saints' Bay to Les Tielles was examined and landings were effected at two different spots. The results were disappointing. The party certainly saw most, if not all, of the caves described by Mr. Andrews (page 375 of *Transactions*, 1899), but only one seemed to be of any use to the Society for its present purpose.

On examining the cliffs from the sea it was observed that the openings of the well-known caves were not easily seen. Had the position of the Creux Mahié and the Corbière caves not been known they would have escaped observation altogether. It is not surprising, therefore, that new openings were not observed.

The promising cave was that known as the Dogs' Cave or gully. It has been described already in the *Transactions*,* hence a short account of the geological features and its present condition is all that I need give. The cave is situate at the back of a deep gully about 20 feet wide. The gully is approximately from 150 to 200 feet in length. The first third of the inlet is reached by the sea and covered by the tide when full. Above and behind is a level some four or five feet higher but still within the reach of storm waves. The whole of this is filled up with huge stones, weighing from one hundred-weight to several tons each, and interspersed are portions of the rock *in situ* which has not so far been eroded away. Behind all this is a face or wall of rock eight feet or more above the rock-strewn floor above described and here there is a worn rock platform which forms the floor of the cave.

No measurements were taken on this visit, but there seemed to be about 20 feet above O.D. as estimated on this visit.

On the floor and beginning some 2 or 3 feet from the face of the rock, is piled an enormous number of angular pieces of rock, some of which no doubt fell from the roof, but there were some points which require examination to determine the origin of the deposit, for it had the appearance of a head and may have partly been derived from the cliff. These angular pieces reach a height in the deposit of 5 feet and present a clean cut section at the opening of the cavity.

In a note of a former visit Mr. Derrick describes the deposit as "An immense mass of stones embedded in earth and rubbish resting on the original rock. The detritus has somewhat the appearance of a raised beach."

I did not see any beach stones, but I may have missed them. The presence of an earth floor is doubtful if Mr. Derrick is right that the deposit rests on the rock, but, of course, it may happen that low down among and under the rock debris, implements, even of paleolithic age, may be found. For given a floor, since washed away by running water, the implements will naturally have remained behind. It is on this theory only that the cave justifies working. The original cave must have been of enormous size, for high up on the sides of the gully are parts of the cave with the same angular stones but now standing far away from the existing cave.

It appears to me that there was originally a cave of enormous size, far exceeding any we know of now. This cave had an opening much nearer to the sea and had a floor some

* Creux aux Chiens, 1883, folio 79.

40 feet wide in places and a length of 100 feet or more. The sea erosion has undermined the floor and carried it away after reducing it to sand by constant wear and concussions. It follows that if habitable the cave has lost the greater part of its value.

The outcome of these excursions is that :—

1. Caves may exist of which we now have no knowledge, and to find these the cliffs must be diligently searched.
2. The lower caves are without promise and are useless as regards the search for paleolithic man, but are worth working by the geological section as they offer proof of rock varieties not to be met on the surface.
3. That the only caves now known to be likely to yield evidences of man are :—
 - (a) The large cave at Les Tielles.
 - (b) The cave over the arch at Les Tielles.
 - (c) The Dog's Cave just described.

In any case the Society has here work which cannot be undertaken without some form of good resulting, but this will take several years to accomplish. In the nature of things the results of the search for caves have been less geological than my title would have led you to expect ; that fault I will redeem in my remarks on the rocks we have studied.

Rocks.

In the excursion to the Corbière there were rock features somewhat unexpected and of such interest that our search for caves became, as far as the geological section was concerned, a secondary interest.

The Corbière point had never been worked right down to the bottom by the Society, hence the detail was new. The usual gneiss of the locality was much cut up by greenstone dykes, but on reaching the base of the point a wide dyke of felsite, which weathered with a whitish surface instead of the usual brown, was found. This dyke was intrusive, and of later date than any other intrusive rock seen. The question at once arose, is the rock a true felsite or an aplite ? As I may presume that my listeners, or at all events some of them are not students of geology, I claim your indulgence while I speak of the nature of these rocks and of the problems involved, and I shall have failed in my object if I do not make it evident that the matter was interesting.

First point.—Aplites exist in these islands, but except for one place in Sark and one on the west coast of Guernsey, I have not been able to trace the rock.

Second point.—Aplites are usually associated with a mica rock called "minette." Now the nearest "minette" I know of is at St. Sampson's Harbour, and it at once occurred to me that I might find that rock here also.

Third point.—I have reason to suspect that "Eurite," a different form of aplite, is to be found at Bigard on the cliffs, and it would be of geological interest to have found these modifications near to each other.

Before going on with the problem, let me show the differences between these rocks.

Eurite is composed of Quartz and Potash felspar; Aplite is composed of Quartz and Soda felspar. In the same way felsites are composed chiefly of Quartz and Potash felspars and of Quartz and Soda felspars. The distinction between these rocks is one of microcrystalline structure.

Fourth point.—Felsites have been found all over the island, hence usually they offer no difficulty, but they weather brown as a rule and this rock weathered white.

Fifth point.—In physical properties such as jointing, cleavage, &c., the rock was a felsite, but there were variations in structure caused by the original flux, not visible in a hand specimen, which made me uncertain.

I now give a description of the dyke. It is to be found in a gully at the base of the east face of the Corbière promontory. The cliff outcrops everywhere with macro-crystalline (phyritic) pink gneiss in which numerous greenstone intrusions occur. Side by side with the greenstone is the felsite. Whether it cuts the greenstone (Hornblende-dolerite) or lies conformably to it has not been determined. This composite dyke is easily distinguished from the surrounding rocks by its colours. It is foliated and contorted, and is weathering at a greater rate than the adjacent greenstones.

The gneiss is harder and the dykes are overhung by it so that in places you pass under the overhang on hands and knees. This gneiss overhang is about 60 feet from the sea level.

As the question was one of structure I forwarded a specimen to the Jermyn Street Geological Museum for examination and report, which report I append.

Geological Survey and Museum,
Jermyn Street, London, S.W.,
25th July, 1911.

DEAR SIR,

I beg to enclose a report on the rock from Guernsey

and wish to thank you for your detailed description of the locality from which the rock was obtained.

Yours faithfully,

A. STRAHAN.

Mons. Adolphus Collenette,
Brooklyn, St. Martin's Road, Guernsey.

Registered No. of Slide: E. 9165.

Dyke, Corbière, Guernsey.—Soda-Felsite.

Fine-grained pale rock with splintery fracture. In a hand specimen shows a few minute pterocrysts of felspar.

Under the microscope it shows pterocrysts of albite set in a microcrystalline ground mass of quartz with a little muscovite and interstitial chlorite. The rock would ally itself with the soda-felsites rather than with the aplites as suggested by M. Collenette.

H. H. THOMAS.

25th July, 1911.

The rock is proved to be a felsite.

I have not yet accounted for the weathering, but I believe that it may be peculiar to the soda felsite altered, under the action of the sea.

As you know "Bon Repos" Cove is just on the other side of the Point. So when the Society went to the spot on the next excursion I eagerly searched for an outcrop of this felsite, but although the distance was only about 100 yards through the cliff and I found felsite veins all over the cove, they were of the ordinary colour containing potash felspar.

Bon Repos is a cove full of geological interest and not without spectacular beauty. The rock giving it the peculiar sparkling black appearance is a long-grain diorite which occurs in a massive dyke right across the bay. This long-grain rock is dark-coloured hornblende diorite which in other parts of the island seems to pass into or be associated with hornblende gabbro. It is found at St. Sampson's, at L'Ancrese, and in several parts of the Vale parish. As far as I know it is not found elsewhere on the South coast.

There are also parallel dykes of close-grained greenstone (hornblende-dolerite) of fine holo-crystalline structure, offering no points of difference from the greenstone of other portions of the coast.

Mr. Hill (see Quarterly Journal of the Geological Society, August, 1884, page 417) thinks the long-grain here found to differ from the long-grain of St. Sampson's. I can find no difference perceptible in a hand specimen, and I see no reason for doubting that the long-grain of "Bon Repos" is identical with the same rock in the north of the island.

Mr. Hill refers to this inclusion in these words: "I found a piece of what seemed to be gneiss imbedded in it" (the long-grain). When examining the rock I saw the piece but I did not recall to my mind Mr. Hill's observation, and after examining the embedded piece I called the attention of the members to it, believing it to be syenite. The point is one of interest as, if it is different from the local rock, it must have been torn from lower rocks.

One feature I call attention to is the fact that an inclusion of acid rock (whether granite or syenite I could not determine, not being able to obtain a specimen), quite distinct from the gneiss of the locality was found. This must have been introduced from below the gneiss by the intruding greenstone.

There was a peculiarity which might easily have considerably altered the character of the bay. The almost black long-grain rock stretched right across the bay from point to point, and had it not been associated with softer rocks and thus lost its support, the bay would have been closed by a wall open below by the action of the sea and probably forming a kind of Creux.

Another very interesting feature of the bay is the numerous "pot holes" in the softer greenstone rock.

The bed lies under the cliff, and pieces of harder stone have fallen on it. There the sea and wave action have enabled the hard rocks to wear away the dyke into a nearly flat surface and then into numerous holes, the stones which have fallen having also been worn into globular shapes.

One of these holes is a kind of "Venus' Bath" and offers a chance (taken by two of our members) of a glorious bath on a hot day. The water is four to five feet deep and the pond is an oval cavity of about twenty by ten feet in size. All around are holes in all stages of erosion, one of which may be described as a perfect hemisphere, hollow and smooth. Inside it was a globe of stone, nearly as perfect in shape as a school globe and of some 8 inches in diameter.

On the occasion of the motor-boat excursion the greenstone dykes were noted to occur all the way to Pleinmost Point, most of the caves and gullies marking the places where this rock had been washed away and giving rise to the openings in the cliffs and to the coves.

In one place, to the east of the natural arch to the east of Les Tielles, I noticed that two dykes of different appearances laid conformably on each other. I think that if the upper one (the beds were horizontal) which weathers

a whitish green prove to be the same felsite as at the Corbière it would be of interest to determine whether it, or the greenstone on which it lies, is the newer.

I have found light-coloured felsites at L'Islet and at other places, but I have not yet been able to determine their structure.

Superficial Deposits.

Of this branch of my subject I shall say very little, but during the excursions to the Vale under Mr. Hocart's guidance, I was able to add a few notes to our geological detail and to show the members present a much greater extent for raised beach at Noirmont.

Under this head I would like to add that I have found old beach deposits at fifty feet (about) elevation at Hountel, Mont Cuet and Gruneaux quarries.

I have also a new level, or what may prove to be a new level for a beach, but it is not a raised beach, for it is fifty feet below the soil, and on the sea coast at Rocquaine. As far as I can at present gather, it is two feet below O.D. It was met with in excavating a well on the property of Mr. Robilliard.

This has to be confirmed and I suggest that the Society shall make this one of its excursions next year.

* * * * *

If I am permitted I shall add to these notes the results of one of my own little excursions. On the table you will observe a large block of stone. This was shown me by Mr. Nicolle, of the Grands Camps Quarry, and I have secured the specimen for the museum. It forms part of a structure said to have been forty feet in length, but broken up by blasting before its nature was known. You will see that there is a hollow tube in the stone which probably had originally a circular section but is now an oblong of 9 inches by 6 inches. This tube has been scored out and refilled by the same stone, a granite. I believe that it is an outlet from a deep-seated cavity for water and steam and there are marks of scoring which show that stones were ejected in quantity.* It is in fact the remains of a past geyser, but the peculiarity is that after it served its purpose of a vent it became filled with the liquid magma of granite. The core is quite distinct and has not suffered nearly as much as the tube from the effect of heat and steam. The tube is altered for two or three inches around the vent-bore, whereas the core has a skin of altered rock only.

* It may be a "pipe" at a long distance from a cavity of volcanic origin.

The length of this outlet was, as nearly as can be made out, about forty feet, and it was in a horizontal position, which may be at right angles to its first position.

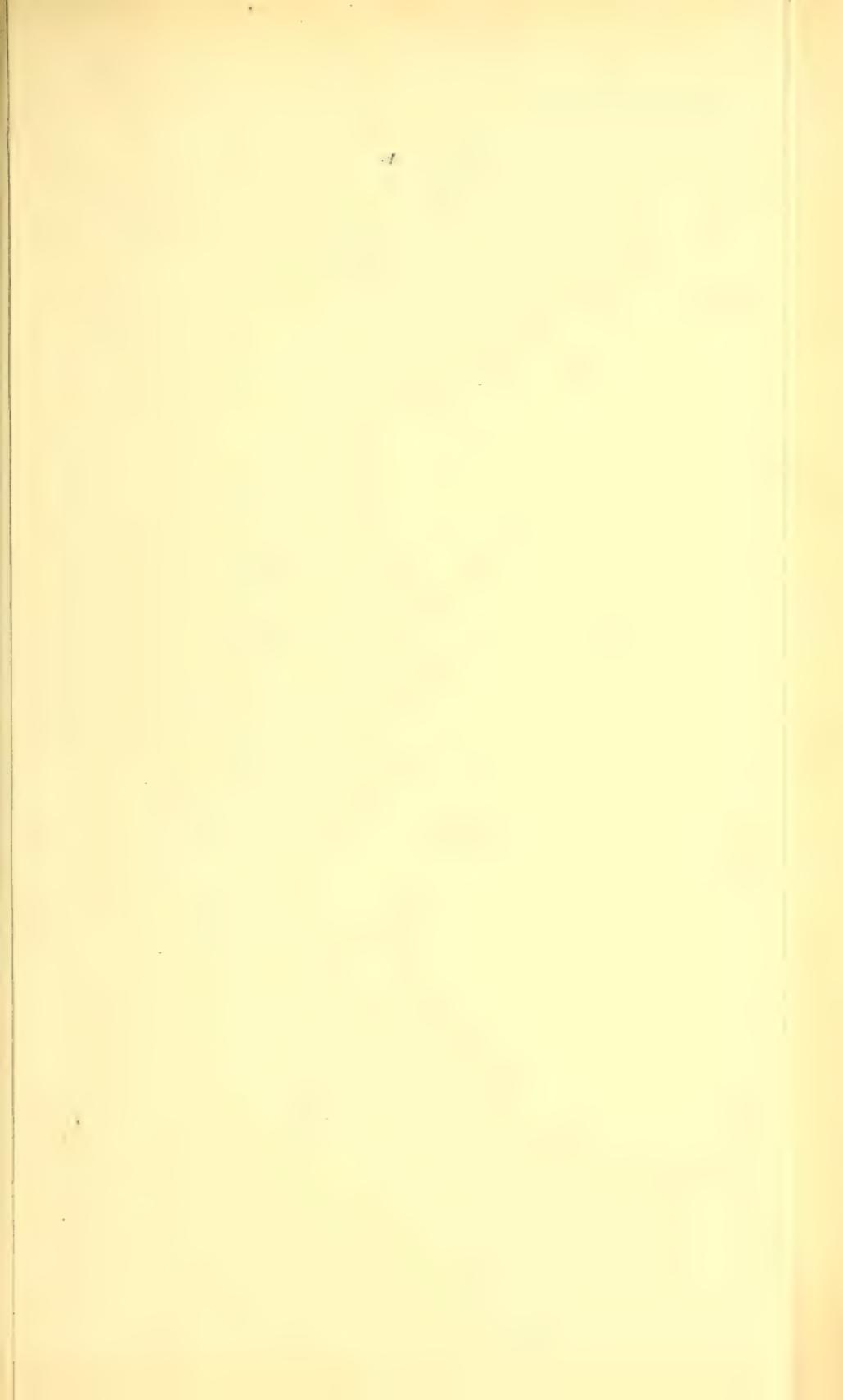
Professor Bonney, writing of the microscopic characters of this rock, says: "The rock consists of quartz, felspar and black mica. The quartz contains a fair number of cavities in many of which are small bubbles, often moving; but some are empty, others are dark as if stained." Of another specimen he says: "fluid cavities abundant."

We have therefore a granite with indications of fluid infiltrations, and it seems to me fairly certain that water found its way down into this rock while it was in a hot condition, possibly from the nearness of volcanic action.

The specimen will remain in the museum.

SPECIMENS EXHIBITED.

- Felsite from Bon Repos.—Potash felspar.
- Felsite from Corbière.—Soda felspar.
- Felsite (Quartz) from Talbot Road.
- Eurite from L'Islet (Romains).—Potash felspar.
- Quartz (Vein) from Grantez.
- Diorite (Quartz) from L'Islet (Romains).—Quartz diorite with Mica (Protite).
- Diorite Hornblende from Hougue Recard.—Felspar and Hornblende.
- Diorite Hornblende from Capelles.—Felspar and Hornblende.
- Diorite Hornblende from Vaupot.—Felspar and Hornblende.
- Diorite Hornblende from Grande Maison.—Felspar and Hornblende.
- Diorite Hornblende from Bon Repos.—Long grain.
- Greenstone, Hornblende-dolerite, from Les Tielles.
- Greenstone, Olivine-dolerite, from Les Tielles.
- Greenstone, Olivine-dolerite, from Bon Repos.
- Porphyrite from Bon Repos.
- Granite from Mont Cuet.—Protite.
- Granite from Vaugrat.
- Syenite from Vaugrat.

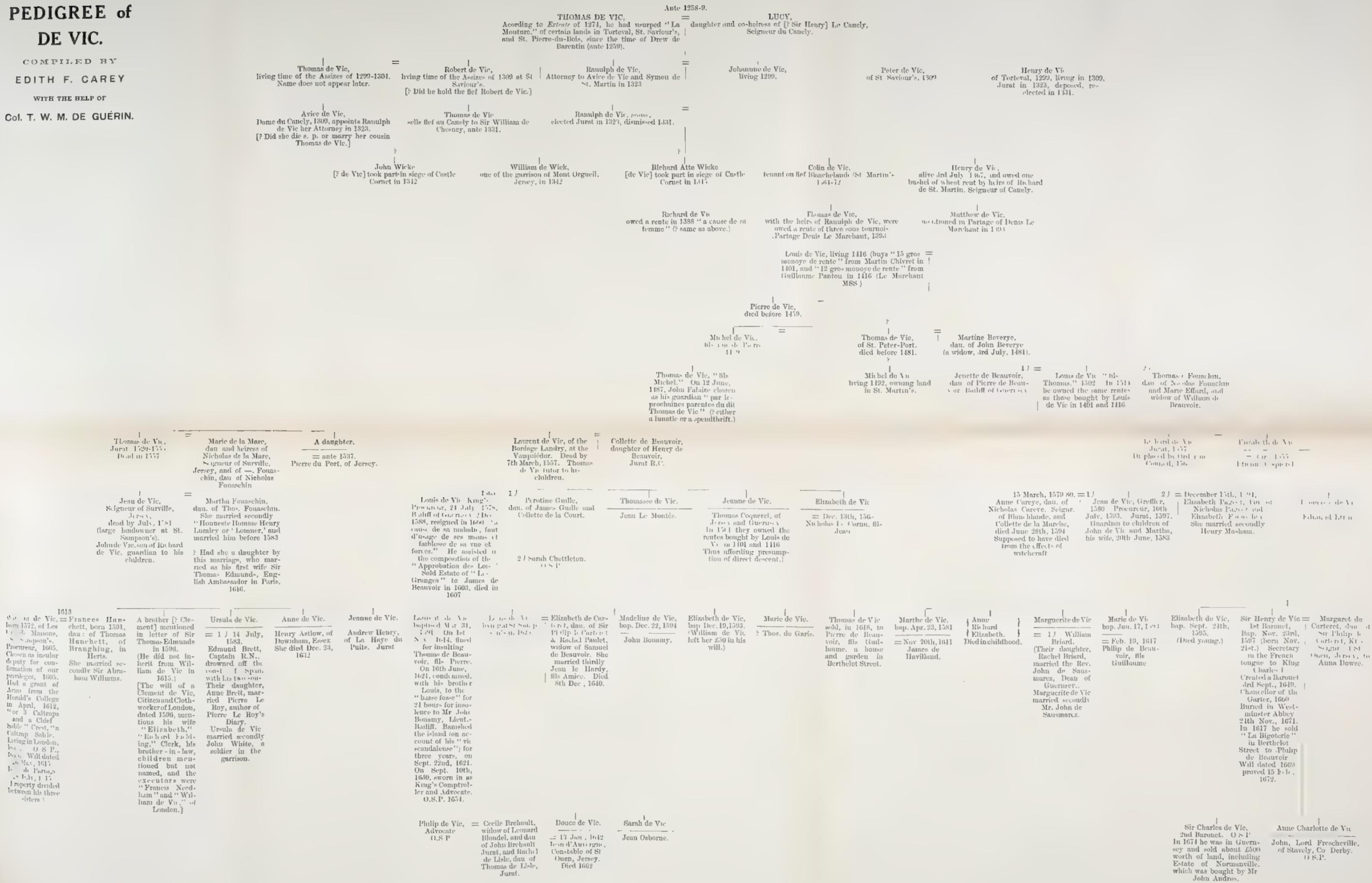


PEDIGREE of DE VIC.

COMPILED BY
EDITH F. CAREY

WITH THE HELP OF

Col. T. W. M. DE GUÉRIN.





AN EMINENT GUERNSEYMAN.

SIR HENRY DE VIC.

BY MISS EDITH CAREY.

TO-NIGHT I am going to talk about Sir Henry de Vic, one of the most distinguished Guernseymen in our annals, and yet one about whom much ignorance prevails; in fact, I am afraid that most Guernsey people have never even heard his name, so that I should like, if possible, to rescue some details of his life and times out of the oblivion into which they have been allowed to sink. He lived from 1597 until the year 1672, less than 300 years ago, but a vast gulf, not of time alone, but of thought, custom and general atmosphere divides his day from ours.

It is not sufficiently realised what an immense difference the last two hundred years have made to the standards of life and society in general and to our island life in particular. Great economic and social forces have swept over our community, that was only half conscious of what was befalling it. A Guernsey document* drawn up in the middle of the 17th century shows the exceeding poverty to which the islanders were then reduced. It gives the population as being about eight thousand, of whom "not above two have £200 per annum, not ten £100, not thirty £50 per annum." Even allowing for the greater purchasing power of money in those days I think we may take £350 of our money as the maximum income of any of our landed proprietors at that time.

Naturally this would imply that throughout the island there was a comparatively simple standard of living. There was no such thing as a "leisured class," but it was at once usual and expected that men, however old and reputable their families, should have some trade or profession. Work was both general and respectable, and women of the best social standing took a share in the physical work of their households. I think that an impartial examination of contemporary documents will prove that from a generation of men, to whom

* "A declaration of ye condition of ye Islande of Guernesey. 1654-1660.
(Guille MSS.)

labour was a necessity and want an ever-present dread, a type of character was evolved somewhat like that of wild animals—jealous and savage, suspicious and passionate, and yet blending with an animal's qualities, a touch of the refinement of old civilisations, and an intense pride in their national traditions.

Henry de Vic, born in 1597, was the son of John de Vic, who had been successively Greffier, Procureur and Jurat of the Royal Court—and of his second wife Elizabeth Pageot, daughter of Nicholas Pageot and Elizabeth Fouaschin.

As far back as 1252 we find a Thomas de Vic living in Guernsey, and married to the daughter and co-heiress of Sir Henry de Canelly, Seigneur of Canelly. Branches of the de Vics were large landowners in the town, St. Martin's, St. Sampson's and the Vale Parishes, and at this time the elder branch of the family were Seigneurs of Surville in Jersey, while William de Vic, the head of the family, owned land and houses in London as well as in Guernsey. He married in England and seems to have lived there most of his life. Henry's father, John de Vic, had had a somewhat chequered career. Whilst he was Greffier he had ventured to oppose the autocratic Governor, Sir Thomas Leighton, and nervous of the consequences of his rashness, was so afraid to meet him that he went into hiding and stayed away from a political meeting to which he was summoned. A hue and cry was raised, and on the 18th of October, 1589, an old document tells us that:—"Before daie, certain souldiers were sent by the Governour to his house. But finding the doores shut, did forceably, with iron barres breake in the same, and enter into the house, his wife and children therein crying out for helpe 'A l'ayde de la Royne!'" As he could not be found, "that same day being a market day, the Governour caused a proclamation to be made in the market place and also affixed to the Church porch declaring the said John de Vic to be a rebel to Her Majesty, and forbidding anyone to lodge or assist him, and commanding upon pain of death that no man should transport him out of the island," and that anyone who knew where he was should "runne at him, apprehend him, or follow him with the cry of Haro," that by force he might be brought to the Governor dead or alive.* On this, John de Vic, being afraid of bringing further trouble upon his friends gave himself up, but prayed that he might have the benefit of the law. But the Governor sent him straight to prison in Castle Cornet without any sort of trial. An appeal was laid before the Lords of the Council who decided that in future the Governor

* British Museum Add. MSS. No. 11405 ff. 49 et seq.

should only be allowed to send people to prison for martial crimes, and not, as in this instance, for civil offences.

John de Vic had married, for his first wife, Anne Careye, daughter of the Seigneur of Blanchelande, but she died suddenly and mysteriously, and on the 26th of July, 1594, an unhappy woman was sentenced by the Royal Court to be burnt that selfsame day "until her body was reduced to ashes" for having "compassed the death of the said Anne, as well as divers others, by her sorcery and witchcraft."* The Bailiff who conducted the trial was Louis de Vic, first cousin to the plaintiff, but in those days no one would have dared to raise an objection on that score. Four months later the easily-consoled widower married Elizabeth Pageot, and she became the mother of Henry de Vic. After a short time John de Vic died and his widow re-married Henry Masham, an Englishman who had settled in the Island, and had been granted by the Royal Commissioners appointed by Queen Elizabeth the house and adjacent chapel belonging to the hospital of St. Julien, and classed among those buildings "dedicated to superstitious uses"† which, after the Reformation, were alienated by the State from the Church to which they had been given. It was here, in all probability, that Henry de Vic spent his boyhood; but he seems to have been sent to England at an early age, probably to the care of that cousin, William de Vic, who had been his father's ward, and who was doubly related to him, both through the Fouaschins as well as through the de Vics.

This William de Vic was either half-brother or brother-in-law to a Sir Thomas Edmunds, the English Ambassador in Paris in 1616 and the Household Treasurer to King Charles I. in 1624.

I have failed to trace the exact relationship between them, but I have seen letters written to each other signed "your most lovinge brother," and in one of them, written in December, 1596, Sir Thomas tells William de Vic that "Your brother came hither, his onlie errand was to make sale of the plate in gage . . . [which] he and your sister would needs make offers of the sale hereof first to me. I made him answer that I was a beggar and not able to venture upon so great a purchase, and returned manie thanks for their great kindness. Whereupon he proceeded to the sale of it otherwise." Sir Thomas had married as his second wife the rich young widow of Sir Francis Anderson, who had the additional recommend-

* Guernsey Folklore," by Sir E. MacCulloch, p. 606.

† "Documens relatifs à l'Île de Guernesey," p. 42.

ation of being niece to the Royal favourite, afterwards Duke of Buckingham, and I can only conjecture that it was through this interest that Henry got into contact with the Duke of Buckingham's household and the Royal Entourage. For I have come across a letter of his, written in 1617—when only a boy of twenty—to Mr. Nicholas, Secretary to the Duke of Buckingham, pleading for the release of various ships of Guernsey and Jersey, “the *Sara*, wherein Philip Brock is Maister, the *May Flowre*, wherein Richard Pipon is Maister” and others, and signing himself quite familiarly for that punctilious age, as “your affectionate friende.”*

George Villiers, Duke of Buckingham, although the favourite of both James I. and Charles I., was heartily detested by the nation. His famous expedition in which Henry had accompanied him to the island of Rhé, for the relief of the people of Rochelle, proved a most inglorious failure, and Henry was subsequently employed by Charles I. to treat with the Duc de Rohan and the French Protestants for their co-operation in helping to raise the siege. Buckingham endeavoured to regain his lost credit with the nation by a second attempt, but while preparing to embark at Portsmouth he was stabbed to the heart with a penknife by one John Felton, a lieutenant in Sir John Ramsay's regiment. This was in August 1628, and Henry de Vic was at this time a gentleman of the Duke's Bedchamber and married to Margaret de Carteret, a daughter of the Seigneur of St. Ouen. Among the Clarence Hopper MSS. in the British Museum is a letter to him from her brother, afterwards Sir Philip de Carteret, written early in 1628. It begins “Noble Brother” and goes on to say “I have had soe much care that your horse should not be galled that, taking noe heed but to his forepart the saddle hath wrung him behind as badde as it was before. . . neither wolde he ever be fitt for your service. I thinke to have him over to Jersey and to cosen some Frenchman. Soe you take ten pieces of my money and buye you a better with saddle and furniture—I shall lose nothing by it, for I shall sell this horse, which is yours, for soe much, or more if I happen upon a Frenchman, he is good for nobody ells.”

After the Duke of Buckingham's death Henry de Vic had been taken on as Secretary by Lord Conway and Elie Brevint, the minister of Sark notes in his *Diary* that “Henry de Vik, pompeux en habits est le 4me secretaire de Milord Konway qui en a six.”

* British Museum Add. MSS., Clarence Hopper Collection.

At this period he was repeatedly commissioned to defend our insular rights and privileges in the English Court, and had also been deputed to buy arms and ammunition for the defence of Guernsey.* The islands were then in a state of great danger, their old fortifications and castles were crumbling away, they had no resident garrison, and no possible defence against the enemy. Moreover, besides the ever present danger of an invasion from France, the Channel was so infested by Barbary pirates and French privateers that commerce and trade were practically at a standstill.

After repeated requests to the home government to send them either soldiers to defend the Castle or ships to defend our harbour, in 1627 two hundred men were sent over, but were unprovided with outfits (uniforms being then unknown), with pay, or with lodging, for not more than 70 men could be accommodated at Castle Cornet. The remaining 130 therefore were billeted on the principal inhabitants, who had, out of their scanty means, to maintain them at their own expense. None of the many acts of oppression of the Stuart Kings roused such fierce opposition all over the United Kingdom as this compulsory billeting of soldiers on a free population, and we find that petition after petition went up to the King from the Guernsey people to relieve them of their burden; for the expenses came to about £60 a week,|| a debt which the islanders could ill afford to pay, and, to add insult to injury, the whole population, in time of peace as well as in time of war, was placed under martial law.‡ Henry de Vic was again called upon to intervene and in 1628 martial law was done away with; and in 1630, on conclusion of the peace with France the soldiers were taken away, the amount due by the Government to the islanders for their maintenance being £1,393.§

In September, 1635, Henry de Vic was in Paris, as we know from a letter addressed to him by Sir Peter Osborne, then Lieut.-Governor of Guernsey,|| who, writing from Castle Cornet, says that he has nothing to write about "Newes being a merchandise we trade not in," but that he hears that Sir Philip and Lady de Carteret have just reached Jersey in safety, "having been put to the patience to lye attending upon a passage five or six weekes." While Sir Henry was absent from the island his half-sister Martha, wife of Mr. James de Havilland, acted for him as his attorney, and on June 15th, 1638, the Royal Court decreed, at her request,

* Actes des États, p. 71.

† Actes, p. 150.

‡ Ibid, p. 183.

§ Actes, p. 156.

|| Brit. Museum Harl: MSS. No. 7001, f. 81.

that on the following Sunday it should be announced by the town cryer, to the congregations of the Vale and St. Sampson's while issuing from Church, that they should no longer tie their horses to the garden wall of La Plaiderie garden, belonging to Mr. Henry de Vic, on pain of a fine of 18 livres tournois. The Royal Court then sat at La Plaiderie, although it was nothing but a mere barn and so tumbling to pieces as to be almost dangerous, but being situated in the Pollet and thus at the northern extremity of the town, we can understand that the inhabitants of the northern parishes found it much more convenient to tie up their horses there than to ride them through the narrow ill-paved streets, sloping down to a deep gutter or rather open drain, in the centre, and bordered with high projecting houses, which almost met up above, as were all the principal thoroughfares of the town in those days. We can imagine what these streets must have been like on market days from a Petition about the Market Halls which some of the principal inhabitants sent up in the year 1670, which says: "The common Halls anciently appointed for this place of Markett have been neglected, and a most beastly and inconvenient custome introduced of hanging up their beefes and other slaine beasts for sale along the houses of the High Streete, and in the same streete they are cutt out, divided, and sold; the fish likewise bee laid out and exposed to sale in the same open streets, which, being narrow enough of themselves, are so straightened by it for divers houres of every day in the weeke, but the Sundays, that they are rendered in a manner impassable."

In connection with this we must remember that the houses bordering High Street were not shops as they are now, but the private dwelling houses of the Le Marchants, de Beauvoirs, Bonamys, Tappers, de Sausmarezs, Careys, Priaulx, Dobrées, &c., and we can realize what grounds they must have had for signing this petition.

We all know that at that time the Vale Parish was practically a peninsula, at high tides being only connected to the island by bridges, and that the Braye du Valle—as the inlet through which the tide rushed was called—was only filled in, at the instigation of our most popular Governor Sir John Doyle, in 1808. But it is interesting to note that two hundred years previously Sir Henry de Vic thought of reclaiming this land. Possibly he may have seen similar work done in the low-lying shores of the Flemish coast, and in September, 1639, he petitioned Charles I. that these

lands “which time out of minde have been overflowed by the sea without any endeavour us’d for their recovery,”—or so much of them as could be recovered, should be granted to him. Various warrants were forthwith issued to the Bailiff and to Mr. John Bonamy, jurat, to survey these lands and to report upon them, but nothing definite was then done. This is not surprising, for the events which led to the Civil War and the execution of King Charles I. were crowding thick and fast. Every month brought fresh trouble in its train and such trivial matters as submerged lands in a remote island were speedily forgotten.

In 1635 two Guernsey vessels, homeward bound from the Newfoundland fisheries, were taken by Turkish pirates and fifty of our finest seamen were sold into captivity* ; the King was implored to ransom them as their relations were too poor to do so, and in consideration of such bounty it was conceded that the arrears of pay should no longer be demanded. But again no notice was taken of this petition so that it is hardly surprising that in 1642, when the Civil War broke out between Charles I. and his Parliament, that the majority of the Guernsey people, heart and soul, took the side of the Parliament. In Jersey the de Carterets, who were Royalists to the backbone, influenced the people to remain as enthusiastically loyal as themselves, and four out of the five Guernseymen who remained staunch to the Stuart cause—Henry de Vic, Amias, Edmund and Charles Andros, and Nathaniel Darell—were either by birth or marriage related to the de Carterets. From this time we may date the traditional feud between Guernsey and Jersey—Jersey Royalist and Guernsey Roundhead.

As we all know, Sir Peter Osborne, the Lieut.-Governor, remained loyal to the King, and with a handful of troops intrenched himself in Castle Cornet, there to hold out for the Stuarts against the island and the Parliamentary forces. But if Sir Peter hated the Guernsey Roundheads much he evidently hated the Jersey Royalists more, for among the Guille MSS. at St. George is a letter from the Royal Court of Jersey to Charles II.—then Prince of Wales—complaining that Sir Peter Osborne, “commander of our neighbour’s Castle . . . though he hath had almost all his bread from hence by which he hath subsisted . . . yett refuseth to admitt of our persons . . . [for the] reduction of our neighbours to their due obedience, [although] that there is nothinge in the world that wee are more ready and

* Actes, p. 177.

willing to undertake . . . [yet] Sr. Peeter Osborne hath beene pleased to returne our offers for the reduction of that Island with insufferable scorne." Thus from 1643 until 1651 the islanders had to experience the miseries of being bombarded by the guns of Castle Cornet as well as to endure the complete destruction of all their trade and commerce, as of course no vessel dare enter the harbour with the risk of being fired at from the Castle. This must have been almost the darkest period of Guernsey's history, and it is difficult to realize what frightful inconveniences, in addition to their dire poverty, our forefathers must have gone through. For one thing there was no prison, for the cells at Castle Cornet had been used as a prison from time immemorial, and in 1644 it is recorded that a man who was condemned to imprisonment for 24 hours on bread and water had perforce to be incarcerated in the Belfry of the Town Church!

Meanwhile Sir Henry De Vic, who had been knighted by Charles I., was British Resident at Brussels, and Evelyn in his *Diary* notes that on October 8th, 1641, "At near 11 o'clock I repaired to His Majesty's Agent Sir Henry de Vic, who very courteously received me and accommodated me with a coach and six horses, which carried me from Bruxelles to Gant." Evelyn carried away a pleasant impression of the life at Brussels then, for he says "in the small Cittye the acquaintance being universal, Ladys and Gentlemen I perceived had great diversions and frequent meetings."

In 1647 Lady de Vic spent the winter in Jersey with her numerous relations, and shewed especial kindness to Prynne, then an exiled prisoner in Mont Orgueil Castle, from whence he wrote of her as "faire Margaret."

We next hear of Sir Henry in August, 1649, when we find him writing from Brussels at the instance of the Duke of Lorraine to Sir Edward Hyde (afterwards Lord Clarendon), and trying to dissuade the King's brother, the Duke of York, from accompanying Charles II. on his projected visit to Ireland, and recommending him to live under the protection of some neutral power during the King's absence.* The following September Charles, while still a homeless exile at St. Germain, created Sir Henry a Baronet. This title was probably given as a sop to counterbalance long arrears of deferred pay, for in October of the same year Sir Henry says in another letter to Clarendon "Your Lordship sees in what condition His Majesty's affaires are at the present, and I doe conceive you bee not ignorant of mine, or if you bee so the

* Clarendon MSS. copied by Dr. Hoskins. In Candie Library.

point I desire and thinke necessary you should know is that I pray you looke upon me as one who at the farthest is not able to live on here above three months more." He then goes on in cypher, apparently to suggest some way of raising money.* That he evidently tided over the evil days is evident from the fact that he remained on in Brussels for another eleven years, and during that time his wife must have died, for in a letter from the Queen of Bohemia to Sir Edward Nicholas, written in December, 1654,† she describes her visit to Brussels where she stayed "at Sir Henry de Vic's who was very carefull and diligent to doe all the service he coulde." She goes on to say that Sir Henry had made a journey to Cologne in pursuit of a love affair, and she adds—"I am sorie for poore Sir Henry for lett the match break or goe on, it is every way ill for him." The match however must have fallen through, for there is no record of his having married a second time. By his marriage to Margaret de Carteret he had two children, a son, Charles and a daughter, Anne Charlotte.

On the downfall of Cromwell's government in 1660, Sir Henry was deputed by the States of Guernsey to congratulate Charles II. on his Restoration, and doubtless he had to palliate as best he could the adherence the islanders had always maintained to the Parliamentary party. For his own unswerving loyalty the King made him Chancellor of the Garter to the See of Salisbury, an honour which had only once before been given to a layman, namely, to Sir William Cecil, in the reign of Edward VI. Charles also made him his "Secretary for the French tongue" and Agent to the King of Denmark. In 1662 he was made Comptroller of the Household to the King's brother—the Duke of York—with a salary of £400 a year. But amid all his new dignities he never forgot what he himself calls "*l'affection que j'ay a pour notre pauvre pays.*" The States begged him to persuade King Charles to renew their ancient Charters, and also urged him to say that the island, with its population of eight thousand, carried far more people than it could possibly feed, and thus was infested by paupers, thieves and vagabonds. Therefore "would His Majesty authorize the Bailiff and Jurats to deport such superfluous population either to the American Plantations" (where they would have probably been sold as slaves) "or to the Kingdom of Ireland." Even Sir Henry de Vic's influence does not seem to have been powerful enough to get this request acceded to, and there was some

* Claredon MSS. copied by Dr. Hoskins. In Candie Library.

† Hardwick State Papers. Quoted in MacCulloch's MSS.

delay about ratifying the Charters, as doubtless the remembrances of the islanders' insubordination still rankled with the King; however, in 1667 he prevailed upon Charles to ratify and confirm and even to amplify all our previous Charters and privileges, and thus obtained for us indemnity for the past and security for the future. For this service, it was determined at a States Meeting in December of that year, that the public gratitude to Sir Henry should be officially recorded on the public registers, so as to serve as a "Monument to Posterity," while by Royal Warrant the Constables and Douzeniers of the Vale and St. Sampson's, under the auspices of the Royal Court, set about defining the limits of the submerged lands in the Braye du Valle for the purpose of handing them over to Sir Henry, although I can find no record of this ever having been definitely accomplished.

Sir Henry was then living in London, and Pepys, chronicling a Court Ball held at Whitehall, mentions that among the dancers "my lady Castlemaine and a daughter of Sir Harry de Vicke's were the best." This daughter soon afterwards married as his second wife Lord Frecheville, of Stavely, in Derbyshire. He died in 1682, and as the widowed Lady Frecheville, she is mentioned as an attendant upon the Princess of Denmark (afterwards Queen Anne) at the time the Princess made her escape from London in 1688, and she was afterwards one of the Ladies of the Bedchamber when Anne was Queen; she died without issue. After his daughter's marriage Sir Henry went to live in Windsor "for peace and quiet." By his will, written in 1668 or 9, when he was "aged 71 yeeres and upwards" we learn that he had had a long illness through which he had been nursed by his faithful housekeeper, Bridget Wing, and had been attended by Dr. de Beauvoir, who was both a Guernseyman and his cousin, and is one of the earliest Guernseymen to take up the profession of medicine of whom we have record. In this will we read of those who were his familiar circle at Windsor, Dr. Butler, Canon of Windsor, Dr. Bruno Ryves, Dean of Windsor, James Smith, Esq., of New Windsor, Councillor at Law, all men noted for their learning and their piety. He left legacies to each of his servants, to the poor of Windsor as well as to various pensioners he had assisted in his lifetime, £10 to the poor of the parish of St. Peter-Port, "to be distributed by my nephew, Mr. James Haviland, one of the jurats living on the place." To his daughter, Lady Frecheville, "a gold bodkin set with diamonds, in token of my fatherly affection to her, and the reason why I doe bequeath

noe more unto her is because (of having given) her a liberal and honourable portion in her marriage." The remainder of his estate, both in money and land, and "my plate, lynnens, hangings, etc., and what else is in my house" was left to his son and sole executor Sir Charles de Vic, and he desired to be buried in St. George's Chapel, Windsor.

About three years after making this will Sir Henry died, and in the British Museum* is a letter written from London by his nephew James de Havilland to Lord Hatton, Governor of Guernsey, then living in Castle Cornet; it is dated December 5th, 1672, and gives an account of his death, as follows:—

"It hath pleased God to call to Him Sir Henry de Vic, my uncle, who, as he was talking with Mr. d'Anneville [Charles Andros, was then the Seigneur d'Anneville] and I in his chamber, where he had invited us to dine with him, that day being the tuesday, 21st of November, his birthday, was taken upon a sudden with a dimness of his eyes, and after he had onely said in French "*La Volonté du Seigneur soit faite*" he grew afterwards speechless, being taken of an apoplex, and so continued till the houre of his death, which hap'ned the same night about halfe an houre past three in the morning. His death hath been much regretted by the King and also by severall noblemen here at Court."

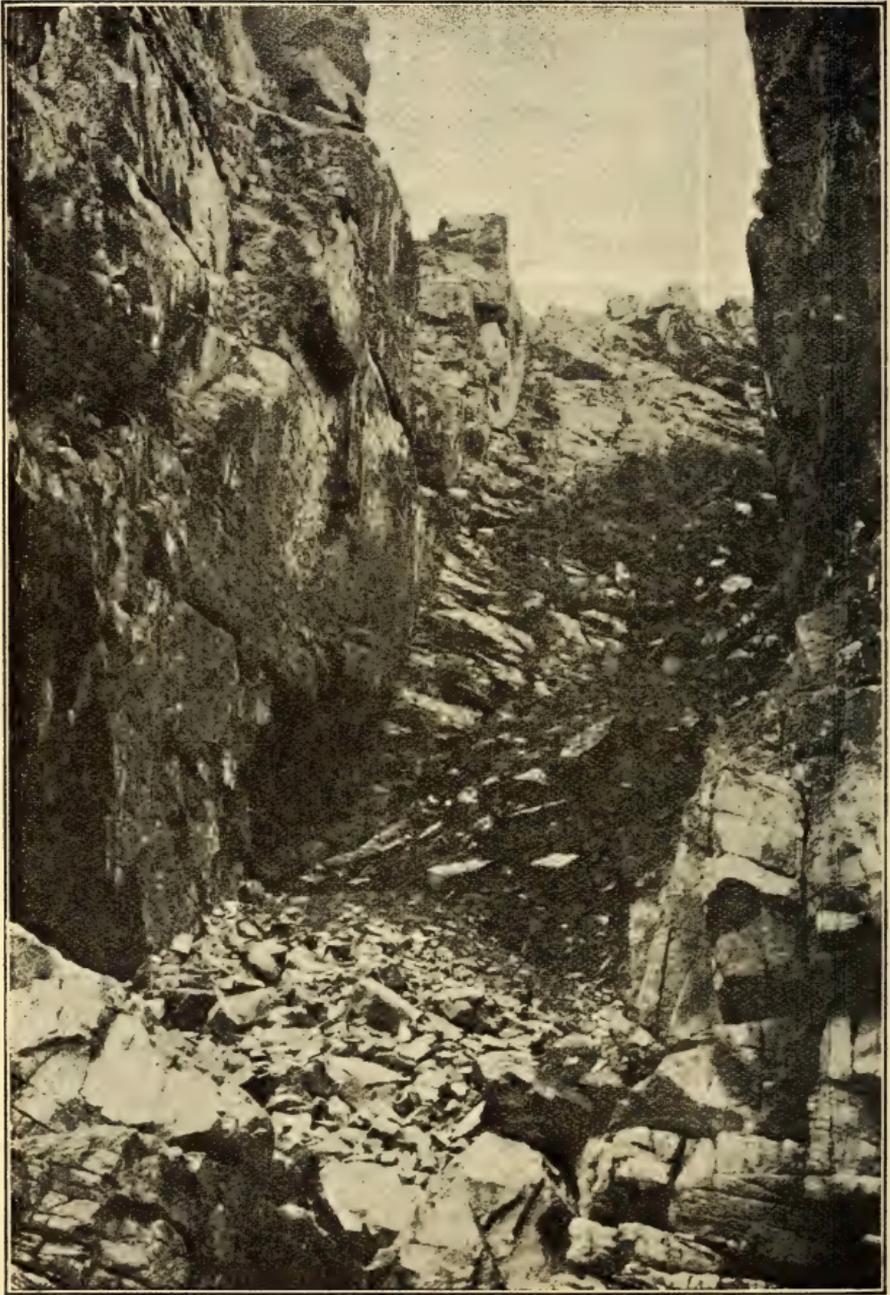
Contrary to his expressed wish he was buried, not at St. George's Chapel, Windsor, but in Westminster Abbey, under a grave stone in the North Cross. His funeral was on November 24th, 1672.

His son, Sir Charles de Vic, did not long survive him, and died unmarried in Ireland, so that that branch of the family became extinct. Their property in Guernsey must by that time have passed into other hands, for in a letter from Francis Greene to Lord Hatton (Add. MSS. 29,552, f. 461), written from St. Peter-Port on November 27th, 1674, he says:—"Here is Sir Charles de Wick, very busy in disposing of his inheritance, wherein he hath made a progress to two thirds or more, having sold all that belonged to him in the contrie to Mr. John Andros, who is thereby become Monsieur de Normandville."

Thus we see that Sir Henry de Vic's last hours were spent with two of his own people, and his last words were said in his native language. All through his career we find that his interest in and affection for his native island never faltered; contrary to the ideas of modern socialists and popular agitators, he did not believe that local patriotism

was incompatible with loyalty to the Crown, and although he successfully fought for and obtained the fullest recognition of the hereditary privileges of the Channel Islands, yet through all their varying fortunes he remained inviolably faithful, both to his King and to his country. I think I can best conclude with an extract from the letter of thanks sent him by the States of Guernsey in 1667, of which this is a rough translation from the original French.

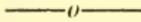
“We praise God with all our hearts, not only that He has been pleased to grant to this island the honour of having given you birth and descent from a notable family and from a father who was both a good man and a worthy citizen, but also that He has been pleased (among the other graces with which He has adorned you), to have added that of the love and honour of your country; so that, during the many years in which your talents raised you to honourable employments in the Courts of three of our Kings, you have repeatedly asked and obtained of their Majestys, whenever so desired, not only the renewal and amplification of our Charters and privileges, but all other decrees and ordinances which could contribute to the happiness of this poor island, and this without thought of personal advantage or private gain.”



LA COTTE, ST. BRELADE'S.—VIEW OF ENTRANCE.

RECENT PRE-HISTORIC RESEARCHES IN JERSEY.

BY ED. TOULMIN NICOLLE,
Secretary of La Société Jersiaise.



I.—La Cotte at S. Brelade.

Until quite recently evidence was wanting of the existence of Palæolithic Man in these islands. It is true that flint implements, suspected to be palæolithic, had been found from time to time, but not having been discovered associated with the remains either of primitive man or of those animals which were his companions, no decisive interpretation could be placed on the finds.

The result of the explorations carried on by the Société Jersiaise during 1910 and 1911 has cleared away any doubt that may have existed on this subject. The cave-dwelling known as La Cotte at S. Brelade has at last given up its secret and not only is there revealed to us the existence of a Pleistocene fauna in Jersey, but human teeth, pronounced by the highest authorities to have belonged to man of the Neanderthal type, and the Mousterian implements he made and used, have been unearthed.

La Cotte is situated in a cliff near Le Ouainé in S. Brelade's Bay. Its floor is about 60 feet above mean tide level. Previous to excavation the cave was filled with rubble and clay almost to within a few feet of the roof. Since 1880 flint implements had been from time to time found at the foot of the talus. In 1905 the Société Jersiaise decided to explore the cave, but the work had to be abandoned on account of its dangerous nature and it was not until 1910 that a full examination was carried out, resulting in the splendid discovery with which the members of the Guernsey Society of Natural Science are acquainted. The fully detailed account of the Society's explorations of 1910 is to be found in the Bulletin of 1911, whilst the report on the work done in 1911, completely confirming the results of the previous year's examination, has just been published in the Bulletin for 1912.

In commencing operations in the summer of 1910 we were very fortunate in alighting directly upon the hearth. Here all around we found evidence of the presence of decayed bone, but owing to the decalcifying properties of the clay only

[1911.]

very small portions were able to be extracted and preserved by infiltration of gelatine. With the teeth it was otherwise; they were in a sounder condition and particularly so the human teeth, of which the two explorations have yielded a dozen, belonging to the same individual. Five belonged to the upper jaw and seven to the lower.

These teeth are of an extremely primitive type. Their character is remarkable on account of the fusion of the roots in the molars. The crowns are much worn down. The diameters of the neck and roots are almost equal to, and in some cases exceed, those of the crown. In absolute diameter the neck and roots of these teeth are by far the greatest yet discovered, with the exception of those found at Krapina and of those in the Gibraltar skull (1). The characteristics of the teeth of *Homo Breladensis* afford therefore a valuable means of assigning to a particular Palæolithic epoch other similar finds of Prehistoric Man.

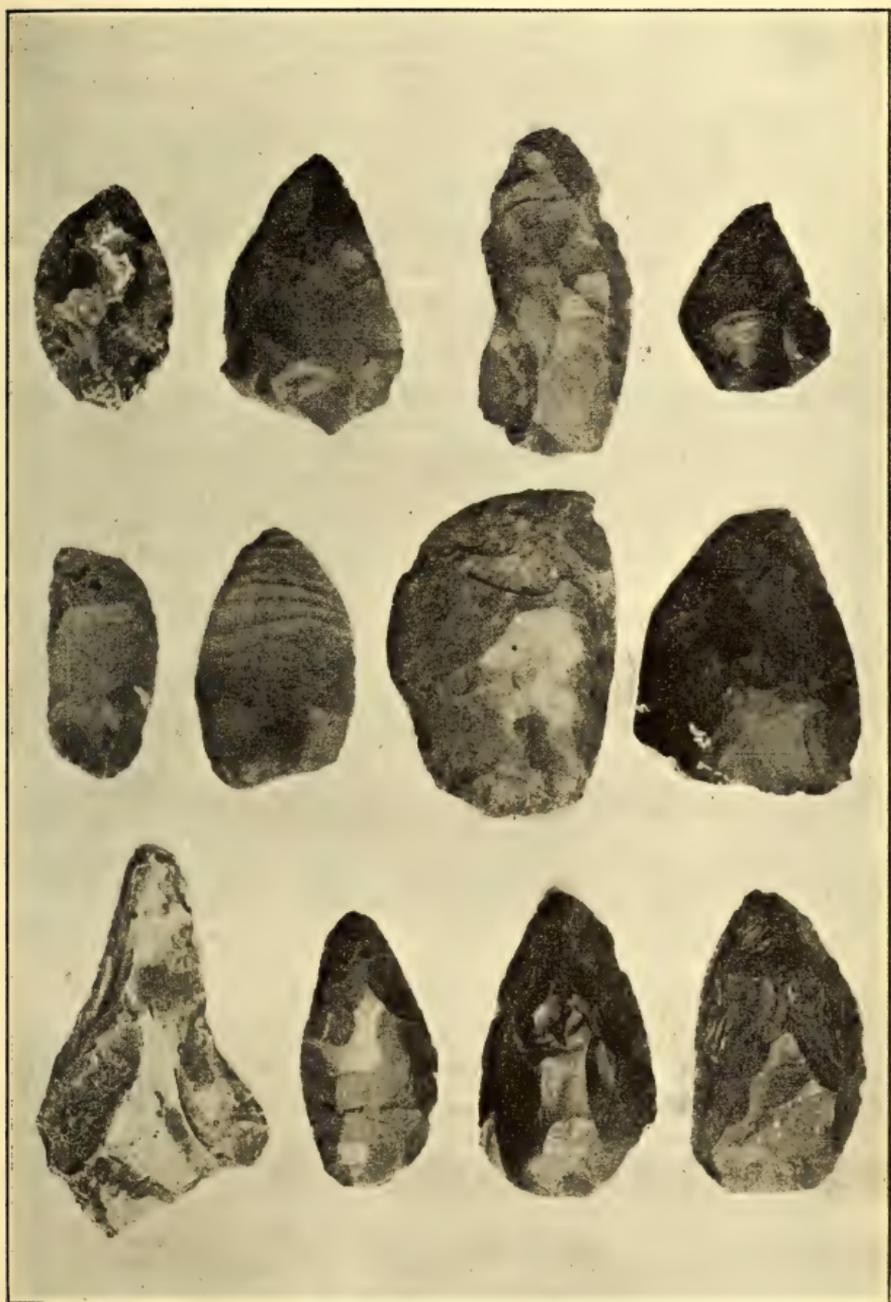
Of Pleistocene fauna the remains found have been identified by Dr. A. Smith Woodward, of the British Museum, as follows:—

- (1) **Rhinoceros tichorhinus** (Woolly Rhinoceros), represented by a well-preserved left upper molar and left lower premolar.
- (2) **Rangifer tarandus** (Reindeer), a large species; represented by a left lower premolar, a left upper molar, right and left fourth lower premolars, a part of upper premolar; by portions of antlers, fragments of feet, and lower end of metacarpus.
- (3) **Cervus elaphus** (large stag); represented by portions of skull with base of antler.
- (4) A large species of horse; represented by teeth, upper and lower molars, incisors and canine.
- (5) A small species of horse; represented by upper cheek teeth.
- (6) **Bos** (probably *Bos primigenius*); represented by axial vertebra, part of distal end of metapodial, shaft of same, a fragment of humerus, fragments of left femur and of ulna; and by numerous teeth.
- (7) Small *Bovidae*, represented by lower teeth in a portion of jaw, and by fragments of mandible.

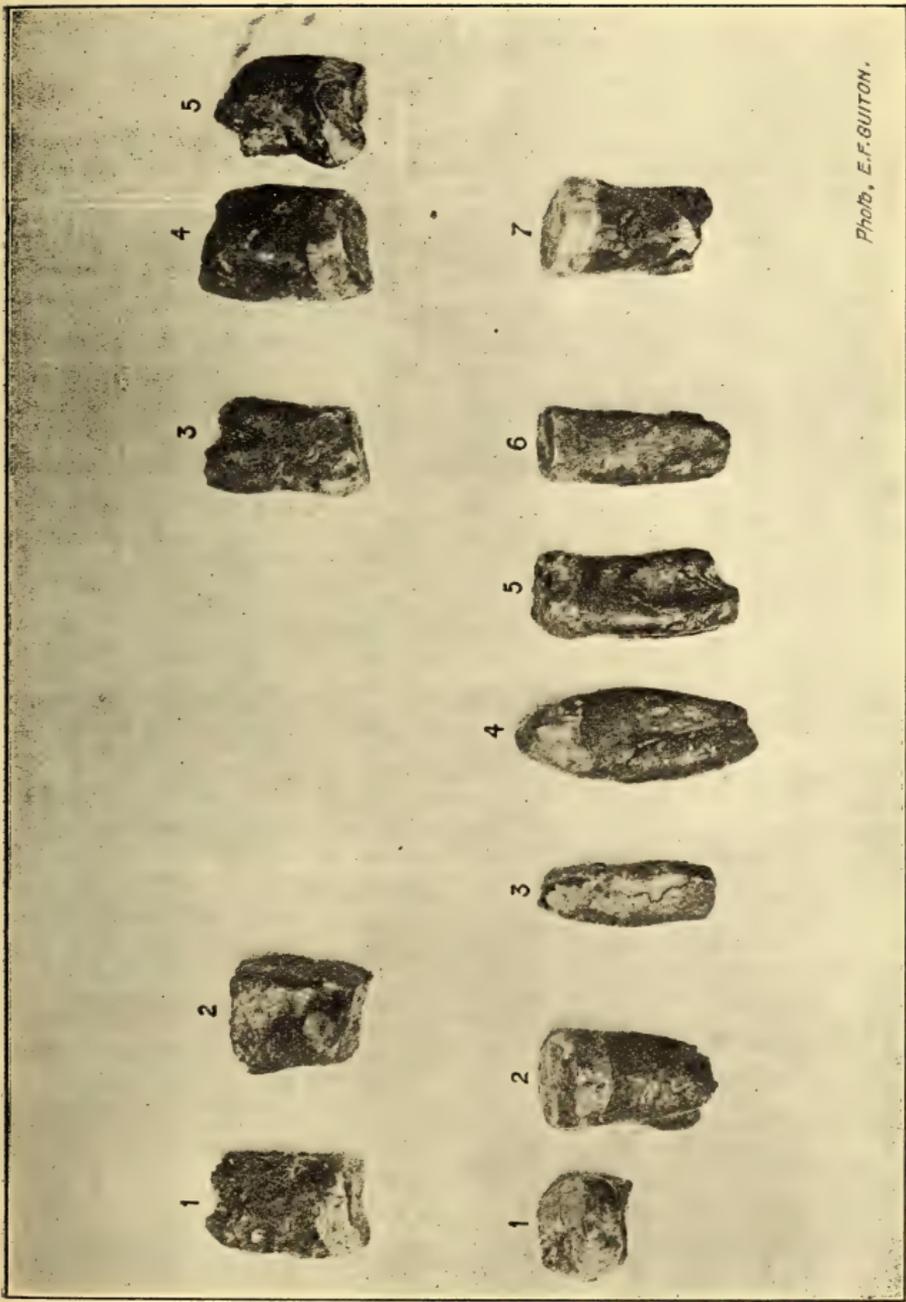
Of flint implements La Cotte has yielded a rich collection. They are all of the Mousterian type and many show skilled workmanship. The flint is mostly of a grey colour, but some is of a very fine black; whilst there are a few specimens of banded flint of great beauty. The collection is in the Society's Museum.

The discoveries at La Cotte are not only valuable on account of the light they throw on Palæolithic Man, but the fauna present in this cave indicates that Jersey, at the period when *Homo Breladensis* lived, formed part of the Continent.

(1) See Report of Dr. Keith and Mr. Knowles in Bulletin of Société Jersiaise for 1912 (illustrated). An elaborate study of these human documents.

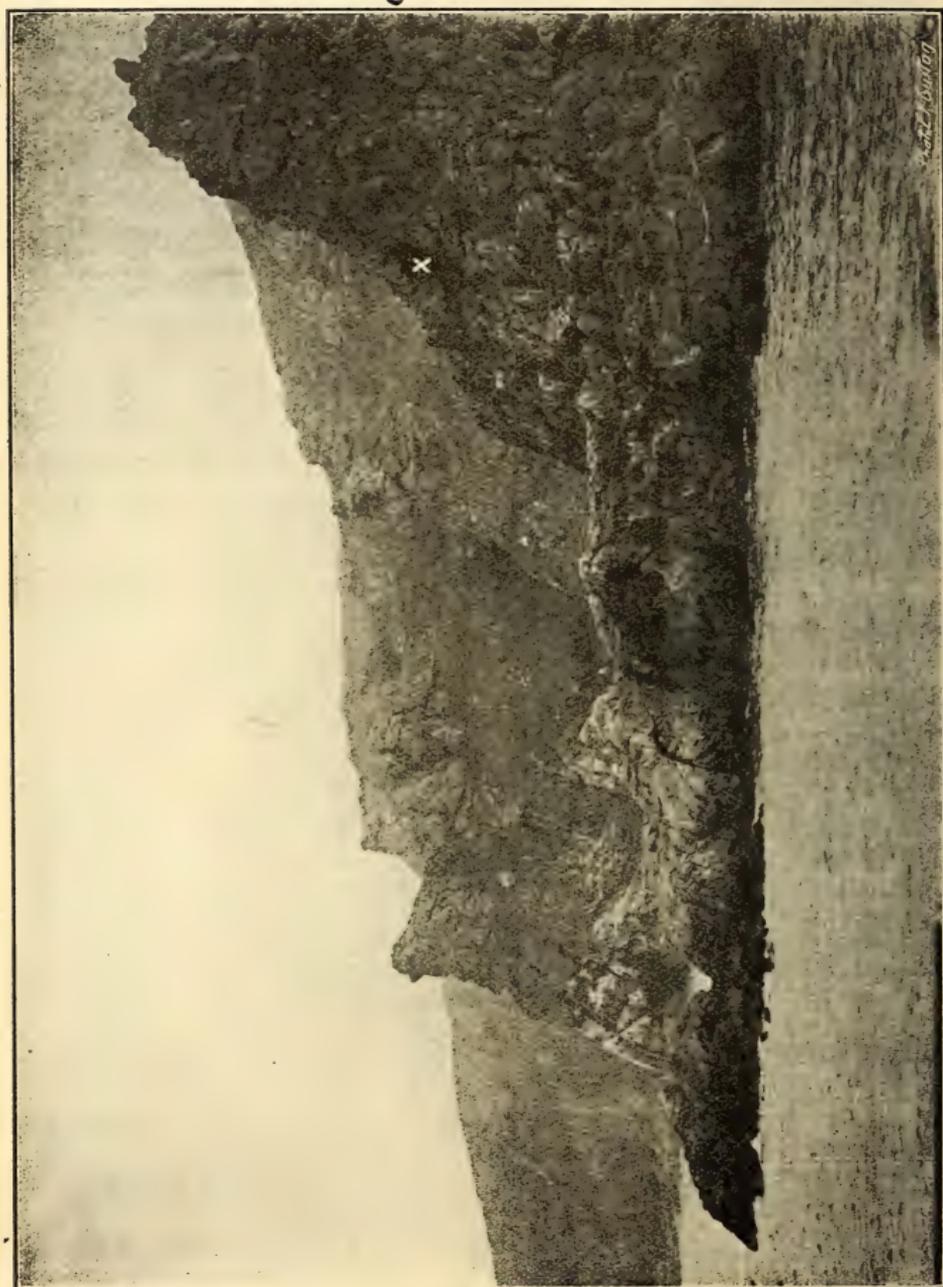


FLINT IMPLEMENTS.—LA COTTE, ST. BRELADE'S.

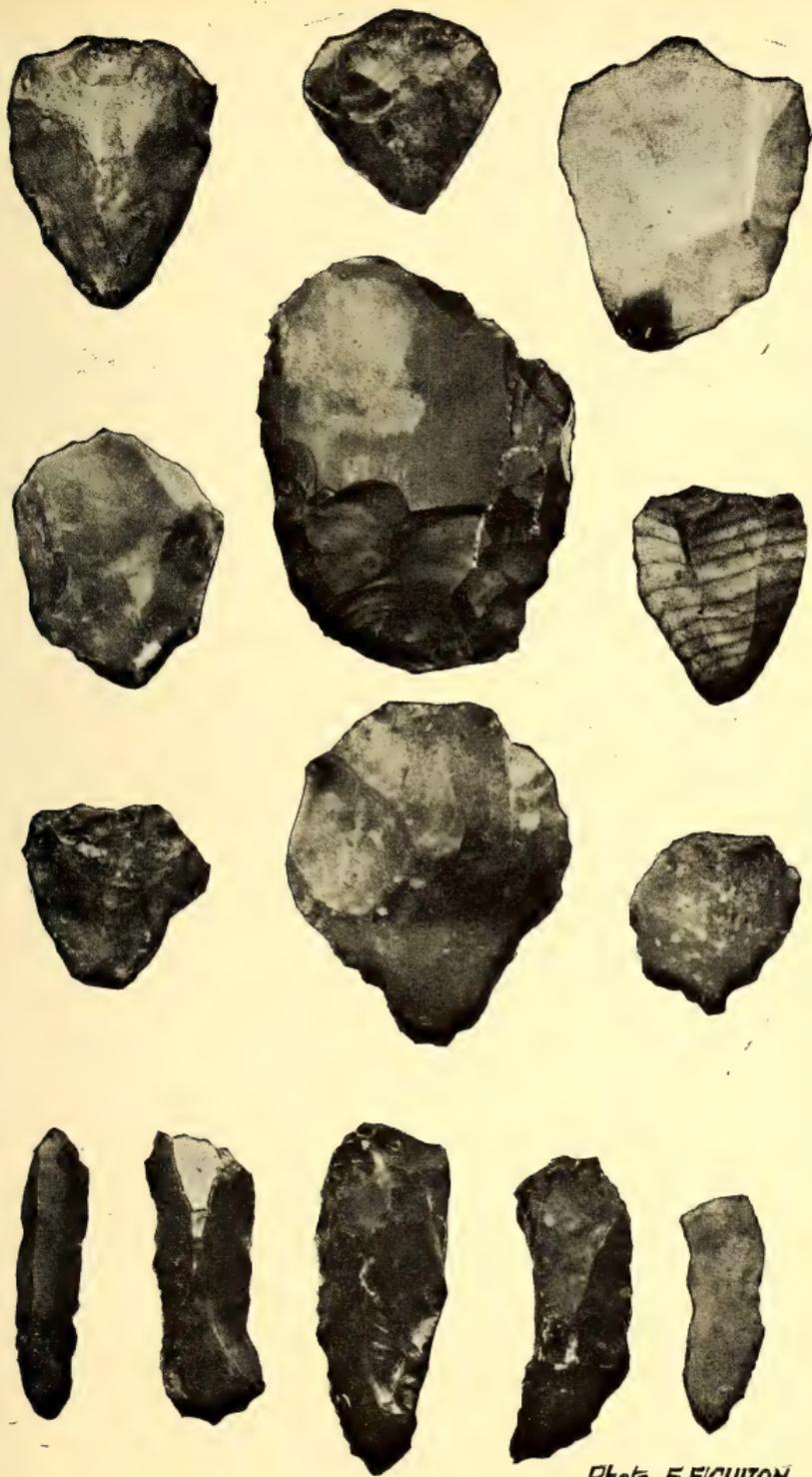


Photo, E.F. GUITON.

TEETH, "HOMO BRELADENSIS."—LA COTTE, ST. BRELADE'S.



GENERAL VIEW, COTTE À LA CHÈVRE. - From the Sea.



Phot. E. FIGUION.

FLINT IMPLEMENTS.—COTTE À LA CHÈVRE.

The absence of remains of marine origin would lead us to infer that in the Mousterian period the land which is called Jersey to-day was then distant from the sea. This quite supports the theory held by geologists that in palæolithic times England and France were united.

II.—La Cotte à la Chèvre (St. Ouen).

At the N.W. extremity of Jersey, not far from Grosnez Point, there exists another prehistoric cave-dwelling. Like the Cotte at St. Brelade its floor is about 60 feet above mean tide level. The dimensions of the cave are from mouth to extreme limit 33 feet; in breadth the floor ranges from 15 feet for the first half of its length to 9 feet and then tapers off to about 4 feet, terminating in an obtuse angle.

This cave was formed by the sea, as is shown by the formation of the original floor which consists of sea-sand, pebbles, and a few boulders. The floor thus corresponds with the 70 foot raised beach so conspicuous in many places around the Jersey coast. Above this layer of sea sand was an unctuous white clay. Next came a clay of a greyish white tint, showing presence of bone and marking the period of occupation. Above these three layers was a yellow gritty clay.

La Cotte à la Chèvre had been partially examined in 1881, when an abundance of flint chippings and some well worked implements were discovered, one of which is at present in the Lukis Museum. It is a fine heart-shaped instrument about 3 inches in length and worked on both sides. Near the middle of the cave a shallow hearth was found and among the ashes a piece of nodular iron pyrites, doubtless used for striking fire. Subsequent researches by private exploring parties brought to light other implements. It was not until February, 1911, that the Société Jersiaise decided that a final and systematic examination of the whole of the floor should be made. For an account of these researches and of the final exploration of last year, I must refer the reader to the Report published in the current Bulletin of the Société Jersiaise.

Of osteological remains the lower jaw of a deer was found in 1881. During the last excavation traces of bone were everywhere manifest, but in such a state of decay as to be undeterminable. Of the flint implements found during the last exploration all are in the Society's Museum. The previous finds have unfortunately been distributed in other directions, though some have come into the Society's possession. With the single exception of the specimen previously alluded

to, all these implements are worked on one side only. They are of an Early Mousterian type, earlier than those of La Cotte at St. Brelade, and of a rougher workmanship. They resemble much in form a lilac leaf. According to the opinions of M. l'Abbé Breuil and M. Commont, they are characteristic of the Earliest Mousterian period. The occupation of La Cotte à la Chèvre as a human dwelling must, therefore, be anterior to that of La Cotte at St. Brelade.

III.—Green Island, St. Clement.

A remarkable discovery of burial places of an early type was made by the Society in October, 1911, in the small island known as La Motte or Green Island, two hundred yards off the coast of Jersey in St. Clement's parish.

The Island consists of diorite rock, covered with stratified clay, twelve to fifteen feet thick. Over this is a layer from five to six feet thick of fine clay mixed with sand. Between these layers can be seen a thin layer of stones running horizontally around the island. In the spring of 1911 a mass of clay slipped and revealed on both sides of a little promontory what appeared to be small and roughly constructed kists.

On October 12th the exploration of this phenomenon was commenced by cutting a trench across the promontory at the level of the tops of the small structures, which proved to be the open ends of a sepulchral chamber, consisting of two graves built end to end. The graves, oriented E. and W., were covered with capstones varying from two to three feet in length. They resembled a diminutive *allée couverte*. When the capstones were removed, the western grave, which was 6 feet in length and about 16 inches wide, was found to resemble a modern tomb in shape. The eastern grave was of similar dimensions, but in its centre and sunk below the level of the larger constructions was a smaller grave about 30 inches in length, 9 inches wide and one foot deep. The stone of which these graves are constructed is the diorite of the district and the graves are very symmetrically built. They were full of compact clay, showing marked traces of bone. Beyond some tiny fragments of pottery no relics of any kind were brought to light.

On October 16th excavation was continued a few feet from the first discovery. Another grave was opened up, filled with similar compact clay. At the eastern end of this grave the end of another about 2 feet in length was found, the rest having fallen away on the beach below. Here was discovered firmly embedded in the clay a well-preserved skull of a

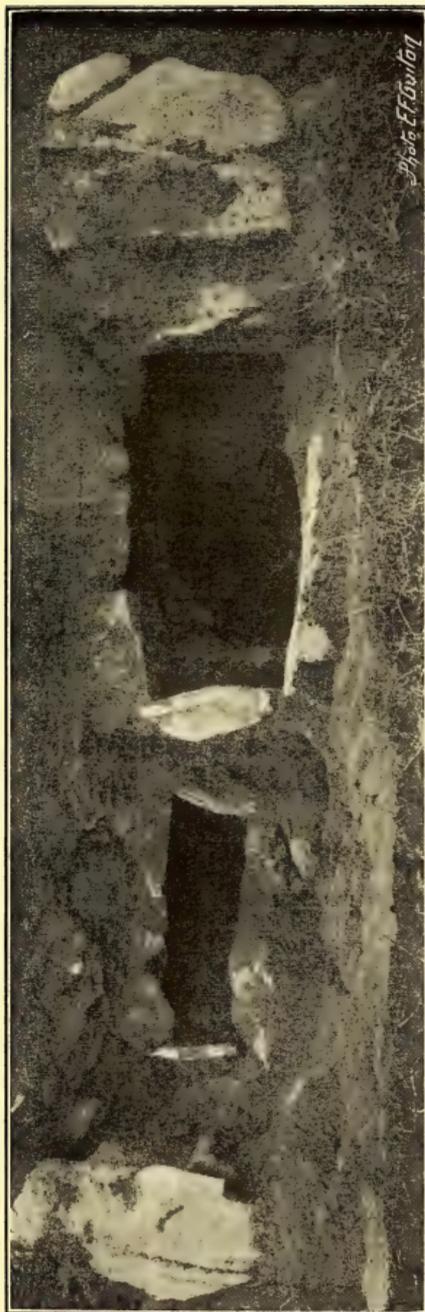


Photo E. E. Doolan

VIEW OF ONE OF THE GRAVES.—“LA MOTTE” (GREEN ISLAND).

strongly dolicho-cephalic type. Two small pebble instruments bevelled were near the skull.

Some few days afterwards two more sepulchral chambers were found, adjoining those just mentioned, in which were human thigh bones in a fair state of preservation and fragmentary remains of skulls.

When the exploration is resumed it is to be hoped we may be able to obtain evidence in the way of associated relics that will permit of determining the age to which these burial-places belong. In the Neolithic stone age it was usual to bury in a sitting or crouched position. If one may judge by the narrowness of the graves at Green Island, the body must have been buried in an extended position, but on this and other points the evidence is not conclusive and we must suspend judgment until the completion of the exploration.

This is the first time graves of this type have been found in this Island. They are, moreover, rare in these parts of Europe. Recently some very similar constructions have been unearthed in Brittany at Mané Beker-noz, in the parish of St. Pierre-Quiberon. They are adjacent to a ruined dolmen. Curiously enough one of these Brittany graves contains a smaller child's grave as at Green Island, constructed obliquely across the floor. The objects found consist of an urn of roughly made pottery, flint clippings unworked, bevelled pebbles, and a bronze pin. These graves would thus appear to belong to the Bronze Age, probably to the last period of that civilisation.

Jersey, April, 1912.

SUPPLEMENTARY NOTE.—Since writing the above the exploration of Green Island has been completed. In all 15 graves similar in type have been discovered, and two dolicho-cephalic skulls, but few associated objects of importance.

I have just returned from a visit to Mané Beker-noz, and have had the advantage of examining the graves there, as also some of the same type at Bekerville, Quiberon. I have also seen the relics found in these and am inclined to believe that the graves of Green Island are of a much earlier date. But in a small island called Thinic, near St. Pierre-Quiberon, of about the same size as Green Island, there have been discovered 14 graves which bear a stronger resemblance in type to those of Green Island. It is impossible to here discuss the question. A further report will shortly be made to the members of our Society on the subject and it is to be hoped that after full consideration we may be able to arrive at some definite conclusions.

May 30th, 1912.

E. T. N.

“ARE GUERNSEY BIRDS BRITISH?”

A Statement of the opinions of Naturalists on the subject as gathered from a Correspondence in the “*Zoologist*” of 1872.

BY BASIL T. ROWSWELL.

Read at the Monthly Meeting of the Society, Nov. 15th, 1911.

A FEW months ago Mr. Pitts put into my hands the volume of the *Zoologist* for 1872, and glancing through its pages I found it contained a number of Ornithological Notes from Guernsey contributed by Mr. Cecil Smith, the author of *The Birds of Guernsey and the Neighbouring Islands, Alderney, Sark, Herm and Jethou*, a useful book published in 1879; and by [Miss] C. B. Carey, of Candie. I found in addition that the volume also contained a very interesting correspondence which arose out of a query of Miss Carey's in the May Number as to whether Guernsey birds were British. Several gentlemen, well known in the World of Natural History, took part in the correspondence which ran through six numbers of the *Zoologist*. Believing that extracts from these letters, showing the individual opinion of the writers on the subject, would prove interesting to the Members of our Society generally, and not to those of the Ornithological Section alone, I went carefully through the correspondence with a view to giving, at one of the monthly meetings, the gist of what those men of science thought about it.

As you will see from what follows the sore point was that of Geographical position. The Channel Islands, geographically considered, are certainly more French than English as any map of Europe very plainly declares, while occasionally in unusually clear weather it is not necessary even to produce a map to prove this. On such days (and they are all too rare) what a magnificent panorama we Guernsey people are privileged to feast our eyes upon. From our central position the whole of the Norman Archipelago lies spread out in beauty before us. Probably from nowhere else can it be seen to such perfection. But the view

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also includes a long stretch of land which we know to be part of "la belle France," and then is borne in upon us, as perhaps at no other time, the fact of our nearness to French soil. We look in vain for a bit of old England; while here, close at hand, almost within touching distance as it seems, are the smiling cliffs and dales of a land with which we do not claim nationality much as we may love it as a holiday resort. No, we Channel Islanders, I take it, are one and all proud to be part and parcel of the great British Empire—proud to be natives of what are, if fragments only, the oldest bits of the English Crown.

But I am digressing and must proceed with the subject matter of this paper. Miss Constance Bertie Carey who originated the correspondence, and is often quoted by Cecil Smith in the "Birds of Guernsey," lived at Candie and was the youngest daughter of Sir Stafford Carey who was Bailiff of Guernsey from 1845 to 1883. Miss Carey, who was only 18 years of age at the time and evidently a very promising young Naturalist, died on January 7th, 1877, at the premature age of 23 years.

Miss Carey's letter to the *Zoologist* (May, 1872, page 3,066) ran as follows:—

"Are Guernsey Birds British?—This seems to me to be rather a puzzling question, because in some respects the birds differ from the British; I mean not individually, but that birds are found here which are rare in Britain, and common birds in Britain are not always found here. This is rather important, because if it is decided that Guernsey birds are not British, those shot here cannot appear in British collections. It all depends whether the Channel Islands are within the imaginary boundary beyond which all birds that are shot are not considered British; then this imaginary line cannot extend equally round Britain, for Calais is nearer England than we are here, and so French birds would be British. I shall be glad of a solution to my difficulty.

"C. B. CAREY."

To this the Editor of the *Zoologist* (the late Edward Newman) added: "I shall be glad to receive opinions from more competent Ornithologists before I give my own."

The first reply to Miss Carey's query came from the Rev. O. Pickard-Cambridge, of Bloxworth Rectory, Blandford, and appeared in the June "Zoologist" (page 3,109). He considered it, not a *naturalist's* but a *collector's* question, and thought the matter would be easy of solution if an agreement could be arrived at as to a definition of the word "British." "British" might mean found in a state of nature, *first*, in the British Empire, or, *secondly*, merely in Great Britain and Ireland, with their adjacent islets. As no col-

lectors that ever he heard of used the word in the first of these meanings, if the latter were the one meant it only remained to ask whether, *geographically*, the Channel Islands were part of England. In his opinion—geographically the Channel Islands belonged to the French mainland. Miss Carey's imaginary boundary line was an idea quite new to him. Of course the question whether a bird or insect was British or not had a considerable amount of legitimate and scientific interest, but the extreme to which "collectors" had carried it had done great mischief to the pursuit of Natural History generally. What could be more absurd, from a scientific point of view, than that a bird, for instance, which, on account of its abundance on the southern side of the Channel, might be procured there for sixpence, should command some fabulous sum when found on the northern side, and merely because of its *rare occurrence* there.

Miss Carey continued the discussion the following month (*Zoologist*, July, page 3,145) and criticized Mr. Pickard-Cambridge's definition of "British" as "merely Great Britain and the adjacent islets," by asking if the Shetland Isles were included in the definition, and added, "though the Channel Islands *are* nearer to France than to England, they are nearer to England than the Shetland Isles are to Scotland, so that if a line extended equally round Great Britain, which included the Shetland Isles, the Channel Islands would be included also." Miss Carey's idea of the imaginary line was that it should be at a certain equal distance all round Great Britain, and that either all objects obtained within that line should be considered British, whether the land was under foreign rule or not; or that where the line came across foreign countries it should not take effect, so that although Calais might be within the line, yet because it was not part of the British empire the birds and other Natural History objects collected there would not be called British.

Mr. Pickard-Cambridge, replying to Miss Carey's criticism (*Zoologist*, August, page 3,183) regretted his answer had not been made clearer. He first assumed, hypothetically, that by "British" people in general meant "found in Great Britain and Ireland and their adjacent islets"; but the inference from what followed was, that *nothing could be considered "British" in a scientific sense except the productions of Great Britain, and such islands as belonged geographically to it.* Under this rule, he considered, that the actual distance

of an islet from the mainland was but of secondary importance. The Shetlands he looked upon as certainly part of Great Britain in a geographical sense, as in the same sense he held the Channel Islands to be part of France, and he conceived that French naturalists should include the productions of the Channel Islands in their general works on French Natural History. He concluded with the suggestion that to allay the fears of Channel Islanders about being "left out in the cold" by both French and English naturalists, a simple solution of all difficulties would be, as it seemed to him, for British Naturalists always to include the Channel Islands in their works under such titles as "Birds (or what not) of Great Britain, Ireland, and the Channel Islands." In that way the word "British" would retain its legitimate signification and no one would be misled.

"Clermont" [35, Hill Street, Berkeley Square], in the same No. of the *Zoologist* joined the ranks of the disputants but changed the question into: "*Are the Channel Islands British?*" He held that anyone speaking as a naturalist, and wishing to use accurate terms, would call an animal or a plant British which was indigenous to the geographical group of the British Islands. Defining the British Islands as including "numerous smaller islands at varying distances from the coasts of the larger islands, but always nearer to some part of those coasts than to any part of the continent, he adds, "but this group does not include the Channel Islands which are British politically only. By nature and according to Geography they are as much French as the Scilly Islands and Orkneys are British, so that their natural productions must, as I think, be assigned to the French province." . . . It can only be the desire to magnify the zoological and botanical treasures of this country, and to enrich their cabinets, which tempts English collectors arbitrarily, and without regard to the geographical claims of France, to annex the Channel Islands to the British group."

In an Editorial note at the end of Mr. Pickard-Cambridge's second letter, extracts from which I was reading two minutes ago, Mr. Newman said he most certainly accepted Mr. Cambridge's "simple solution" that British naturalists should include the Channel Islands in their works; botanists, so far as he knew, had done so already and the plan seemed to have met with general acceptance; therefore as regarded the literature of British Natural History there appeared no great difficulty about birds.

This Editorial note called forth the displeasure of Mr. Edwin Birchall, of Leeds, who, in the November number of the *Zoologist* (page 3,304) went into the matter at some length. He regretted that Mr. Newman should have given even a qualified approval to the proposal for including the productions of the Channel Islands in the British fauna, being unable to see that any useful end would be served thereby, and the revolutionizing of their lists would be a real inconvenience which, he thought, they should not be called upon to undergo without good cause being shown. If the productions of Guernsey and Jersey were to be added to the British lists because those islands were British possessions, we must also, he contended, admit the productions of Gibraltar, Malta and Heligoland. Heligoland, in fact, in his opinion, had a better claim to be considered British than the Channel Islands, the sea separating it from England being everywhere shallow, and there could be no doubt that long after the formation of the English Channel there was a land communication with the Continent across the space where the German Ocean now rolled, of which land the speck called Heligoland was the last remnant. Although with few, and those mostly doubtful exceptions, all the animals and plants of the British Islands were identical with Continental species; still the sea was a definite boundary, and species which had been subjected for long periods to insular conditions had in many cases acquired peculiarities which marked them as strictly British. The insects of the Channel Islands, said Mr. Birchall, did not exhibit British peculiarities; they did not vary from the form of the same species in Normandy and in other parts of France, and had no connection with British insects, except as being also members of the European fauna. Waxing prophetic, Mr. Birchall went on to say that "should Mr. Cambridge's 'simple solution' be adopted, unless I greatly underrate the energy and intelligence of our collectors and dealers, so prolific would the Channel Islands be found (in Lepidoptera at all events) that I should not be surprised if the whole European fauna, of some six thousand species, found its way through the side-door it is proposed to open. Our lists would then resemble a comet, the insects of Great Britain and Ireland representing the nucleus, those of the Channel Islands its portentous tail!"

Was this meant to be complimentary or otherwise to the Channel Islands? Miss Carey evidently looked upon the remark as complimentary to the islands, for in the December *Zoologist* (page 3,324) she wrote to the effect that she thought

insect collectors would be only too glad of the chance to enlarge their collections till they equalled all other European collections together, from the rich stores to be found in an area so *comparatively* small as that of the Channel Islands instead of having to go all over Europe for the purpose. She thanked Mr. Pickard-Cambridge for his solution of the vexed question, "Are Guernsey Birds British?" which she considered the right one, viz., that British Naturalists should include these islands in their works and title them as . . . of Great Britain, Ireland and the Channel Islands, including the Isle of Man. This, she believed, was the way the Acts of Parliament put it, and added, "Here we are put before the Isle of Man which nobody doubts to be British."

The lengthy correspondence ended in this number of the Magazine (December, page 3,324) with the Editor's pronouncement on the subject as follows :—

"The question introduced to our notice by Miss Carey has gradually assumed a wider range, until Mr. Birchall in the November *Zoologist* has totally altered it, in this manner, 'Are the Channel Islands British?' and has charged me with giving 'a qualified assent to the affirmative.' My friend has also chosen insects, instead of birds, as the branch of Natural History for enforcing his views. However numerous the lines of argument opened up by these deviations from the original proposition, I believe they will all be comprehended in the following formula:—'Seeing that all our botanists include the Channel Islands in the British Flora, ought we, or ought we not, to include them in our British Fauna.' My own opinion has not been very strongly in favour of either course; but I have felt a leaning towards a uniformity of practice, a leaning which has increased, and has become more decided with each successive expression of opinion, until Mr. Birchall, the last in order of time, settles the matter to my entire satisfaction, and I am fully prepared to include the Channel Islands in the British Fauna, or more correctly speaking, in the Fauna of the United Kingdom. . . . Should the extension of our Fauna to the Channel Islands . . . induce our entomologists to adopt a uniform nomenclature, that alone would be a sufficient reason for adopting the course suggested. But there is another good that is certain to result. We have a multitude of young entomologists who possess abundant means, and who are anxious to obtain species that they have failed to capture on English soil. I will particularly mention two, *Daphidice* [Bath White] and *Lathonia* [Queen of Spain Fritillary]: they willingly give 25s. or 30s. apiece for specimens of either of these, provided the dealer will assert that they are 'British'; and there are swarms of dealers who will gladly supply any number of specimens on the required terms and conditions. I cannot take upon myself to read a moral lecture to the impostors or the dupes. I fancy it would be hard to resist the temptation of selling copies of the *Zoologist* at two pounds each if there were buyers foolish enough to give such a price, even supposing I were disposed to assert there were some *fancied* superiority in the coveted copy. I italicise the word *fancied*, because there is no *real* difference between one copy and another of the *Zoologist*, or between English and European specimens of the butterflies in question. Let us suppose Guernsey *Daphidices*, by the amended usage, become British. Why

next year I should receive the following note from Mr. Birchall himself:—"How are you off for Daplidice? I have taken a few hundreds in Guernsey this summer, and will send you a boxfull for distribution on your Friday evenings if you like; and, by the way, I have lots of Lathonias, if you care for them; also a score or two of *D. Euphorbiæ*. How many shall I send of each? What would be the effect on the dealers, the buyers and the sellers? A bombshell bursting among them could not produce greater consternation. After the first panic, reducing the quotations of Daplidices and Lathonias to zero, they would probably look upwards, and finally settle at threepence or sixpence each. The little island of Heligoland is introduced by Mr. Birchall as a kind of stumbling-block in the way of such an arrangement: by all means let us include the stumbling-block also. Seeing that my friend can show that Heligoland is British in the same sense as Guernsey and Jersey—and prove that it is included in the 'United Kingdom,' as intended by our Acts of Parliament,—by all manner of means let us call it British, and incorporate its Fauna with that of Great Britain properly so called.* With regard to Gibraltar and Malta, we had better defer the question of annexing *their* Fauna until botanists have annexed their Flora, when we may with considerable show of propriety consider such a step. It seems incumbent on those who advocate the adoption with our Fauna of a different course from that universally accepted for our Flora, to state explicitly the grounds for maintaining such a usage. Does any other country in the world adopt such a course? Does any country in the world consider its plants indigenous and the creatures that feed on them exotic? But my friend says 'the sea is a definite boundary'; true, yet this argument would not only eliminate the Channel Islands, but would cut off all the Scottish islands, the Isle of Man, Ireland, and even the Isle of Wight."

EDWARD NEWMAN.

And so ended the controversy, ladies and gentlemen, at any rate as far as this volume of the *Zoologist* is concerned.

As regards my own opinion on the subject I have very little to say, but I should like to state that I incline to Mr. Pickard-Cambridge's view of the matter and think his "simple solution" the proper course to be followed by both English and French Naturalists who may turn their attention to the Channel Islands. In scientific matters sentiment should be made to stand on one side and facts be stared squarely in the face.

Geographically considered the Channel Islands are certainly more French than English, and if there be any difference in their Fauna and Flora one would naturally, as it seems to me, expect to find it more nearly agreeing with that of Normandy and Brittany than with that of England, just as we should as naturally expect the productions of the Scilly Islands and the Isle of Wight to more closely resemble the productions of England than of France.

* Heligoland, of course, as we all are aware, is no longer British. It was acquired by Germany in 1890.

If instances be asked for of the Channel Islands "natural" connection with the French mainland and with southern rather than northern waters, I may cite the occurrence here of the *Ormer* and of *Scyllarus Arctus*, neither of which species I believe is found on the English side of the Channel. And in botany we have the *Dwarf Adders Tongue* fern, the little *Quillwort* (*Isoetes Hystrix*) and the *Hare's-Tail Grass*, all denizens of southern latitudes. And there is the rare *Tenby Snail* which properly belongs to the Canary Islands, but which, to quote from Mr. Marquand, "lives in thousands on the green sward at Vazon Bay. As a British shell it is confined to a single spot in England, one in Wales and one in Ireland, so that it belongs to the aristocracy of our molluscan fauna." In Ornithology, however, I am not aware that any birds visit these islands which are not known in Great Britain, though perhaps some are more common with us than in England.

But the Channel Islands ARE British—the oldest bits of the British Crown—and because of that fact, as I think, British Naturalists might with reason include the productions of the little Norman Archipelago in works on British Natural History, being careful, however, to state the fact on the title page of the work in some such form as that suggested by Mr. Pickard-Cambridge, viz., "Birds (or what not) of Great Britain, Ireland, and the Channel Islands."

That some scientific writers and compilers take it for granted that the Channel Islands should be included in works dealing essentially with Great Britain and Ireland, and that too without any mention of the fact on the title-page, I may call attention to "British Rainfall," an annual publication which always gives the rainfall of these islands in its pages. Its title page is worded: "On the Distribution of Rain in Space and Time over the British Isles during the Year . . . as recorded by nearly 5,000 Observers in Great Britain and Ireland, and discussed with articles upon various branches of Rainfall work, by Hugh Robert Mill."

And again the Channel Islands are always included in the summary of the previous day's weather over the British Islands published in the Daily Weather Report of the Meteorological Office, London. For example, the Notes on Tuesday, September 5th, last ran: "During yesterday temperature was very irregular over the British Isles. At Harrogate it did not exceed 57 deg., while Bath reached 79 deg., and Jersey 88 deg." And on Thursday,

September 14th : "During yesterday temperature reached 74 deg. at Jersey, but in most other localities it remained below 65 deg. ; at a number of stations the maxima were 54 deg. to 60 deg. Rain fell in nearly all parts of the Kingdom, as a rule in very small quantities, only Dover and London registering half-an-inch. Jersey reports $7\frac{3}{4}$ hours of bright sunshine, and Douglas 7 hours, but generally the records were very small, none in many instances." Again on Saturday, October 14th, the remarks included the following : "Rain has fallen in many parts of the kingdom, heavily in some south-eastern and southern localities. At Dover the measurement was 1.03 in., and at Jersey, where a thunderstorm occurred, as much as 2.42 in.

And just to give one more case in point let me mention that well-known work on English Botany—Sowerby. The Channel Islands certainly figure in this standard work and yet its title page reads : "English Botany ; or, Coloured figures of British Plants." Some of the "British Plants" indeed figured in Sowerby are not found in the British Islands properly so called at all.

On the other hand and in perfect agreement with Mr. Pickard-Cambridge's "simple solution" a book was published in 1867, the author of which, Samuel Octavius Gray, worded his title page : "British Sea-weeds : An Introduction to the Study of the Marine Algae of Great Britain, Ireland and the Channel Islands." And in 1879 the Rev. W. A. Leighton, B.A., wrote a work entitled, "The Lichen-flora of Great Britain, Ireland and the Channel Islands."

A few days ago while referring to a paper on "Crustacea," by our friend Mr. Joseph Sinel, in one of the early volumes of our Society's *Transactions* (1889), I chanced upon the following statement which speaks for itself. After quoting from the *Zoologist* and other authorities Mr. Sinel continued : "In speaking of "British Waters" I must here remind my friends that at the time of the publication of the above records these included the whole of the English Channel : the lines laid down at one of the recent meetings of the British Association now place these islands [the Channel Islands] beyond the boundary." In spite of this, however, the "Ray Society" has quite recently published a work entitled "A Monograph of the British Annelids," by Professor William C. McIntosh, which contains some beautiful coloured illustrations of marine worms found at Guernsey, Herm and Jersey !

In conclusion, ladies and gentlemen, I hope you will agree with me that in spite of the fact that, considered

geographically, the Channel Islands are certainly more French than English and should from their natural position be included in books on French Natural History, there are also very good reasons for including them in all books on British Natural History as well, in the way suggested by the Rev. Pickard-Cambridge with whose "simple solution" I have great sympathy.

THE RAINFALL OF GUERNSEY FOR THE YEAR 1911.

BY MR. A. COLLENETTE, F.C.S.

ALTHOUGH not as wet as 1910, 1911 was wetter than the average. The total was 9 inches less than that of 1910, and 0"68 above the average.

In this the rule, as far as one has been established, of the driest year in the period being followed by two successive years of greater rainfall the second of which is the highest of the period and being followed by a considerable drop, has again proved correct.

As we have now passed the years of minimum and maximum falls, we may expect a slight increase for two years, but no very great difference from the average.

As regards the detail of the year, the months range themselves as 6 dry and 6 wet. June was the only wet summer month, and May, July and August were very dry. October, November and December were very wet, and contributed together 55% of the year's total instead of 37%.

December was the wettest month with 8.33 inches. This was just twice its average (4.16 inches), but was not a record, as this month had a previous record of 11.47 inches. The three wettest months gave progressively increasing falls; thus October gave 5.4 inches; November 6.7 inches, and December, 8.3 inches; a total of 20 inches.

Of the last 100 days of the year no fewer than 82 were wet.

As regards the distribution of rainfall over the year, June, October, November and December contributed 66% of the total, leaving only 34% for the remaining eight months. May and August gave each 1.6% or together 3.2% instead of 12%. These were the least wet.

There have been changes in the stations contributing returns. For the moment we have no returns from King's Mills, these having ceased at the end of August. On the other hand I am now getting regular returns from St. George

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(an old station revived), and Mont Saint. No total can be given for these three stations, but the (Table II.) gives the monthly totals of completed months.

I consider that the results obtained this year are, in the main, consistent with those of former years, but there are differences. As compared with last year the southerly and westerly stations are nearer to the quantities collected in town and those to the north have diminished. This, of course, is largely due to the direction of the prevailing winds. The variation amounts to 9 inches and the range in wet days is 38.

The island, as a whole, has had a mean fall of $33\frac{1}{2}$ inches, and the fall at Hautnez fairly represents the mean of all the stations.

Mr. Rowsell has handed me in returns from Alderney and Sark, as well as those taken with a gauge on the roof of the Library. From these returns it will be seen that the Guille-Allès roof has collected 35.55 inches, about $1\frac{1}{2}$ inches less than at St. Martin's Road. Sark has had 10 inches less and Alderney 7 inches less. The detail of the months' totals are consistent.

TABLE I.
RAINFALL AT ST. MARTIN'S ROAD, 1911.
Inches.

Months.	Rainfall.			Previous Records.		Greatest fall in one day.		Proportion of the month's falls to the year's total.		Wet Days.	
	Monthly Tls.		Difference of 1911 from Averages.	Monthly Tls.		Amount.	Day.	1911.	Averages.	1911.	Averages.
	1911.	69 years' Averages.		Highest.	Lowest.						
January ..	2.04	3.74	- 1.70	7.90	0.79	0.74	11th	5.5	10.3	18	19
February..	1.69	2.63	- 0.94	6.19	0.08	0.41	24th	4.5	7.2	15	15
March	2.67	2.54	+ 0.13	6.44	0.34	0.46	17th	7.3	6.9	23	16
April	2.79	2.33	+ 0.46	5.13	0.23	0.65	5th	7.5	6.3	20	14
May	0.60	2.09	- 1.49	4.64	0.02	0.40	3rd	1.6	5.6	7	11
June	4.02	2.05	+ 1.97	5.03	0.43	1.69	8th	10.8	5.5	14	11
July	0.88	2.12	- 1.24	6.58	0.12	0.64	25th	2.3	5.8	5	11
August ..	0.59	2.37	- 1.78	6.01	0.33	0.30	28th	1.6	6.5	6	12
September	1.35	2.99	- 1.64	9.39	0.25	0.23	23rd	3.6	8.2	9	14
October ..	5.42	4.93	+ 0.49	11.04	1.92	1.32	27th	14.7	11.4	23	19
November	6.73	4.48	+ 2.25	9.08	0.88	1.24	11th	18.2	12.5	25	19
December	8.33	4.16	+ 4.17	11.47	0.80	0.77	22nd	22.4	13.6	28	19
The Year..	37.11	36.43	+ 0.68	56.96	25.04	1.69	June	100.0	100.0	193	180

TABLE II.
DISTRIBUTION OF RAINFALL OVER THE ISLAND 1911.—Inches.

Months.	South & South East.			East.		Central and West.			North.	South-West.		Whole Island
	St. Martin's Road.	Les Blanchés, St. Martin's.	Hautnez, Forest.	Villa Carey, Grange.	Osborne Villa, Rohais.	King's Mills.	St. George.	Mont Saint.	Fort Doyle.	Les Hêches, St. Peter-in-the-Wood.	Villiaze, Forest.	Means of all Stations.
January	2·04	2·01	1·78	1·86	1·94	1·68	—	—	1·72	1·54	1·68	1·80
February....	1·69	1·36	1·33	1·62	1·63	1·29	—	—	1·21	1·07	1·51	1·41
March	2·67	2·56	2·39	3·06	2·80	2·67	—	—	2·31	2·07	2·34	2·54
April	2·79	1·99	1·73	2·82	2·94	2·43	—	—	1·80	1·81	1·59	2·20
May	0·60	0·51	0·41	0·50	0·50	0·40	—	0·27	0·32	0·41	0·46	0·43
June	4·02	3·61	4·14	3·12	2·83	2·92	—	2·70	2·08	3·56	3·78	3·27
July	0·88	0·78	0·84	0·75	0·58	0·66	0·40	0·73	0·45	0·99	0·93	0·72
August	0·59	0·62	0·62	0·58	0·55	0·72	—	0·65	0·19	0·56	0·57	0·56
September ..	1·35	1·24	1·31	1·33	1·23	—	—	0·94	0·92	1·08	1·35	1·19
October	5·42	5·59	4·89	4·16	4·88	—	5·40	4·95	4·00	4·67	4·49	4·84
November...	6·73	6·40	6·19	6·76	6·96	—	6·14	5·00	6·07	5·88	5·91	6·20
December...	8·33	8·07	7·94	8·16	8·60	—	7·30	7·26	6·90	8·76	6·95	7·82
The Year...	37·11	34·75	33·57	34·72	35·44	—	—	—	27·97	32·41	31·56	33·44
Comparisons	100	93	90	93	95	Incomplete.			75	88	85	90
Wet Days...	193	182	176	171	176	Incomplete.			152	160	169	172
Observers...	Mr. A. Collenette.	Mr. B. Rowsell.	Waterworks Co.	Dr. F. Carey.	Mr. T. Guilbert.	Mr. Stanley Gardiner.	Rev. Stevens Guille.	Mr. S. C. Curtis.	Mr. E. O. Calford.	Mr. F. Lilley.	Waterworks Co.	

TABLE III.

PREVIOUS YEARS OF LOWEST RAINFALL WITH THE 5 YEARS BEFORE AND AFTER THE MINIMA.

In.	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
56											
46								48.04			
36	34.98						43.41				
26		29.29	30.42	30.36	31.90				31.22	32.50	34.47
						25.03					
In.	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875
56								56.96			
46	43.30	44.43									
36			37.07	34.76			36.26		37.72		
26					32.99					35.38	36.28
						27.05					
In.	1903	1904	1905	1906	1907	1908	1909	1910	1911		
56											
46								46.16			
36	40.88	37.72							37.11		
26			34.12	33.43	34.00		34.00				
						26.22					

TABLE IV.
 GUILLE-ALLÈS LIBRARY, SARK AND ALDERNEY, RAINFALL, 1911.

	GUILLE-ALLÈS LIBRARY.				SARK (VALLÉE DU CREUX).				ALDERNEY (LE HURET).			
	Total.	Heaviest Fall.	Rain Days.	Falls of 0.50 and above.	Total.	Heaviest Falls.	Rain Days.	Falls of 0.50 and above.	Total.	Heaviest Fall.	Rain Days.	Falls of 0.50 and above.
	in.	in.			in.	in.			in.	in.		
January	1.87	0.74	17	1	1.46	0.62	11	1	1.60	0.78	13	1
February	1.58	0.35	15	—	1.12	0.30	13	—	1.03	0.21	12	—
March	2.37	0.45	19	—	1.97	0.41	18	—	2.10	0.51	16	1
April	2.85	0.53	13	1	1.59	0.31	11	—	2.17	0.42	18	—
May	0.50	0.36	4	—	0.89	0.44	5	—	0.77	0.27	6	—
June	3.17	1.19	13	2	2.53	0.76	13	2	1.54	0.41	10	—
July	0.87	0.70	4	1	0.64	0.52	3	1	0.73	0.61	2	1
August	0.70	0.28	5	—	0.56	0.27	4	—	0.49	0.20	6	—
September	1.31	0.28	10	—	0.93	0.21	8	—	0.89	0.27	8	—
October	5.06	1.30	21	2	5.06	1.40	19	3	4.39	1.04	18	2
November	6.88	1.23	21	6	4.32	0.86	19	2	6.08	1.21	22	4
December	8.39	0.74	29	8	5.64	0.55	28	1	7.33	0.73	27	5
Totals	35.55	1.30	171	21	26.71	1.40	152	10	29.12	1.21	158	14
						October 27					November 11th	

Sark Observer : Capt. J. H. Henry.

Alderney Observer : Mr. W. J. Picot.

RAINFALL AT GUERNSEY STATIONS.
DROUGHTS AND PARTIAL DROUGHTS.

1911.	Brooklyn.	Les Blanchés.	Hautnez.	Grange, Villa Carey.	Rohais.	King's Mills.	St. George.	L'Anresse.	Le Héchet, St. Peter's.	Villaze, St. Saviour's.
Commencing:										
January 27	14	14	14	14	14	15	—	21	20	14
February	—	—	—	—	—	25	—	35	26	—
February 13	—	—	19	19	—	—	—	—	—	—
July 1	23	23	23	25	23	24	24	24	24	24
February 21	25	25	—	—	25	—	—	—	—	25
July 31	24	24	24	24	24	24	25	25	25	24
August 30	20	21	21	21	20	21	21	20	21	21
June 8	1.69	1.35	2.02	1.10	0.73	0.80	—	—	1.43	1.48
October 27	1.32	1.40	1.20	1.37	1.04	—	1.11	0.88	1.35	1.18
November 11	1.24	1.07	1.12	1.31	1.39	—	1.35	1.30	0.90	1.12

PARTIAL.

HEAVY FALLS.

THE SUNSHINE OF GUERNSEY FOR THE YEAR 1911.

BY MR. A. COLLENETTE, F.C.S.

THE YEAR 1911 was a sunny year, its total, 2,121 hours, being 348 hours in excess of that of 1910, and practically 200 hours over the average of 18 years.

The year has had the effect of increasing the average from 1,912 to 1,923 hours.

Five years' totals have exceeded 2,000 hours (see table 2), and of those only one, 1899, has exceeded the total of 1911. The year is therefore the second best year we have experienced, as far as the records go.

The year is also remarkable in that it has given the highest monthly total so far reached. July, which had a previous record of 340 hours, and was the record among the months, has beaten its own record by 42 hours, and we now have as the highest monthly total, 382 hours.

Although this is the only record among the months, no fewer than nine have exceeded their averages.

The three months showing deficits are February, March and October.

July's total distributed over the 31 days gives a mean of 12.6 hours. The average being 8.9 hours it follows that July gave a daily excess of practically $3\frac{1}{2}$ hours.

The five months, May to September inclusive, contributed $68\frac{1}{3}\%$ of the year's total, hence were responsible for the year's surplus.

May, June and July were without a sunless day, but the winter months exceeded their average sunless days and left the year, its excess notwithstanding, with 59 or 5 more than is usual.

Experience has shown that 45% of the year's possible sunshine is rarely passed. This year we have recorded 48% , while the highest record reached 50% . In table I. it will be seen that five of the 12 months were over 50% ; three over 60% and July reached 79% .

[1911.]

In last year's paper I gave a table showing the progressive reduction in the averages of the summer months, the loss being, in 7 years, 13 hours for May ; 33 for June ; 18 for July ; 12 for August, and 5 September.

I have not repeated the table this year as it is in the possession of the members, but I may state that owing to the increased sunshine the averages have increased and the months have gained as follows: May, 2 hours ; July, 6 hours ; August, 2, and September, 3 hours.

TABLE I.
DURATION OF SUNSHINE AND
Campbell-Stokes

Months.	SUNSHINE.							
	Monthly Totals.			Percentages of the Possible.			Mean Daily Values.	
	1911.	18 Years' Averages.	Highest on Record.	1911.	18 Years' Averages.	Highest on Record.	1911.	18 Years' Averages.
	Hours.	Hours.	Hours.				Hours.	Hours.
January	68·7	58·7	82·5	26	22	31	2·2	1·9
February ..	74·5	84·5	118·9	27	30	42	2·5	3·0
March	122·5	147·2	228·4	33	40	62	3·9	4·7
April	197·6	195·3	260·8	48	47	63	6·5	6·5
May	277·0	250·0	339·4	59	53	72	8·9	7·2
June	255·0	248·0	314·4	53	52	65	8·5	8·3
July	382·0	275·8	382·0*	79	57	79	12·6	8·9
August	285·6	244·6	325·6	64	55	73	9·2	7·9
September ..	236·8	188·6	269·4	63	50	72	7·9	6·3
October	88·7	114·0	154·5	27	35	46	2·8	3·7
November ..	72·0	69·9	113·9	27	26	41	2·4	2·3
December ..	61·0	46·2	71·5	25	18	38	1·9	1·4
The Year ..	2121·0	1922·0	2215 0 1899	48	43	50	5·7	5·2

TABLE I.
PREVALENCE OF CLOUD.
Recording Instrument.

SUNSHINE.			Sunless Days.		Sunniest Days.			CLOUD.	
Difference between 1st and 2nd Columns.	Proportion of the Year's Total.				1911.		Previous Record.	0 to 10.	
	1911.	Averages.	1911.	Averages.	Duration.	Date.		1911.	Averages.
Hours.									
+ 10·0	3·2	3 0	14	10	8·5*	31st	8·2	7·0	6·6
- 10·0	3·5	4·3	10	6	8·5	1st	9·7	6·9	6·2
- 24·7	5·8	7·6	6	3	10·7	22nd	11·9	6·5	5·4
+ 2·3	9·3	10·3	1	1	13·2	24th	13·6	5·7	4·8
+ 27 0	13·0	13·0	0	1	14·5	25th	14·5	3·9	4·5
+ 7·0	12·2	12·8	4	1	14·5	5th	15·6	5·0	4·8
+106·2	18·0	14·6	0	0	15 5*	5th	15·0	2·2	4·5
+ 41·0	13·4	12·7	0	1	14·0	8th	14·4	3·2	4·5
+ 48·2	11·2	9·8	2	1	12·1	7th	12·4	3·9	4·6
- 25·3	4·2	5·9	2	4	8·9	1st	10·8	7·0	5·9
+ 2·1	3·4	3·6	9	7	8·6	1st	8·8	5·5	6·4
+ 14·8	2·8	2·4	11	11	6·3	6th	7·9	7·5	5·8
+199·0	100	100	59	46	15·5	July	15·6	5·3	5·3

* These are New Record

TABLE II.

ANNUAL TOTALS OF SUNSHINE IN GUERNSEY, 1894 to 1911.

		Hours.
Lowest	1894	1724
5 years	1894—1902—1903—1905—1910	from 1700 to 1800
4 years	1896—1897—1901—1907	from 1800 to 1900
3 years	1904—1908—1909	from 1900 to 2000
6 years	1895—1898—1899—1900—1906—1911	over 2000
Highest	1899	2214

TABLE III.
SUNSHINE RECORDS.

Months.	Monthly Totals.		Sunniest Day.		Averages.			
	Highest.	Lowest.	In each Month.	Date.	Sunniest Day.		Gloomiest Day.	
					Mean.	Day.	Mean.	Day.
January	82	28	8·5*	31st, 1911	3·0	26th	0·8	4th
February	119	45	9·7	26th, 1899	4·9	28th	1·5	6th
March	228	84	11·8	30th, 1907	7·0	26th	2·6	25th
April	261	129	13·6	24th, 1905	8·1	24th	4·8	5th
May	339	181	14·7	24th, 1910	10·5	4th	6·0	2nd
June	314	192	15·6	20th, 1905	11·5	4th	6·7	27th
July	382*	187	15·5*	5th, 1911	11·5	4th	6·7	25th
August	326	186	13·9	12th, 1900	10·5	2nd	5·6	27th
September	269	107	12·4	3rd, 1895	7·8	7th	4·5	24th
October	154	85	10·8	1st, 1898	5·1	14th	1·9	30th
November	113	40	8·8	3rd, 1908	3·9	5th	1·0	29th
December	71	18	7·9	25th, 1905	2·7	25th	0·5	16th
The Year	2215	1724	15·6	20th June 1905	11·5	2	0·5	16th Dec.
	1899	1894				June, July.		

* New Records.

NOTES ON THE RAINFALL AT SARK AND ALDERNEY DURING THE YEAR 1911.*

BY BASIL T. ROWSWELL.

IN the matter of weather the year 1911 will be memorable because of more than one unexpected development. In a sense it was a year of surprises—some pleasant, others unpleasant.

For instance, after a mild winter, and when the season being so far advanced (according to the calendar), any possibility of damaging cold occurring seemed altogether impossible, we were visited by a burst of wintry weather of extraordinary severity for the time of year. This was in the early days of April when blizzard-like snowstorms swept over the Bailiwick and blocked many of the country roads in all the islands, while frosts of mid-winter intensity gripped the land on several days. It was a splendid illustration of the well-known proverb which has it that April, normally a genial period, can, upon occasion, provide weather as severe as or even worse than any experienced in the winter months proper.

Then followed one of the most perfect summers as regards heat and dry sunny weather that anyone could possibly wish for. We had been treated to so many unseasonable summers—cold, gloomy and wet—in recent years, that we were not in any way prepared for such a delightful time as the summer of 1911 had in store for us. It took us as much by surprise, but of course in a pleasantly different way, as did the terrible if short-lived cold snap in April. New records for heat and drought were established at many places in England, and the wonderful period did not pass away without leaving its mark on Channel Island weather.

A great heat blast on Friday, September 8th, made that day, both as regards maximum temperature (88·6 deg.) and mean (74·6 deg.) the hottest day at Les Blanchés since observations were begun in January, 1894. July, August and September also, the three months covered by the hot and dry

* The references in these Notes to the Rainfall Station at Les Blanchés are included for the sake of comparing the Sark and Alderney figures with those at a Guernsey Station.—B. T. R.

spell turn out to be the warmest and driest three months of the name in the 18 years, 1894-1911.

At the end of September, such had been the combined effect of the prolonged summer drought and of the dry spring months, the year's rainfall was the smallest at Les Blanchés of the last 18 years. The figures are :—

January to September, 1911	14'68 in.
Previous driest January to September (1908)	16'55 in.
Previous wettest January to September (1897)	29'43 in.
Average of the 10 years, 1894-1903	22'08 in.

But a great change was at hand—had in fact set in before the advent of October, and from being very dry the weather became very wet. The rains began on September 19th and continued with such persistence to the very end of the year, that out of 104 days no fewer than 84 had a measurable rainfall at Les Blanchés. October was very wet, November still more so, while December proved the second wettest month on record at the Guernsey station already quoted—that is since January, 1894. The excessive wetness of both November and December as compared with the previous ten months is well brought out by the fact that of the twelve months' total rainfall at Les Blanchés (34'74 in.), half was measured in the last nine weeks and five days of the year.

As regards temperature, 1911 was the warmest year since 1899; it is, in fact, with 1898 (which had a similar mean temperature) the second warmest year on record at St. Martin's since 1894. In the matter of rainfall 1911 was, the previous year excepted, the wettest twelve months since 1904. It will doubtless be remembered that the year before last (1910) was one of unusually heavy rainfall. At St. Martin's (Les Blanchés) the total reached the very big figure of 45'54 in.

* * * * *

January (1911) was a dry period, and as early in the year as the 12th of that month, a spell of weather giving deficient rainfall set in. It began on the same day all over the Bailiwick and developed into both a "partial" and an "absolute" drought* at Sark and Alderney. At Guernsey (Les Blanchés) we escaped the "absolute" phase—that is we did not attain unto 15 consecutive and absolutely dry days. In both of the smaller islands all the dates in connection with this interval of drought are the same, for the returns supplied by Capt. Henry and Mr. Picot show that at each station it ended on February 17th, and that the rainless period

* See page 332 for a definition of the terms "absolute" and "partial" drought.

(19 days) began and ended respectively on January 26th and February 13th. At Guernsey we experienced only 14 absolutely dry days while the "partial" drought was of 33 days' duration against 37 at Sark and Alderney.

A protracted spell of broken, unsettled weather now followed, but as heavy rainfalls were few and far between the accumulated total for the year continued deficient. As a matter of fact, indeed, as far as Guernsey (Les Blanchés) is concerned, none of the year's rainy intervals was sufficiently wet to bring the total up to the normal until the advent of December, such was the effect of the very dry summer experienced.

At the end of February the two smaller islands ran each other very closely, the total for the two months being 2·58 in. at Sark and 2·63 in. at Alderney, Guernsey (as usual) with 3·37 in. taking the lead. Although the rainfall of the three islands is always in general agreement and easily comparable, interesting differences occur from time to time which make the tabulation and discussion of the returns an instructive study.

On March 6th, a sunless and wet day at Guernsey, and where rain fell continuously from 10 a.m. to 4 p.m. to the amount of 0·23 in. at Les Blanchés, only 0·06 in. was measured at Sark, while Alderney reported the day as having been perfectly dry. Mr. Picot recorded a thunderstorm at Alderney during the evening of the 15th, and lightning was observed in this island. At Jersey, by the way, a severe electrical disturbance with heavy hail storms occurred after sunset of the same day. At St. Aubin's the rainfall amounted to 0·15 in.

April began well as regards temperature. We thought we had done with wintry weather in any shape or form and were congratulating ourselves on having enjoyed a mild season when cold of such bitter intensity for the time of year developed as probably to create a record in local meteorological annals. Fortunately for crops and vegetation generally, the keenest part of the terrible wintry blast with its accompaniment of ice and snow was of short duration, for the new spring growth was well advanced when, without warning, the cold snap rushed over the Channel Islands and wrought havoc amongst the young and tender shoots of trees, shrubs and crops in all directions. The worst day was Thursday, the 6th. At Guernsey (Les Blanchés) the *mean* temperature actually worked out below the freezing point, viz. at 30·2 deg., and the maximum and minimum respectively was 32·6 deg. and

28·2 deg.! The islands on this day were literally buried in snow drifts and bound fast in the iron grip of a severe frost.

Writing from Sark a correspondent to the *Evening Press* said: "On Wednesday the 5th, snow fell during the day. Towards evening it began to freeze. In the night snow fell continually, making it several inches deep. In places where the snow had been driven by the wind there was a depth of thirty inches. On Thursday the snowstorm continued, some very heavy showers falling during the morning. . . . Sark had not experienced such weather for the last sixteen or eighteen years. The snowstorm practically ruined the flowers that were so unusually advanced."

From Alderney the report for Wednesday, the 5th, was "great snowfall at night," and for the following day, "more snow."

The snowfall spread itself over three days—4th to the 6th—as shown in the following Table where the amounts (in water) measured in the different islands are given. It will be noticed by the way that no precipitation was recorded at Sark for the 4th, and that altogether much less snow fell in that island than at Guernsey and Alderney.

	GUERNSEY (Les Blanchés).	SARK (Vallée du Creux).	ALDERNEY (Le Huret).
April 4th (Tuesday)	0·13 in.	—	0·09 in.
„ 5th (Wednesday)...	0·29 in.	0·10 in.	0·42 in.
„ 6th (Thursday) ...	0·18 in.	0·26 in.	0·15 in.
	—————	—————	—————
Totals	0·60 in.	0·36 in.	0·66 in.

As roughly 0·08 in. of water represents one inch of snow, the total depth at Guernsey and Alderney in sheltered places must have been about seven or eight inches and at Sark from four to five. The drifts, however, ran into feet in all the islands.

A week of absolutely dry weather everywhere (April 11th to 17th) followed the cold snap, after which unsettled conditions developed and the month ended wet.

After rumbling in the distance for some time a violent thunderstorm burst over Sark at mid-day on Wednesday, May 10th, and raged for close upon an hour accompanied by great darkness and a downpour of rain and hail, the hail being of abnormal size. Places were flooded by the rush of water and at a farm at Le Port chickens were drowned. "Strange to say, but a small shower fell at Little Sark, nothing to hinder

farming operations." The storm deposited as much as 0·44 in. of water in Capt. Henry's gauge at the Vallée du Creux, but at Guernsey, where thick fog prevailed and the electrical disturbance was slight, only 0·05 in. of rain fell at Les Blanchés.

Alderney escaped the storm and shower altogether, but not so on Thursday, the 18th, when thundery conditions having again developed over the Bailiwick, that island lay in the track of the electrical disturbance and 0·25 in. of rain fell at 5 a.m. A paltry 0·02 in. of rain fell at Sark on this occasion, but none at Guernsey, although distant thunder was heard between 4 and 6 a.m.

The whole of the last half of May was very dry everywhere, and indeed the month as a whole was decidedly a period of drought; it was also pleasantly warm and sunny. These conditions spread into June. The first fortnight in fact would have been almost rainless but for a terrific thunderstorm which prevailed for five hours on the evening of Thursday, the 8th. At Guernsey (Les Blanchés) the downpour amounted to 1·35 in. and during the height of the storm, "Montville," a large and at the moment untenanted house at Les Vardés, was struck by the electric fluid and gutted. At Sark the rainfall was much less heavy being only 0·76 in. Alderney was not involved in the rain area at all for Mr. Picot remarked under that day's date: "tantalizing heavy thunderstorm in S.W.; no rain here." As far as Guernsey is concerned this was the worst summer thunderstorm experienced for many years.

As a consequence of Alderney having escaped the rain of this disastrous storm that island enjoyed four complete weeks of absolutely dry weather, for the returns show that no rain at all fell there during the twenty-eight days ended June 14th. This was the longest "absolute" drought recorded in the islands during the year.

Beginning on June 15th rain fell at all the stations, and to the end of the month unsettled weather prevailed with frequent copious showers. This period included the day of the King's Coronation celebrations, Thursday, the 22nd, the festivities in connection with which were marred in the three islands by much rain. At Guernsey, where the day was sunless, 0·41 in. of rain fell at Les Blanchés; at Sark and Alderney the amount was 0·26 in.

July was an ideal summer month—very warm as well as very dry. At Guernsey (Les Blanchés) and Sark no rain at all fell until the 24th, but during the night from the 25th-

26th, a thunderstorm brought the drought to a temporary end with a rainfall of over half-an-inch at all the stations. It proved a very acceptable rainfall, coming as it did after more than three weeks of hot, rainless weather. Writing about it Mr. Picot said: "Heavy thunderstorm at 2 a.m.; a boon to everybody." Another electrical disturbance, but with much smaller rainfall, passed across the islands on Saturday afternoon, the 29th, the peculiarity in connection with which was the occurrence of a violent whirlwind and dust-storm which immediately preceded the dash of rain. The enormous quantity of dust whirled up by the wind was a striking feature of the phenomenon, and to those exposed to the brunt of the squall the dust was suffocating in its violence. The storm, which was of the line-squall type, was afterwards traced right across the British Isles. From the recorded observations it is shown to have "first struck the extreme end of Cornwall about 2 p.m. on July 29th, and passed across Shetland at 3 p.m. the next day." At Guernsey the whirlwind and dust-storm occurred at 3 p.m.

"Absolute" droughts followed each other in quick succession during the summer months, especially by the way at Sark where a total for the year of five occurred, against four at Alderney and two at Guernsey. In the tabulation of droughts at the end of this paper it will be seen that Guernsey (Les Blanchés) and Sark recorded one each in August. Alderney escaped the distinction (!) because of a fall of 0·04 in. of rain on the 12th. On the other hand both Sark and Alderney ended a three weeks' drought on September 18th in which Guernsey was barred from participating just because a shower, again giving a paltry 0·04 in. of water, fell on the 4th.

However all droughts, and at the same time the wonderful summer of 1911, with its ideal hot and sunny days, came to an abrupt and permanent end on September 18th, for rain set in everywhere the next day and a spell of unsettled cyclonic weather began, destined to last with but little break to the end of the year, and beyond it.

October proved an interesting period because of several peculiarities in the distribution of the rainfall. To begin with, while 0·72 in. was recorded by Capt. Henry, at Sark, on the 5th, only 0·49 in. fell at Guernsey (Les Blanchés), while Alderney had nothing more than 0·17 in. This occurred with a strong E. wind and a thundery type of weather, for thunder rolled at Guernsey for some time during the early afternoon. Two days later, on Saturday morning, the 7th, when two

thunderstorms of moderate intensity passed over Guernsey and Sark, Alderney escaped the shower altogether. As a consequence of these irregularities the totals of rainfall for the three days, 5th-7th, were as follows :

Sark, 1·03 in. ; Alderney, 0·19 in. ; Guernsey, 0·75 in.

Seldom, however, we should imagine, has a greater contrast in the daily rainfall of the Channel Islands occurred than that which was experienced on Friday, October 13th, for while the day was absolutely dry at Guernsey, Sark and Alderney, no less than 2·42 ins. (very nearly $2\frac{1}{2}$ inches) of rain fell at St. Aubin's, Jersey! This extremely heavy downpour was connected with a violent thunderstorm which involved Jersey only, although at Guernsey distant thunder was heard towards the S.E. between 6 and 8 a.m. and the whole day almost was foggy and sunless.

On the following day there was another peculiarity in the rainfall, for while showers fell at Guernsey giving a total of 0·16 in. of rain, both Sark and Alderney reported a dry day, and well-marked differences were again noted on the 22nd, 23rd and 25th.

In its Alderney news the *Evening Press* of November 3rd contained the following : "On Tuesday night [October 31st] promenaders saw a most perfect lunar rainbow overspanning Fort Albert." That same night at 10 o'clock a very fine and perfect lunar rainbow was also seen here (Guernsey). Lunar rainbows are of rare occurrence, all the conditions favourable to their formation seeming difficult of accomplishment.

Both at Guernsey (Les Blanchés) and Sark the year's heaviest rainfall occurred on October 27th, and by a curious coincidence the amount was exactly the same at each station, viz. : 1·40 in. At Alderney, November 11th, with 1·21 in. of rain was the wettest day in that island. In the three islands December proved the wettest month of the twelve. Rain fell almost daily and the totals were excessively large even for a winter month. The figures for Sark and Alderney are given in the Table. At Guernsey (Les Blanchés), where no less than 8·07 in. was measured and 29 out of the 31 days had rain, it was the second wettest month of the 18 years, 1894-1911.

In concluding these Notes I have again much pleasure in acknowledging my indebtedness to Capt. Henry, of the Vallée du Creux, Sark, and Mr. W. J. Picot, of Le Huret, Alderney, who so very kindly continue to take charge of the rainfall stations established in their islands at the beginning of 1906. Rainfall observations are not difficult to take and they are

full of interest as well as of practical utility, but like all meteorological observations they require constant attention and to these two gentlemen our thanks are due for enabling us to know something about the rainfall of two of the smaller islands of the Bailiwick.

ABSOLUTE DROUGHTS IN 1911.

An Absolute Drought, as defined in *British Rainfall*, is "a period of *more than* 14 consecutive days, no one of which is a rain day."

SARK.

January 26 to February 13	...	...	=	19 days.
May 18 to June 1	...	...	=	15 "
July 1 to 23	...	...	=	23 "
August 2 to 19	...	...	=	18 "
August 29 to September 18	...	...	=	21 "

ALDERNEY.

January 26 to February 13	...	...	=	19 days.
May 18 to June 14	...	...	=	28 "
July 1 to 24	...	...	=	24 "
August 29 to September 18	...	...	=	21 "

GUERNSEY (LES BLANCHES).

July 1 to 23	...	...	=	23 days.
August 6 to 23	...	...	=	18 "

PARTIAL DROUGHTS IN 1911.

A Partial Drought, as defined in *British Rainfall*, is "a period of *more than* 28 consecutive days, the mean rainfall of which does not exceed '01 in. per day."

SARK.

Jan. 12 to Feb. 17	=	37 days.	Rainfall	0.24 in.	on	8 days.
July 26 to Aug. 23	=	29 "	"	0.14 in.	"	3 "

ALDERNEY.

Jan. 12 to Feb. 17	=	37 days.	Rainfall	0.31 in.	on	10 days.
May 4 to June 15	=	43 "	"	0.33 in.	"	4 "
July 26 to Aug. 23	=	29 "	"	0.25 in.	"	5 "

GUERNSEY (LES BLANCHES).

Jan. 12 to Feb. 13	=	33 days.	Rainfall	0.33 in.	on	8 days.
May 4 to June 7	=	35 "	"	0.13 in.	"	5 "

LONGEST RAIN SPELL IN 1911.

Inclusive dates giving the longest unbroken succession of "rain days" for the year.

SARK.

December 8 to 28 = 21 days. Total rainfall, 4.43 in.

ALDERNEY.

December 8 to 28 = 21 days. Total rainfall, 5.98 in.

GUERNSEY (LES BLANCHES).

Oct. 18 to Nov. 13 = 27 days. Total rainfall, 7.28 in.

December 2 to 28 = 27 " " " 7.99 in.

SARK AND ALDERNEY RAINFALL, 1911.

Months.	Monthly Totals.		Rain Days.		Heaviest Daily Rainfall.		Falls of 0.50 in. and above.	
	Sark.	Alderney.	Sark.	Alderney.	Sark.	Alderney.	Sark.	Alderney.
	in.	in.			in.	in.		
January	1.46	1.60	11	13	0.62 11th	0.78 11th	1	1
February	1.12	1.03	13	12	0.30 24th	0.21 24th, 28th	—	—
March	1.97	2.10	18	16	0.41 17th	0.51 17th	—	1
April	1.59	2.17	11	18	0.31 26th	0.42 5th	—	—
May	0.89	0.77	5	6	0.44 10th	0.27 2nd	—	—
June	2.53	1.54	13	10	0.76 8th	0.41 23rd	2	—
July	0.64	0.73	3	2	0.52 25th	0.61 25th	1	1
August	0.56	0.49	4	6	0.27 24th	0.20 24th	—	—
September	0.93	0.89	8	8	0.21 20th	0.27 20th	—	—
October	5.06	4.39	19	18	1.40 27th	1.04 27th	3	2
November	4.32	6.08	19	22	0.86 11th	1.21 11th	2	4
December	5.64	7.33	28	27	0.55 22nd	0.73 8th	1	5
The Year	26.71	29.12	152	158	1.40 Oct. 27th	1.21 Nov. 11th	10	14

Totals and Heaviest Rainfall for the Six Years, 1906-1911.

1906.....	26.07	28.63	161	168	1.16 June 28th	0.85 Nov. 8th	10	15
1907.....	26.15	28.84	178	188	1.11 Nov. 25th	1.15 Oct. 1st	6	7
1908.....	18.51	24.02	155	150	0.62 Feb. 16th	1.04 Apl. 24th	1	6
1909.....	26.13	32.99	146	157	1.38 June 3rd	1.55 Nov. 15th	14	15
1910.....	39.04	?	203	?	1.84 Oct. 13th	?	14	?
1911.....	26.71	29.12	152	158	1.40 Oct. 27th	1.21 Nov. 11th	10	14
Averages	27.10	28.72	166	164	1.84 Oct. 13/10	1.55 Nov. 15/09	9	11

NOTE.—The Sark averages are based on six years' observations, those for Alderney on five years.

GUERNSEY

SOCIETY OF NATURAL SCIENCE

AND

LOCAL RESEARCH.

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REPORT AND TRANSACTIONS

1912.

Guernsey :

BICHARD'S PRINTING AND PUBLISHING COMPANY, LTD.
BORDAGE STREET.

1913.



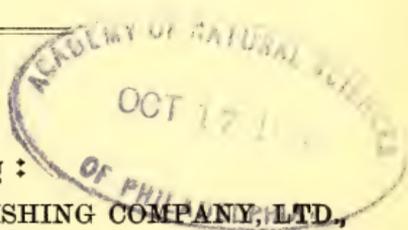
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1913.



COUNCIL FOR THE YEAR 1913.

PRESIDENT:

MR. F. L. TANNER, L.D.S., R.C.S.

VICE-PRESIDENTS:

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MR. WM. CAREY, Bailiff.

MR. A. COLLENETTE, F.C.S.

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MR. J. LINWOOD PITTS, M.J.I., F.S.A. (Normandy).

MR. B. T. ROWSWELL.

LIST OF MEMBERS (1912).



- 1891—Aikman, Dr., M.D., C.M., L.R.C.S. Queen's Road.
 1903—Aikman, Mrs. Queen's Road.
 1903—Aikman, Miss Queen's Road.
 1904—Allès, Mr. G. F. Gothic Cottage, St. Martin's.
 1911—Banks, Mr. T. B. High Street.
 1912—Bescoby, Mr. A. C., B.Sc. Care of Elizabeth College.
 1882—Bichard, Mr. T. M. Varendes, St. Andrew's.
 1904—Bishop, Mr. Julius, Jurat of the
 Royal Court Grange.
 1903—Bishop, Dr. Henry Draper, M.D.,
 M.R.C.S., L.R.C.P. Yandilla, Grange Road.
 1907—Bisson, Mr. T. The Laurels, Vale.
 1904—Blampied, Mr. C. La Fosse, St. Martin's.
 1910—Blicq, Mr. J. E. Melrose Villa, Brock Road.
 1912—Blocaille, Mr. E... La Chaumette, Forest.
 1907—Bostock, Miss Smith Street.
 1912—Bourde de la Rogerie, Rev. A. Burnt Lane.
 1909—Browne, Miss Mary, B.A... Ladies' College.
 1911—Brownsey, Mr. J.. Pollet.
 1889—Carey, Mr. F. Summerland, Mount Durand.
 1890—Carey, Mr. J. J., late M.I.C.E.,
 F.R.G.S. Les Pins, Cobo.
 1897—Carey, Miss E. The Elms, Cambridge Park.
 1908—Carey, Mr. T. W. Somerset Place, Queen's Road.
 1891—Carey, Mr. William, Bailiff of
 Guernsey Queen's Road.
 1890—Carré, Miss B. Elm Grove.
 1911—Carruthers, Dr. J. College Terrace.
 1907—Chalmers, Mr. A. L. Corbière, St. Pierre-du-Bois.
 1911—Cheeswright, Miss E. S. The Studio, Sark.
 1912—Clarke, Mrs. F. J. Mount Durand.
 1882—Collenette, Mr. A., F.C.S. Brooklyn, Fort Road.
 1882—Collings, Colonel A. H. Grange.
 1890—Collings, Miss M. B. 24, Saumarez Street.
 1912—Collings, Miss Amy 24, Saumarez Street.
 1882—Cole, Miss R. 39, Canichers.
 1906—Corbin, Dr. E. K., M.R.C.S. Saumarez Street.
 1908—Corbin, Miss R. Stanley Road.
 1899—Cromartie, Mr. D. B... Norfolk Lodge, Doyle Road.

- 1912—Curtis, Mr. S. Carey, A.R.I.B.A. .. Mont Saint, St. Saviour's.
- 1912—De Carteret, Miss Village de Putron, St. Marttn's.
- 1893—De Guérin, Lieut.-Col. T. W. M.,
 Jurat of the Royal Court Le Mont Durant, Mount Row.
- 1893—De Guérin, Miss C. M. Le Mont Durant, Mount Row.
- 1906—De Jersey, Colonel Grant Pierre Percée.
- 1882—De La Mare, Mr. C. G. Croûtes.
- 1894—De Saumarez, Lord 43, Grosvenor Sq., London, S.W.
- 1893—Durand, Colonel C. J. Grange Villa.
- 1906—Falla, Mr. A. Les Hauteurs, Vale.
- 1904—Fleure, Dr. Herbert J., D.Sc. University College, Aberystwyth
- 1908—Foote, Advocate W. H. 6, New Street.
- 1896—Foster, Miss F. A. Granville House.
- 1905—Guilbert, Mr. T. J., States Surveyor Rohais.
- 1882—Guille, Miss S. Cressington, Gravées.
- 1893—Harvey, General J. R. Oakleigh, Mount Durand.
- 1906—Henry, Mr. S. M. Commercial Bank.
- 1893—Hocart, Mr. J. S. Les Mielles, Vale.
- 1911—Hocart, Mr. A. J., Jurat of the Royal
 Court Blanc Bois, Castel.
- 1906—Irish, Mr. John W. B. *Evening Press* Office, Smith Street.
- 1903—Kelson, Mrs. Doyle Road.
- 1882—Le Cocq, Mr. Saumarez Clifton Lodge.
- 1893—Le Cocq, Captain Beau Séjour, Cambridge Park-rd.
- 1912—Le Feuvre, Miss C. Brock Terrace.
- 1912—Le Messurier, Mr. H. C. Beauséant, St. Martin's Road.
- 1903—Le Mottée, Colonel G. H., Jurat of
 the Royal Court Hauteville.
- 1911—Le Pelley, Mr. J. Q. Vauvert.
- 1912—Le Pelley, Mr. H. City & Midland Bank, High Street.
- 1884—Lee, the late Rev. G. E., M.A., F.S.A. George Place.
- 1882—Lowe, Rev. F. E., M.A., F.E.S.,
 Membre de la Société Lepidop-
 tère de Genève St. Stephen's Vicarage.
- 1911—Luff, Mr. E. A. La Chaumière, Brock Road.
- 1903—Macleane, Mr. E. F. H. La Bigoterie.
- 1894—Mainguy, General F. B., Jurat of
 the Royal Court Les Rocquettes.
- 1888—Marquand, Mr. E. D., A.L.S. 46, Kimbolton Road, Bedford.
- 1896—Marquand, Mr. H. E. *Star* Office.
- 1907—Manger, Mr. H. E., H.M.'s Sheriff.. King's Road.
- 1900—Mellish, Miss A. L., M.A. Ladies' College.
- 1911—Metman, Mr. R. Les Vaurioufs, St. Martin's.
- 1908—Moon, Miss A. King's Road.
- 1905—Naftel, Mr. A. M. 13, George Road.
- 1907—Nicolle, Mr. E. T. 3, Norfolk Terrace, Jersey.
- 1899—Penfold, Rev. J. B. V. Albecq, Cobo.
- 1889—Penney, Rev. W. C., M.A. Elizabeth College.

- 1882—Pitts, Mr. J. L., F.S.A. (Normandy) Guille-Allès Library.
 1906—Randell, Miss Clara Grove End, Doyle Road
 1912—Ridge, Mr. P. H. Favonia, Forest.
 1896—Robilliard, Mr. P. E... .. . La Piette.
 1903—Robinson, Dr. E. L., M.R.C.S.,
 L.R.C.P. Melrose, Gravées.
 1911—Ross-Taylor, Dr., M.D., Ch.B. (Glas-
 gow) 1, Queen's Road.
 1904—Rowswell, Mr. B. T. Les Blanchés, St. Martin's.
 1911—Ryder, Colonel F. J. O.G.H. Hotel.
 1883—Sharp, Mr. W. "Sherborne," Rocquettes.
 1907—Sincl, Mr. Joseph 12, Royal Crescent, Jersey.
 1912—Smith, Miss W., B.Sc. Ladies' College.
 1911—Smith, Mr. W. H. North Esplanade.
 1909—Spencer, Mr. R. P. Brock Road.
 1912—Stevens-Guille, Rev. H. G. de C. .. St. George Castel.
 1903—Tanner, Mr. F. L., L.D.S., R.C.S... Vauvert House.
 1905—Tanner, Mrs. Vauvert House.
 1893—Tourtel, Rev. R. H., M.A., B.D.,
 F.S.A. (Normandy) Torteval Rectory.
 1906—Végeais, Miss Brock Road.
 1912—Warren, Mr. J. P., B.Sc... .. . 10, Mount Row.
 1903—Wild, Dr. H. S., M.R.C.S., L.R.C.P. Gravées.
 1908—Woolcombe, Dr. Robert Lloyd, M.A.,
 LL.D., F.R.G.S., M.R.I.A. .. 14, Waterloo Road, Dublin.

NEW MEMBERS (1913).

- 1913—Butler, Mr. Edmund Delancey.
 1913—Clarke, Mr. F. J. States Arcade.
 1913—Cohu, Rev. J. R... .. . Aston Clinton Rectory, Tring.
 1913—Creswell, Dr. W. G. La Banquette, Cobo.
 1913—O'Reilly, Dr. B. C. N. La Plaiderie.
 1913—Tourtel, Miss M... .. . Havilland Vale, St. Martin's.

JUNIOR MEMBERS (1913).

- 1913—Carré, Miss Marjorie Care of Ladies' College.
 1913—Dorey, Miss Claire Care of Ladies' College.

In Memoriam.

GEORGE THOMAS DERRICK.

BETWEEN two and three years ago this Society sustained a severe loss when, as the result of sudden illness, Mr. GEORGE THOMAS DERRICK was compelled to relinquish all active co-operation in the Society's work, to which he had previously contributed much valuable service. And early this year, in spite of many hopes to the contrary, that loss became permanent by the regretted death of Mr. DERRICK. on April 10th [1912] in the 73rd year of his age.

Mr. DERRICK was one of the original members of the Society, joining it at the time of its inception [Oct. 10th, 1882], and thence forward for about eight and twenty years, until incapacitated by illness, he was a regular attendant at its meetings, and was most energetic in promoting its success. He was its first Vice-President, the late Sir Edgar MacCulloch (then Mr. MacCulloch) being elected the first President.

Mr. DERRICK also ably filled other positions in connection with the Society as time went on. He was President in 1897-1898, and for about ten years (from 1901 to the Spring of 1910, when failing health compelled his retirement) he was Hon. Sec. Although his speciality was Botany, yet he always took a general all-round interest in every branch of the Society's work; and the Guille-Allès Museum contains several interesting finds of his in Natural History and Archæology, which were presented by him to the Collection. He also contributed many valuable papers to the Society's *Transactions*.

Mr. DERRICK was a native of Bristol, his connection with Guernsey dating from 1860, when he first came to reside in the Island and took up the head-mastership of the "British" Boys' School, a position which he held for more than forty

years, when he retired. Among other social activities to which Mr. DERRICK applied himself, was the work of the St. John's Ambulance Association—and in this latter he was enthusiastically aided by Mrs. Derrick, who for many years was a most valuable helper in the practical part of the work. Mr. DERRICK also filled the offices of a People's Deputy; a Member of the States Education Committee; a Director of the Guernsey Gas-Light Company; a Member of the Guille-Allès Library Council, &c., &c.

Mr. DERRICK's funeral took place on Wednesday, April 12th [1912], the friends meeting at St. James' Church, and the interment being at the Foulon Cemetery. Mrs. Derrick who, at the time of her husband's death, was lying seriously ill at the Victoria Cottage Hospital, passed away at that Institution on Monday, April 22nd [1912], just twelve days after the death of her husband. She was 75 years of age.

**PAPERS BY MR. DERRICK PRINTED IN THE
"TRANSACTIONS."**

The Ferns of Guernsey (1882).

An Excursion to Icart Point (1883).

Changes in the Relative Level of Sea and Land round Guernsey (1883).

Excursion to Herm (1889).

A Visit to Jethou (1890).

Guernsey Clays (1892).

A Visit to Lihou (1895).

Cup Markings (1896).

The Flora of Sark (1896).

Additions to the Sark Flora, since the publication of the proceedings of 1896; further remarks on the Flora and Notes on the List of 1896 (1897).

Additions to the Sark Flora (1889).

An Excursion to St. Pierre-du-Bois (1902).

Jerbourg and its Fortifications—a Contribution to Guernsey History (1903).

The Antiquities of Alderney (1906).

Archæological Remains in Guernsey (1906).

St. Peter-Port in Bygone Times, by Mr. C. J. Cox; revised and edited by Mr. G. T. Derrick (1907).

With reference to Mr. DERRICK's work as a botanist, Mr. E. D. Marquand, A.L.S., the author of the *Flora of Guernsey and the Lesser Channel Islands*, writes as follows:

Perhaps the most memorable stroke of work in Mr. DERRICK's botanical career was the discovery in Guernsey as far back as the year 1877 of *Gymnogramma leptophylla*, a fern which up to that time was supposed to grow only in Jersey. Mr. DERRICK was a great lover of ferns, and knew them well. One day in the course of a walk in the country his sharp eyes detected this delicate and graceful little fern growing in considerable abundance in a hedgebank at St. Saviour's. That was thirty-five years ago, and although the plant still flourishes in its old habitat, it has never been discovered anywhere else in these islands, in spite of determined and persistent searching as well by Mr. DERRICK himself as by many other botanists. It was a famous find, quite on a par with Wolsey's discovery in 1854 of another non-British fern, *Ophioglossum lusitanicum*, on the cliffs above Petit Bot Bay.

Mr. DERRICK had quite a fair knowledge of the flowering plants of these islands, though he was not by any means what is called a critical botanist, in fact his acquaintance with the indigenous flora was general rather than special. He never troubled much about hair-splitting differences and microscopical details: he was emphatically a field botanist, and not a herbarian student, and it is probable that he would not willingly have undertaken to name off-hand a miscellaneous collection of dried plants. But once in the open country, on the rugged cliff-sides, or in the shady water lanes he loved so well, he was ever on the alert, watchful for something new: his eyes were always wide open, and any unfamiliar flower was carefully gathered and brought home for determination.

The publication of a list of the Flowering Plants and Ferns of Sark may be placed among the most important of Mr. DERRICK's achievements as a botanist. During a series of visits extending over three years—1896 to 1898—he collected notes and materials which enabled him from personal observation to draw up an excellent and reliable localised list of nearly 350 species of wild flowers growing in the small island of Sark. This was a fine piece of work, and the thoroughness of his search is proved by the fact that more

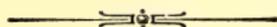
than fifty plants noted by him had never been previously detected, although several well-known botanists had from time to time published notes and lists of the Sark Flora.

During his residence of half-a-century in Guernsey Mr. DERRICK seems never to have got tired of visiting Sark, and few people knew the island as thoroughly as he did. Seeing what valuable work he had done among the flowering plants, I persuaded him to direct his attention to the Mosses and Hepaticæ of Sark about which very little indeed was known, though the island seemed to offer a promising field for investigation. Always enthusiastic about anything that concerned his favourite island—for he considered Sark as peculiarly his own—he agreed to hunt for and collect specimens and hand them over to me if I would undertake to identify them and publish a list. Several visits of a week or two at a time he made specially for this purpose, and the final result of an *omnium gatherum* made in every part of the island, and in all kinds of localities where mosses are to be found, was the compilation of a most valuable list of some 80 species with their local distribution. This list was printed in the *Transactions* of this Society for the year 1903.

Some years earlier than this Mr. DERRICK had assisted with great zeal and activity in collecting the fungi of Guernsey for the preparation of a systematic list. A reference to the pages of the *Flora of Guernsey* will show how extensive his work was. More than 120 species of fungi are there recorded under his name, and several of these have not since been found by any other collector.

The few points that I have just briefly touched upon will suffice to show how keen and energetic Mr. DERRICK was in everything that he undertook. His death causes a lamentable gap in the front rank of the members of this Society, and the wide interest he took in all matters and subjects embraced by the Society will make his loss the more severely felt. Personally I have lost in him an old and valued friend of twenty years' standing, a friend whose memory will always be endeared to me by his sterling honesty of purpose, and his wholesome hatred of everything that savoured of make-believe and pretence.

TRANSACTIONS OF THE SOCIETY.



The Ninth Annual Soirée of the Society was held in the Lecture Hall of the Guille-Allès Library on February 13, 1912. The Hall was well filled, and the audience testified its gratification at the entertainment provided, which, following the custom of previous years, consisted of Short Lectures, interspersed with items of Vocal and Instrumental Music.

The President, Col. T. W. M. de Guérin, said he regretted the unavoidable absence of His Excellency the Lieutenant-Governor, and then said the Society was to be congratulated on its increased membership, and its satisfactory balance at the bank. The Summer's Excursions had revived interest in the Society and its work. There was still much to be learnt of the Geology of the Southern Cliffs, and other branches, especially Marine Zoology, were calling out for workers. He hoped that the search for evidences of Pre-historic Man in the Island would be continued, and that we might be as successful in this respect as our Jersey friends. The President then thanked those ladies and gentlemen who had given their services that evening, especially the Staff of the Ladies' College, and Mr. F. Tanner, who had again so successfully organised the Meeting.

The first short lecture, by Dr. Aikman, was entitled "The Wist of the Weird," and proved very interesting.

The second lecture was given by Mr. J. P. Warren, B.Sc., the subject being "The ice-mother of the Great Lakes." In this Mr. Warren principally devoted his remarks to the theory of the formation of the great North American lakes, which were all due to former glacial action. But as nature was responsible for the formation of these lakes, so also to it were due capes, rivers, volcanoes, earthquakes, deserts, &c. With regard to water, it was to be found everywhere, its utility to man being apparent to all. During his lecture pictures of glaciers, the Alps, rock floors polished by glacial action were shown. Changes in the aspect of countries were continually going on, and were we able to look upon the world as it was a million years ago, what a different aspect it would reveal from what we are accustomed to to-day. With regard to the great lakes in North America, they were

gradually being tilted towards the South. The process was certainly slow, as the change was taking place at the rate of one-third of a foot only in 1,000 years. Measurements had proved this. With regard to Niagara, as the water would no longer be poured towards it from Lakes Ontario, Michigan and Huron, probably in 3,000 years it would be dried up.

Mr. A. C. Bescoby, B.A., took for the title of his lecture "Plant Associations." In this he remarked that every part of the world had its own class of vegetation, every portion of it had its own flora, at home as well as abroad. Moreover, every class of vegetation was adapted to its situation. As a rule plants removed from one situation to another did not thrive there as well as in their own habitat. Everything that grew had its own relation between the climate and the soil. Botany was of absorbing interest, although possibly its knowledge was more interesting than important. But the lecturer could assure his readers that most wonderful things could be discovered in the anatomy of plants. Those he referred to were water, marsh, bog and sea plants. Mr. Bescoby showed some pictures (on the screen) of a pine forest, where vegetation did not flourish owing to the shade of the trees, marshy and pasture land, and some of the great tracks of chalky land in the South of England where only stunted grass grew. This, however, was excellent for sheep pasture. After a few more remarks, in which he said that everything that was created showed the hand of God, he commended the study of botany to his hearers.

The musical portion of the programme was provided by Miss A. Philipp, who contributed two pianoforte solos, played in her usual brilliant style, and Mrs. Mesny and Mr. Tudor Williams, both of whom sang twice. All these items were heartily applauded. A most enjoyable evening closed with the National Anthem.

*Monthly Meeting held March 20th, 1912, the President,
Col. de Guérin, in the Chair.*

Mr. J. P. Warren, B.Sc., Mr. J. S. Carey Curtis, A.B., I.B.A., Miss W. Smith, B.Sc., were unanimously elected Members of the Society.

Miss Edith Carey read a paper entitled "Amias Andros and Edward his son." The paper was illustrated by lantern views, which included portraits of various members of the

Andros family. These were taken from paintings in the possession of Rev. Stevens Guille, of St. George, C atel. Miss Carey's paper will be found elsewhere in this volume.

Mr. A. Collenette read "Notes on a deposit of Glacial Clay and its contents at an elevation of 300 feet O.D." The contents or finds were recently discovered in Mr. Collenette's garden, at Brooklyn, Fort Road. They were exhibited at the meeting and included half-a-dozen flint scrapers, shapings from cores, and a core from which a flint hand been knocked off, a quantity of sea-worn pebbles, several small boulders, a sub-angular stone with striations and parts of two bones. One of the latter was only a fragment; the other was about three inches in length and was merely a shell. It had been examined by Dr. A. S. Woodward, of the British Museum, who had determined it to be part of the humerus of a pig, but the species was undeterminable. Mr. Collenette considered the things mentioned above had been deposited where they were found by floating or melting ice. The clay and its contents were deposited continuously and from above. There was a complete absence of stratification, hence the clay could not have been water deposited from streams. Mr. Collenette therefore associated the deposit with ice movement which could easily have collected and deposited the clay and its contents. The flints are indefinite as to age, and might be referred, by different persons, to late Paleolithic or early Neolithic ages. The deposit, being glacial, favoured the opinion of the flints being Paleolithic, and if this is confirmed, it is practically the first indication of Paleolithic man in Guernsey. The flints were examined by Mr. R. M. Marett and Dr. Arthur Evans, at Oxford.

An animated discussion, in which several members took part, followed.

*Monthly Meeting, 16th October, 1912, Col. de Gu erin,
President, in the Chair.*

Rev. H. de C. Stevens Guille, Mrs. F. Clarke, Mr. H. C. Le Messurier, Rev. A. Bourde de la Rogerie, Mr. J. H. P. Ridge, Mr. Blocaille, were unanimously elected Members of the Society.

Mr. A. Collenette, F.C.S., read an interesting and exhaustive paper on the Geological and other results of the recent Summer Excursions. The paper will be found in this volume (p. 273).

Mr. S. Carey Curtis and Mr. Collenette gave details, and shewed illustrations on the screen by means of the electric lantern, of the pre-historic potter's kiln found at Hougue Noirmont, Vale.

Monthly Meeting held on November 20th, 1912, the President, Col. de Guérin, in the Chair.

Miss Amy Collings was unanimously elected Member of the Society.

The President referred in feeling terms to the great loss the Society had suffered through the death of the Rev. G. E. Lee, M.A., at one time President. He spoke of the valuable papers he had contributed to the Society, and of his great knowledge and interest in all matters Archæological, and concluded by expressing the deep sympathy of the Society with the family in their bereavement.

Rev. Bourde de la Rogerie read a letter which he had received from Comte de Chavannes, in which the latter stated that roughly cylindrical masses of baked clay similar to those found near Fort Grey, Rocquaine, had been discovered at Metz.

The principal business of the evening was to hear reports on the megalithic structure and enclosure recently discovered at L'Islet. These reports, which were read by Mr. Carey Curtis, Mr. A. Collenette and Col. de Guérin, will be found reproduced in this volume.

The meeting concluded with the President's expression of thanks to Messrs. Curtis and Collenette for the able manner in which they had superintended the excavations, and for their valuable report; Mr. N. Le Tissier, of St. Magliore, who had undertaken the excavation, and to those ladies and gentlemen who had so liberally subscribed to the Exploration fund.

The Thirteenth Annual Meeting held December 11th, 1912, the President, Col. de Guérin, in the Chair.

The annual Sectional reports, giving in detail the work of the year in various branches, were read as follows:—

Botany—Mr. R. Metman.

Entomology—Rev. F. E. Lowe.

Geology—Mr. C. G. De La Mare.

Marine Zoology—Mr. F. L. Tanner.

Ornithology—Mr. B. Rowswell.

The Hon. Secretary followed with the Annual Report of the Council, and the Hon. Treasurer presented his Financial Statement for the year, which shows a balance in hand of £26 5s. 4d.

The election of Officers was next proceeded with. Mr. F. L. Tanner, F.Z.S., was elected President, and Mr. Carey Curtis Hon. Secretary; Mr. C. G. De La Mare was re-elected Hon. Treasurer; and the Council was re-elected *en bloc*, Mr. A. C. Bescoby replacing Mr. Tanner.

Owing to the lateness of the hour, the retiring President's address was postponed to the next meeting.

Monthly Meeting, held January 23rd, 1913, the President, Mr. F. L. Tanner, in the Chair.

Dr. Cresswell, of La Banquette, Cobo, was proposed by Mr. J. J. Carey, for membership and seconded by Mr. B. Rowswell.

Mr. Collenette exhibited a fine and very perfect hazel nut found in the peat, at Cobo, on January 20th.

Colonel de Guérin read his postponed Presidential Address. The Colonel's paper, "A Contribution towards the reconstruction of the History of Guernsey during the latter half of the XIVth Century," will be published in the 1912 *Transactions*.

Mr. Collenette read his usual annual report on the Rainfall and Sunshine of Guernsey. The year 1912, as Mr. Collenette clearly showed, by means of lantern slides, proved an unusually wet and remarkably gloomy one. In rainfall the last 70 years could produce only four with a bigger total, while as regards sunshine the year was the gloomiest of the last nineteen. Mr. Collenette discussed the rainfall as measured at nine different stations scattered over the island and briefly referred to the amount measured at Sark and Alderney, where observations have been taken since January, 1906. The sunshine figures were those for Mr. Collenette's own station at "Brooklyn," Fort Road.

Hearty votes of thanks were given to Colonel de Guérin and Mr. Collenette for their interesting papers.

The President announced the date of the Soirée, viz., Wednesday, February 12th.

Report of the Council, 1912.

The year just completed has been an interesting one, and much valuable work has been accomplished. Both the Indoor Meetings and the Excursions have been well attended. The Annual Soirée was a great success. Papers have been read on "Amias Andros and Edward, his son"; "Notes on a deposit of Glacial Clay, and its contents at an elevation of 300 feet O.D."; "Geological and other results of the recent Summer Excursions"; "The newly-discovered Dolmen, &c., at L'Islet"; "The Sunshine and Rainfall for 1912"; "Guernsey in the latter half of the Fourteenth Century"; "Lihou and its Priory."

At this meeting subscriptions were solicited and received towards defraying the cost of restoration (£2) of the old Watch Tower at La Hougue du Pommier, Castel.

EXCURSIONS.

The first excursion this year was on April 20th, those who took part being a small working party who located a cave at Les Tielles, in the side of the cliff, but as the cave was extremely difficult to reach the exploration was postponed until the services of an expert cliff-climber had been secured.

The postponed exploration took place on June 8th, when Mr. Harold Le Messurier and Mr. F. Tanner descended to the cave and afterwards reported that it had a rocky bottom covered to a depth of three or four inches with loose ground, and that there were no traces of its having been occupied as a shelter by prehistoric man. The cave is about 70 feet from the top of the cliff and faces south-west.

On June 21st an excursion was made to the Creux du Chien, near Icart Point. Examination revealed that the front of the cave is piled up to a height of 12 feet with ancient beach, forming an almost solid conglomerate. The cave itself is about 30 feet high at the entrance and gradually slopes to nothing at the back. Although the floor was trenched it yielded nothing of value. The work on this occasion was extremely laborious owing to the heavy coils of rope and a ladder which had to be used to accomplish the last part of the descent at the foot of the slope which is about 200 feet long.

A driving excursion to Ste. Appoline Chapel took place on July 28th and was well attended. The chapel was thoroughly inspected, and the frescoes on the ceilings were most distinctly seen by a strong light reflected upon them by

means of a white sheet which had been provided by Mr. S. Carey Curtis. Col. de Guérin gave a most interesting account of the history of the chapel from the time of its building to the Reformation, after which it is believed Divine Service was no longer celebrated there. The party then proceeded to a field near l'Erée and inspected two stones which bear the impression of the right foot of one man and the left foot of another. Tradition has it that one of these impressions was that of the foot of St. Brioc and the other of the Abbott of Lihou, each of whom stood with one foot on each stone while discussing ecclesiastical matters. A halt was made at Fort Grey, where a geological examination was made in the neighbourhood. Here a midden containing fragments of pottery and trivets was found. The journey was continued to Pezerie Point and another geological examination was made. The result of this Mr. Collenette reported in the paper which he read at the October meeting.

On August 16th, the last excursion for the year took place. The objective was Lihou Island. The outing was very largely attended. Arrived at the Island Mr. Carey Curtis read a most interesting history of the ancient Priory, now in ruins, besides giving a description of the Priory. To illustrate his subject Mr. Curtis had prepared a small model of the Priory as it appeared when complete. The paper read by Mr. Curtis will also be found in the *Transactions* for 1912. After leaving Lihou Island a visit was paid to Mr. H. de Garis' house, Bon Air, near Les Adams. Here Mr. de Garis showed the party the famous Lihou stone which was discovered about 100 years ago. The stone is now imbedded in the wall of a side room. On the stone is sculptured a representation of the Priory as it appeared when intact. The stone is very ancient and is probably contemporaneous with the Priory as it stood, 300 or 400 years ago. It bears the date M^CXIV., but the lettering is rather modern.

MEMBERSHIP.

We opened the year with 92 members, we close it with 96. 13 new members have been elected during the year.

OBITUARIES.

We have to regretfully chronicle the loss of two valued members, whose deaths leave a gap which cannot be easily filled. The first is that of Mr. George T. Derrick, who had been a member of the Society since its inception on October 10, 1882. He was its first Vice-President, the President

being Sir Edgar MacCulloch, and was President for 1896-1897.

Mr. Derrick was also Hon. Secretary of the Society from December 19, 1900, to September, 1910, when failing health caused him to resign.

The second whom the Society has to deplore is the Rev. G. E. Lee, whose sudden and unexpected death on the 5th of last November caused such a profound sensation throughout the island. Mr. Lee joined the Society in 1884, and frequently contributed papers on archæology (on which he was an authority) which were always of the greatest interest and value. He was President of the Society for 1907-1908. He was a keen antiquary, a Fellow of the Society of Antiquaries, a member of the Société des Antiquaires de Normandie, honorary member of the Société Polymathique du Morbihan, and for many years Vice-President of the Guernsey Historical and Antiquarian Society, now unhappily extinct. He had taken intense interest in the excavations in the dolmen at l'Islet which was discovered last September, and in connection with it had promised to read at our last meeting a paper entitled "Archæological Considerations and Associations."

The donations and exchanges have resulted in the following additions to the Society's Library:—

From the Rev. E. Hill, M.A., of Cockfield, Bury St. Edmunds:—

Petrological Notes on Guernsey, Herm, Sark and Alderney, by Professor T. G. Bonney and the Rev. Edwin Hill. [Reprinted from the Quarterly Journal of the Geological Society for February, 1912, Vol. LXVIII.]

From Mr. E. D. Marquand, A.L.S.:—

Journal of the Linnean Society. Nos. 272 to 277, and 279. Seven unbound numbers forming part of Vols. XXXIX., XL. and XLI, 1910-1912.
Proceedings of the Linnean Society. 122nd and 123rd Session, 1910-1911. Two Vols.

From Mr. Joseph Sinel, of St. Helier, Jersey:—

"Man," for October, 1912, containing paper: "Report on the resumed Exploration of 'La Cotte,' St. Brelade, by the Société Jersiaise," by E. Toulmin Nicolle and J. Sinel.

From the Author:—

Frequency in Floral Analysis (Rural Studies Series, No. 15), by the Rev. E. Adrian Woodruffe-Peacock, L.Th., F.L.S., Vicar of Cadney, Brigg.

From La Société Jersiaise, Jersey :—

Actes des États de l'Île de Jersey, 1780-1785 and 1875-1788.
Journal de Jean Chevalier. 7me. Fascicule.
Trente-septième Bulletin Annuel, 1912.

From the Trustees of the British Museum :—

General Index to a Hand-list of the Genera and Species of
Birds. Volumes I—V. Edited by W. R. Ogilvie-Grant.

*From the Horniman Museum and Library, Forest Hill,
London, S.E. :—*

Handbooks to the Stages in the Evolution of the Domestic
Arts. Part I : Agriculture, the Preparation of Food and
Fire-making ; Part II. : Basketry, Pottery, Spinning and
Weaving, &c.
Handbook to the Marine Aquaria. Second Edition, 1912.
Report for the year 1911.

From the Marine Biological Association, Plymouth :—

Journal of the Marine Biological Association of the United
Kingdom. Vol. VII., N.S. (1904-06) ; Vol. VIII., N.S.
(1907-10), and Vol. IX., N.S., No. 1. Unbound.

From the Torquay Natural History Society, founded 1844 :—

Journal of the Torquay Natural History Society. Vol. I.,
No. 4, 1912.

From the Société d'Archeologie d'Avranche et de Mortain :—

Revue de l'Avranchin. Bulletin Semestriel. Année 1912,
Nos. 1 and 2.

*From the Société Nationale des Sciences de Cherbourg, founded
December, 1851 :—*

Mémoires de la Société Nationale des Sciences Naturelles et
Mathématiques de Cherbourg. Publiés sous la direction
de M. L. Corbière, Secrétaire Perpétuel de la Société.
Vols. XXXVI. to XXXVIII., 1906-07 to 1911-12. Three
Volumes.

From the Laboratoire Maritime de Concarneau :—

Travaux Scientifiques du Laboratoire de Zoologie et
de Physiologie Maritimes de Concarneau. Tome III.
(6 Fasc.), 1911, and Tome IV. (Fasc. 1 and 2), 1912.

From Portici, Italy :—

Bollettino de Laboratorio di Zoologia Generale e Agraria
della R. Scuola Superiore d'Agricoltura in Portici.
Vol. VI., 1912.

From the United States of America :—

- Boston.—Proceedings of the Boston Society of Natural History. Vol. XXXIV., Nos. 9 to 12, 1910-11.
- Boston.—Phylogeny of the Echini, with a revision of Palæozoic Species, by Robert Tracy Jackson. With 76 Plates, 1912. Vol. VII. of the Society's Memoirs.
- Cincinnati, Ohio.—Bulletin of the Lloyd Library of Botany, Pharmacy and Materia Medica. Pharmacy Series, No. 5, 1912, and Mycological Series, No. 6, 1912 (Synopsis of the Stipitate Polyporoids).
- Philadelphia.—Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. LXIII., Part 3, 1911, and Vol. LXIV., Parts 1 and 2, 1912.
- Washington.—Library of Congress. Report for the years 1911 and 1912.
- Washington.—Smithsonian Institution. Annual Report for year ending June 30, 1910.
- Washington.—Smithsonian Institution. Report of the U.S. National Museum for the year ending June 30, 1911-1912.

In conclusion the Council desires to thank the Board of Management of the Guille-Allès Library for the use of this room for the monthly and Council meetings, for the loan of the hall for the Soirée, as also for the continued and greatly appreciated interest they show in the Society's work.

C. G. De La Mare, Treasurer, in Account with the Guernsey Society of Natural Science.

	Receipts.			Payments.			
1912.	£	s.	d.	1912.	£	s.	d.
Balance of last year's Account	17	9	3½	Expenses connected with Soirée.....	1	3	8
Proceeds of Soirée.....	7	0	10	Cost of <i>Transactions</i>	25	17	0
Copies of <i>Transactions</i> sold	0	2	0	Collection of Subscriptions.....	1	9	2½
Subscriptions for 1911	1	2	6	Expenses connected with Excursions...	5	7	1
" for 1912	34	2	6	<i>Star</i> Publishing Co., printing exclu-			
Excursions	2	15	0	sive of that connected with Soirée			
Interest on Deposit at Bank, <i>less</i> Stamp	0	10	9	and Excursions	2	5	7
				Caretaker.....	0	15	0
				Balance in hand.....	26	5	4
					£63	2	10½

Examined and found correct,

December 14th, 1912.

J. LINWOOD PITTS, } *Auditors.*
 BASIL ROWSWELL, }

C. G. DE LA MARE, *Hon. Treasurer.*

PREHISTORIC RESEARCH FUND.

Receipts.		Payments.	
1912.	£ s. d.	1912.	£ s. d.
Subscriptions :		Paid Assistance in exploring "Creux	
H. Maclean, Esq.	1 0 0	au Chien " Caves	0 1 8
J. S. Hocart, Esq.	0 5 0	" <i>Saar</i> Printing Co., Appeal for	
Dr. Aikman.....	1 0 0	Subscriptions	0 7 9
Col. A. H. Collings	1 0 0	C. Perchard, Carriages to Les	
J. R. Harvey, Esq.....	1 0 0	Tielles	1 8 0
P. E. Robilliard, Esq.....	1 0 0	" Excavations at Sandy Hook	10 1 10
Miss C. M. de Guérin	1 0 0	Balance in hand.....	7 4 1
T. M. Bichard, Esq.	0 10 0		
Col. T. W. M. de Guérin	10 0 0		
T. W. Carey, Esq.	0 8 4		
One interested in the newly-discovered			
Cromlech.....	1 0 0		
W. Carey, Esq. (Baillif)	1 0 0		
	<u>£19 3 4</u>		<u>£19 3 4</u>

Examined and found correct,

December 14th, 1912.

J. LINWOOD PITTS, }
 BASIL ROWSWELL, } *Auditors.*

C. G. DE LA MARE, *Hon. Treasurer.*

Report of the Botanical Section, 1912.

The most important fact to be noted is the discovery of a plant new to the island: *Amaryllis lutea*, L. (syn. *Sterbergia lutea*, Gaval). I have known the plant growing for at least seven years near Hougue du Pommier on the Grandes Rocques road, and it seems now quite established and spreading. Although it has certainly escaped from a garden, we must give it a place in our flora. *Amaryllis lutea* is a kind of yellow crocus blooming in September; the long leaves come out after the bloom, and in summer the whole of the plant disappears.

As far as I know the plant has not been found in England; in France it grows in Provence, in the neighbourhood of Agen and Noirmontiers, also around Lyon, which is its extreme north station.

I have also to record a new station in Guernsey for *Fragaria vesca*, L., in a lane behind St. Saviour's Church, but only a few plants—*Setaria glauca*, P.B., at Les Vaurioufs, St. Martin's—*Digitaria sanguinalis*, Scop, as a weed in a private property at Les Becquets, St. Martin's.

Five plants of *Datura stramonium*, L., sprang up on a big rubbish heap along the tramway line at Belgrève Bay.

Both at the Ladies' College and St. Andrew's Cottage Garden Society there was a competition for wild plants dried and mounted. Several exhibits numbered as many as three hundred species. Perhaps our Society could do something to show our interest in these competitions.

I wish to mention also one or two points about the plants noticed this year. During August *Cicendia pusilla*, Gris., was very plentiful near Fort Doyle, as also *Arthrolobium ebracteatum*, D.C., and *Ophioglossum lusitanicum*, L. These plants do not appear every year. *Suaeda maritima*, Dum., occurs at Lihou Island as well as *Glaucium luteum*, Scop.; both these species are new to the flora of Lihou.

During the winter I treated chemically the extremely valuable herbarium belonging to the Society to try to preserve it from mould and mites. Each specimen was soaked in a solution of corrosive sublimate, such as is usually employed in herbaria.

R. METMAN,
Sec. Bot. Section.

Entomological Secretary's Report of 1912.

On January 23rd I received a visit from Mr. G. Baker, of 28, Victoria Road, who brought two specimens of the rare and beautiful "hawk moth" *Chærocampa celeris*.

1. Taken in Mr. Cluett's bakehouse in the Bordage two or three years ago, a singularly beautiful specimen, probably a female.

2. Another, not in such good condition, taken by Mr. Paul De La Mare more than 20 years ago and preserved in a case of mixed insects.

So far as I know there have been records of only three other specimens of this the "Silver-striped Hawk" for Guernsey. Two are in our museum and were bred by Mrs. Boley from larvæ found on the vine; and one other is in my possession and was brought to me in a match-box by a friend who had caught it at flowers of the tobacco plant, in Rocquettes Lane, September, 1898.

Another important capture of a Hawk moth this season constitutes a new record. On May 18th as I was walking—revealing my "trade" by carrying a butterfly net—Mons. Robert De La Morinerie, of Bailiff's Cross, kindly introduced himself to me, as one interested in Entomology, and invited me to view a moth he had. It was still on the setting-board and proved to be *Deilephila livornica*.

It had been taken May 9th within a quarter of a mile of his house by Mons. R. Metman. This species, like the last, is not truly at home so far north—south Europe is its natural habitat. But it is a great migrant, and being a very strong flier occasional specimens are taken in north-central Europe. An unusual number have been recorded in England this year. It is, however, new to our list.

It will interest our Society to hear that the larva of *Aeronycta aceris*, found by the Rev. C. B. Lucas last August crawling on a railing near St. Stephen's Church, produced a very fine moth in June of this year. It will be remembered that this too is an addition to our Guernsey list.

It may also be worthy of mention that on March 14th I took a fresh specimen of *Hybernia Marginaria (progemmaria)* from the lintel of a door at Les Varendes, Rohais. This, though a very common moth in England, has so far been taken only three times in Guernsey, and by a strange chance each time by myself.

Contrary to the promise of the hot spring, 1912 has not proved to be a "Clouded-yellow" year. But *Colias edusa* was

not uncommon on our cliffs in September. Mr. G. Baker shewed me one of the variety *Lelice* from Icart. *Heliophobus hispidus* came to light in my study. I mention this only because it is a scarce insect here, and to be looked for only on the sea coast. It was therefore a surprise to meet with it so far inland and in the neighbourhood of the Town. On the 18th of September I was fortunate enough to take a female specimen of *Eupethæcia coronata*, resting on the trunk of a Wych elm in my garden. This is its first record for Guernsey. It is generally distributed in the South of England and rare in the north. There are two breeds a year, one in the spring and early summer, the second in the late autumn. One of its food plants is the common clematis.

To this very meagre account of local Entomology for the past year I can add one observation of no little interest.

In September, 1909, I took in the lane beyond the Foulon Cemetery two specimens of a pretty little "micro," which had not before been noticed in the island, *Yponomeuta cognatellus*. Its relative *Y. padellus* is very common and must be familiar to most of you from its untidy habit of covering the hedges with bunches of webs, upon which the dust collects, making unsightly objects. These webs are full of little wriggling larvæ which wander and devour all the foliage round.

This spring I noticed webs of larvæ in the hedge in the lane where I had taken *Y. cognatellus*, and which I at once guessed must belong to this species. I took a few home and bred, as I expected, many specimens. But the shrub on which the larvæ were feeding was unfamiliar to me. I had noticed it on former occasions, and idly wondered what it might be, but had not the same motive for particular enquiry. Now as my family would eat nothing else, I had to make a pilgrimage every few days to the Foulon to bring home their pabulum. I therefore looked up the food plant of *Y. cognatellus* and found that it feeds exclusively on the "Spindle tree," *Euonymus Europæus*, and identified these bushes as this species. And here is where I think the interest of my investigations comes in. On reference to Mr. Marquand's "Flora of Guernsey" we read p. 73 "'Spindle tree' alien. First record: Marquand 1891. Very rare. Two or three bushes in a hedge, bordering the lane at the back of Les Eperons, St. Andrew's. As no other station is known for this shrub, it can hardly be indigenous, although it is fairly common in Normandy and the south of England."

This definite statement by the highest authority on the Guernsey flora compels one to the conclusion that *cognatellus*

is not truly a native but a naturalised alien. And, however, and at whatever date, these few stunted bushes found a foothold in Guernsey, they must have introduced *Y. cognatellus* with themselves. It may well be a matter of wonder, not to say admiration, how this little moth has been able to maintain its existence ever since in such an extremely restricted area, and upon so limited a food supply.

FRANK E. LOWE, F.E.S.

Report of the Folklore Section, 1912.

CHANGING LOCAL OBSERVANCES.

Some of the members may perhaps recollect that last year (1911) I referred to the gradual passing away and decadence of the local Guy Fawkes celebration, which was probably first introduced into Guernsey about the beginning of the nineteenth century by a number of working-class immigrants from the southern counties of England. And I drew attention to the strange way in which this new comer—with its cheerful bonfire for consuming the Guy—seems to have at once caught on, and to have superseded the far older local rite of burying the *Bout-de-l'An*, or the "Old-Year's-End," which rite had previously been carried out from time immemorial by successive generations of Guernsey young people. The old name of Boodlo (*Bout-de-l'An*) was transferred to the Guy, and thenceforward for about a century—with various processional observances—this latter symbolical figure was burnt on the evening of the Fifth of November, instead of being buried at midnight on the last day of the Old Year.

Another Ceremonial Observance which seems to have been introduced by these same English immigrants, was the raiding of flower-gardens in the early morning of the First Sunday in May. No doubt this last-named observance was originally connected with the Old English ceremonial practice of going out early on May-day morning to gather branches of greenery wherewith to deck the Maypoles, and in various other ways to testify the public rejoicing that Spring had come once more. In this original connection the gathering of flowers and verdant branches was a perfectly natural and reasonable thing to do. They were taken from public woods or forests, they were used for decorative purposes, and thus they served a definite end. But the custom, when brought to Guernsey, seems to have lost entirely its originally picturesque purpose, and to have degenerated into a mere destructive and senseless raid. The prac-

tice has now (1912) happily died out, but as I remember it some forty years ago (say in the '70's) it took a form somewhat as follows:—Companies of young men and boys would congregate together soon after daybreak on the morning in question, and stroll through the country parishes, calling at certain well-known houses where, on these occasions, a supply of milk-punch could be obtained, and then, excited by these unwonted rum-and-milk potations, the gangs continued their stroll, and swooped down on any flower-garden they met with, plucking off the blooms or uprooting the plants and afterwards throwing them away. There was no desire on the part of any of the raiders—so far as I could ever learn—to *keep* the flowers, or to carry them home. Their object apparently was achieved when the plants were destroyed and torn in pieces. The Island newspapers used to point out what very poor fun this was, and the Editors further warned owners of gardens to be on their guard against such depredations. Yet year after year, the unreasonable raid went on, until a few years ago when thanks, doubtless to the spread of education and the introduction of newer and more worthy objects of interest, the ancient practice gradually fell into disuse.

Another social change that is worth noting is the substitution of the current Christmas festivities for the rejoicings that formerly took place at the New Year. In this, Guernsey used to follow the practice of France rather than that of England. Of course, there was a certain religious observance of Christmas. The Episcopal Churches had their prescribed services, and our Roman Catholic friends prepared their "cribs"; then again, there was the traditional Long Night (Dec. 23)—a non-ecclesiastical observance—when the knitted woollen goods (stockings and close-fitting jackets) were packed for sale and export, with the accompaniment of a certain amount of mild jollification; while on Christmas Eve the country people crowded into town to buy and eat oranges and roasted chestnuts. Yet still, although some of these observances were ceremonially connected with Christmas, while others of them were merely coincident with it; yet as regarded the chief social functions and festivities, such as present-giving, family-gatherings, &c., these all at that time clustered round the New Year, rather than round the Christmas season, as they do now. The children in the different parishes used to go about on New Year's morning and call at the houses of their friends and neighbours, to wish them a Happy New Year, and to ask for a New Year's gift. This custom seems now (1912) to have practically died out.

Christmas presents were not given formerly as they are to-day; it was all New Year's gifts. The parcels-post in those days did not exist. There were no Christmas Cards, and the Christmas post, in comparison with the heavy mails to which we are now accustomed, was ludicrously small. In fact, I remember, that many years ago, the late Mr. Nicholas Le Messurier, the then postmaster, at my request, very kindly looked up some old postal statistics, and gave me a copy of them. One item was that on a certain Christmas day, the incoming mail from England consisted of one single letter for the whole Island. I am sorry that I cannot now recall the particular year in which this incident occurred, but it would be one of the early years of the last (19th) century. I know I published the figures at the time in one or more of the Guernsey newspapers, but I cannot at the moment recollect even the approximate date of such publication. Still the record exists in some of the local newspaper files and it may be accidentally lit upon any time.

J. LINWOOD PITTS, Sec. Folklore Sect.

Report of the Geological Section, 1912.

1.—*Vazon Bay.*

A patch of ancient beach was exposed in Vazon Bay last January. It cannot be called a raised beach, because its level is little above that of mean tide, and it is covered by the deposits of the actual beach. It however resembles the 25 foot beach and there can be no doubt as to its antiquity.

2.—*Rocquaine Bay.*

Mr. A. Collenette reported the finding of a beach deposit in sinking a well on the slope overlooking Rocquaine Bay, under about 50 feet of deposited material, consisting chiefly of clay with angular stones. The level of this beach probably corresponds with that at Vazon referred to above.

3.—*Mont Cuet.*

Mr. Collenette also reported a new exposure of the 50 foot beach in a quarry recently opened in the higher part of Mont Cuet.

4.—*Lowland Road, Vale.*

In excavating for drains in this locality, diorite was found at the surface, both at the cross-roads near Mr. J. E. Dorey's house, and at the site of the pumping station which

has just been erected. Some of this diorite, although thoroughly disintegrated, retains its blue colour. In the hollow between these outcrops, a stratum of about 2 feet of marine sand was found, underlaid by yellow earth (loess) and that by clay with angular stones resting on the decomposed diorite at a depth of 10 to 12 feet. This marine sand was also found in the field where the pumping station is erected. Here it is also about 2 feet in thickness, but rests directly on the decomposed diorite.

5.—*Pollet Street.*

In the excavation on the site of No. 8, recently demolished, a fine section of the yellow earth (loess) was exposed to a depth of about 12 feet, the bottom not being reached. This loess consisted, as usual, of two kinds of layers, both composed of sand and clay but in different proportions. The more sandy layers, which in this case greatly predominated, are lighter in colour than the more clayey ones, and their particles are coarser, but none of the clay was sufficiently fine to remain in suspension in water for any length of time. The whole of the material appears to be derived from the disintegrated gneiss of the district, and the grains are not rounded in any appreciable degree, showing they have not travelled far. The layers are as usual irregular and somewhat contorted.

C. G. DE LA MARE, Sec. Geol. Sect.

Report of the Marine Zoological Section, 1912.

I am sorry that there is very little to report this year.

It is most unfortunate that, although we possess in Guernsey and the neighbouring islands almost unparalleled opportunities for Marine Zoological investigations, due not only to the physical conditions of our coastline, but also to the exceptionally large rise and fall of the tide here, we are still without workers. The only addition to our list this year, and one that I cannot find recorded as having been discovered anywhere else, and therefore not yet named, is a variety of the daisy anemone—*Sagartia bellis*—with bright red tentacles. Five specimens were discovered by myself in a crevice of rock near Moulin Huet in September.

For about a fortnight in June we had carried to our shores—principally along the Western coast—enormous numbers of two tropical and sub-tropical marine creatures. *Physalia*, the “Portuguese Man-of-War,” and a smaller

creature, *Velella*; of both of these I secured a number of specimens.

Nearly every year a few of these animals are reported as having been found on the Western coast of Ireland and the South-Western coast of England, but there is no previous record of them for Guernsey. Nearly every day for about a fortnight, however, they were reported to me, and one day a fleet of some thousands was floating off the S.W. corner of the island.

Curiously, whenever the Portuguese Man-of-War has been discovered along the British coast, careful search has revealed the presence of *Velella* also, so that Mr. Hughes—as recorded by Gosse—terms *Velella* “the Attendant Satellite” of *Physalia*. I think, however, that this is simply due to the fact that the two forms are both so very common in the warmer parts of the Atlantic Ocean that any current which carries one of them to us is almost certain to convey the other also. Their presence on the Guernsey coast in such large numbers seems to point to some increase in volume and deflection eastward of that branch of the Gulf stream which runs northward past the West coast of Ireland, aided also probably by the long succession of Westerly winds experienced during the past summer.

F. L. TANNER, Sec., Marine Zoology Section.

Report of the Ornithological Section, 1912.

Once again the wryneck, chiff-chaff, swallow, and other sweet feathered songsters that charm us so with their presence during the spring and summer months, have paid their yearly visit to the old home, and are now returned with their numerous progeny to those warmer southern latitudes frequented by them during our winter season.

The why and the wherefor of bird migration still remains a mystery. Many theories have been put forward to account for it, and surely, if slowly, facts in connection with the phenomenon are being established, but the key to the riddle—the original impulse—still awaits solution.

As, however, practically all birds, I believe, are now proved to migrate in a small or large way, may it not be that migration in the wider sense had its beginning in very short journeys indulged in by some species, perhaps for no very particular reason, and that gradually through long ages these journeys have lengthened out in both directions, until brief

“flittings” shall we say, that were in no way worthy the name migration have slowly developed into the complicated and elaborate system we are interested witnesses of to-day. However this may be, the fascinating subject is occupying the close attention of many bird-lovers, and each year new knowledge is being brought to light, confirmatory or otherwise of existing theories.

The question is often asked as to the whence and whither of the swallows which for some five months of the year—from May to September—frolic and gambol around us. Silently and unannounced they appear in the spring; silently and without word of farewell they disappear in the autumn. Whence came they and whither do they go?

The question is answered in a recently published little book, “The Migration of Birds,” by Mr. T. A. Coward (Cambridge Manuals of Science and Literature). The author says:—

“Our swallow and its congeners have an almost cosmopolitan range, summering in the Northern and wintering in the Southern Hemisphere or comparatively near to the Equator in the Northern. Towards the centre of its range its migrations are either short or the bird is non-migratory.

Mr. W. L. Sclater, addressing the South African Ornithologists’ Union, stated that the swallow arrives at Cape Town at the end of October, and is common from November to March; practically all have left by the middle of April. Swallows begin to arrive from the south in Africa north of the Sahara in the latter half of February; early in March they reach Southern Europe, later in the same month they are in Central Europe, and by the middle of April large numbers arrive in England. Thus swallows leave South Africa actually after they have arrived in England; the South African birds cannot be the same which are in North Africa a month earlier! The swallow supports Seebohm’s thesis that the individuals which go farthest to the south in winter, breed farthest north. A day-migrant and by no means a rapid one, the swallow may be timed from place to place, and it is no presumption to suggest that the birds which reach Britain to nest come from lands little south of the Sahara and well north of the Equator, and that those which pass through England and along our shores in May and even in June are on their way from Southern Africa to the northernmost limits of their range.”

With these introductory remarks I shall now tell you about the 1912 summer birds of passage that have come under

my notice, or of which I have been very kindly supplied with notes by other observers. To all those whose names appear in the following paragraphs I tender hearty thanks for their valued co-operation with me in this interesting branch of our Society's work. My own field of observation being practically limited to St. Martin's, I feel my notes would be of little worth were they not so copiously supplemented by those of others.

Chiff-Chaff.—On exactly the same date as last year, viz., March 22nd, this always early spring visitor announced its arrival for the season. I heard the bird that morning in the Bon Air Valley, at St. Martin's. On the 25th I again heard the pleasing note at the same spot and also at the bottom of the Water Lane at Moulin Huet. By the end of the month the bird was to be heard everywhere. Since 1908 the observed date of arrival of the Chiff-Chaff has been on one of the six days, March 22nd to 27th, which seems to point to a very regular return of the bird to its summer haunts. The bird was heard as usual all through the summer, but not up to as late a date as generally recorded. As a rule the note is still to be heard in the early days of October, but this year I did not hear it after September 29th. For some reason or other the cheerful little Chiff-Chaff is not nearly so well known as for instance the Cuckoo, or the Wryneck, and yet it has a note quite as much all its own. The note of this little bird was very beautifully described by Morris when he wrote: "The song, frequently heard overhead from the upper part of some tall tree . . . falls on the ear with a ringing sound, reminding one of the faint chime of the distant village church bell."

Wheatear.—Mr. J. S. Hocart reports seeing a Wheatear on Lanresse Common on April 3rd, and his last date for seeing one is October 12th. My own dates for the arrival and departure of this bird fall between Mr. Hocart's, for the first I saw was one on the Petit Port cliffs at St. Martin's on April 28th, and I saw none after October 7th, on the afternoon of which day several were still to be seen along the coast road between Pleinmont and L'Érée. Our dates this year are late for the arrival of the bird and early for its departure.

Wryneck.—April 3rd appears to have been the date of arrival of the Wryneck, or Mackerel bird as it is better known. On that day it was heard by Jurat Kinnersly at Le Varclin, by my wife at Les Blanchés, and by Mrs. Allès at La Croix Bertrand, all at St. Martin's. Myself and others heard the bird the next day. At Torteval the Rev. R. H. Tourtel first heard the cry on the 10th; it was heard in the neighbourhood of the Victoria Hotel, St. Saviour's, on the 14th, and by Mr. Hocart at Lanresse on the 25th. Mr. Tourtel has given me no date for last hearing the bird, and Mr. Hocart wrote me: "it disappeared from our locality [Lanresse] in the beginning of June." At St. Martin's I continued hearing this migrant frequently until past the third week in July, not in numbers of course, but singly here and there (at Fermain, at Les Blanchés, and in the Petit Bot Valley), and heard it for the last time in Fermain Bay lane on July 24th. Our *Transactions* give but one later date. In 1908 Mr. Hocart heard it as late as the 30th.

Cuckoo.—This, the best known, and most eagerly anticipated of all our bird visitors, was first heard by Mr. C. G. de la Mare on April 18th, at the Haye du Puits; it was also heard on the same day in the neighbourhood of the Victoria Hotel, at St. Saviour's. The following day my notes show that it was heard at widely separated spots, for Mr. S. M. Henry reports hearing the call in the grounds at Havilland Hall both morning and evening; my brother-in-law, Mr. G. F. Allès, heard it at Moulin

Huet; Mr. Tourtel did so at Torteval, and Mr. R. P. Spencer heard one at Alderney also, and gives that day as the date of its arrival in that island. On the 20th myself and several others at St. Martin's came within range of the welcome, if monotonous, song. At Lanresse the bird, according to Mr. Hocart, was first heard on the 23rd. A pleasing experience of mine in recent years has been to saunter along the cliff path below the Courtes Fallaizes at Moulin Huet, in the twilight of the early days of July, and listen to a Cuckoo calling from one of the Vallon trees. I looked forward to a similar treat this season, but was disappointed. Whether my friend of past summers is dead or has betaken himself to pastures new I know not, but certain it is, the old familiar sound did not once come to me, as I loitered about the neighbourhood in the growing dusk of the first week of July. My own date indeed for last hearing the Cuckoo this year is so singularly early (June 18th at Les Tielles, Torteval), I am more than usually glad to be able to supplement my own observations with notes made by others, and thus give proof that the Cuckoo continued to sing as late, practically, as in other years. On June 23rd Mr. Tourtel still heard the bird at Torteval; on the 28th Mr. Hocart heard it for the last time at the Vale; on June 30th Miss E. Henry heard the call in the grounds at Havilland Hall, and on July 2nd Miss E. Lenfestey heard it at St. Peter's-in-the-Wood. At Sark it was heard by Mrs. Henry, Vallée du Creux, on July 1st, and on August 2nd Capt. Henry saw two birds in that island. An interesting fact in connection with the sojourn of the Cuckoo with us this year is, I think, worthy of putting on record. On May 14th, in the morning, I heard a Cuckoo in one of the gardens below Clifton Hall. Many years ago—twenty or more—one was heard there regularly for several summers in succession. From that time to this I had never heard the bird so close to the heart of the town.

Swallow.—Swallows were not late in putting in an appearance this Spring. Mr. George J. Tourtel, of St. Martin's, saw two flying about over the Moulin Huet cliffs on the morning of April 9th, and Mr. Hocart, for the Vale, has written: "I saw three Swallows together, as if arriving, on April 11th." (Our earliest recorded date in the Transactions for first seeing Swallows is April 6th.) On April 16th Mr. E. Rammell saw three at St. Andrew's, and on the same day Mr. Spencer saw one while crossing to Alderney. Several members of our Society, including the writer, saw their first Swallow at Les Tielles on April 20th. We were out there cave exploring, and the plump little fellow flew past us as we tramped along the top of the cliff. It was many days after this before the birds became numerous, but their number gradually increased with the advent of May, until, to all appearance, the invaders were as plentiful as in recent years. About their departure Mr. Hocart's observations confirm my own: that the birds left us earlier than usual. Mr. Hocart saw none at the Vale after October 2nd. I think the bulk of them must have left on the last days of September—on the 29th they were still numerous at Les Blanchés, and on the 30th I observed some congregating on the telegraph wires at the top of George-road. After this date, with one exception (October 13th) I only saw an occasional straggler or two—on some days none at all—and the last, four, circling round the Old Mill at St. Martin's, in bright sunshine, on October 27th.

House Martin.—On April 24th Mr. G. J. Tourtel saw a couple of House Martins at Moulin Huet Bay, but I did not chance to see any until May 6th, on the evening of which day several were flying about over George-road. Although at the very end of the season House Martins were exceedingly plentiful it seems to me we have had fewer than usual with us this summer. During the early part of October I saw them in abundance both at the Forest and St. Martin's, but very few were observed after the 12th. On the morning of the 30th some six or eight were sporting about at the top of George-road, and I saw the last at the

same spot on the following day. The House Martin, like the Swallow, apparently took its departure earlier than usual, for as a rule they are still to be seen well into November. Last year, too, the latest date for seeing the bird was a remarkably early one, none being observed after October 29th.

Sand Martin.—This summer's observations again support the belief that the Sand Martin does not nest here and that those seen are merely passing through on their way further north. The only time this year that I saw the bird was on April 23rd, when I noticed several flying about over the Courtes Fallaizes cliffs above Moulin Huet, at St. Martin's.

Swift.—The same, fortunately, cannot be said of that most interesting and graceful bird, the Swift—the last of the Swallow tribe to arrive, and the first to leave us. The Swift not only nests here, but, I am glad to say, is becoming increasingly abundant. On May 6th Miss Kathleen Tardif saw one at Fermain Bay, and on the evening of the same day I saw two of the little Town Church band. The next day more of the church party had arrived, and on the 9th the company was apparently in full force. On the 10th one flew over our garden at Les Blanchés in the morning. For three months or rather more the birds were delightfully *en evidence* everywhere—in town and country, on the cliffs and inland. As last year we lost sight of them very early I kept a particularly close watch on these elusive members of our feathered visitors this summer, and in this I had the valued assistance of Mr. E. D. Marquand, who was spending a holiday here during August and part of September. Swifts continued numerous all through August (last year very few were seen after July) and the beginning of September; from my notes I see that the Town Church band was still in full force on August 10th, and at Havilland, St. Martin's, a party numbering a dozen or more were seen by me almost daily up to September 11th. The next day I saw a solitary one at Les Maindonnaux, St. Martin's, and the last on the 13th, not far from Morley Chapel. Mr. Marquand noted some daily up to September 8th, including one flying about north of Bordeaux on the 6th. Mr. Marquand's last date for seeing the bird was the 14th (one day later than myself) when he and his son saw one flying about over St. Martin's Point.

Corncrake.—The Corncrake has again been very little heard this summer. To me it is pretty clear that the bird comes to the island in much smaller numbers than formerly. This is probably owing to the steady covering over of the land with dwelling and glass-houses and the breaking-up of what was once grass land into gardens, making it more and more difficult for the bird to find cover. The "curious creaking cry" of the Corncrake used to be one of the delights of a summer's evening walk in the country, and it was pleasant too to hear the sound breaking the stillness on a bright moonlight night. Now one listens for it in vain. This year's observations are limited to three notes, all included within the small space of eight days. On May 7th Mr. George F. Allès heard the bird calling in the field opposite Morley chapel. Two days later I heard the note in the same field both morning and evening, and on the 14th I chanced to hear the sound once more—this time in the neighbourhood of Oberland, at St. Martin's. The Rev. R. H. Tourtel wrote from Torteval that he had not heard the bird this season.

Ring Ousel.—At last the Ring Ousel has been caught halting here when on the northward, or spring migration. Jurat Kinnersly saw one at Calais, St. Martin's, on April 24th, and watched it for some considerable time. Our *Transactions* have recorded the occurrence of the bird here in the autumn on several occasions, but never until this year has it been reported as occurring in the spring. Cecil Smith, in *The Birds of Guernsey* (1879), wrote to the effect that he had no authentic evidence of the Ring Ousel having ever been seen here in the spring or summer, but added that it might occasionally visit the island in the spring migration.

Blackstart.—Mr. R. P. Spencer reports seeing a Blackstart at Lihou Island on May 5th, and Mr. Hocart saw one while crossing Lancrese Common on November 8th.

Nightjar.—An interesting note comes from Mr. Hocart to the effect that a boy took him a young Goatsucker (or Nightjar) for identification on September 17th. Mr. Hocart writes: "Being a bird of nocturnal habits it is little known and may probably often be mistaken for an Owl when flying in the dark." Cecil Smith wrote in 1879 of the Nightjar as being a "regular autumnal visitant," and added that a few perhaps arrived in the spring and remained to nest. Mr. Hocart, I may add, considers that the bird taken to him was born here.

Moorhen.—A Moorhen which has wintered regularly at Saumarez Manor, St. Martin's, for several years past, has again made its appearance there. It was seen for the first time this autumn on September 25th by Mr. Harold Smith. The bird always disappears in the early spring. A reference was made to this bird in last year's report and the suggestion thrown out that it is probably one of several Moorhens imported into Saumarez Park at the C atel some years ago. Apparently this bird prefers to live apart from its kind during the winter. In any case its regular appearance at St. Martin's in the autumn and its as regular disappearance in the spring is worth noting.

Bartailed Godwit.—Mr. Spencer shot a Bartailed Godwit at Vazon on October 31st. It was in winter plumage. A few days later Mr. Spencer saw several more of these birds.

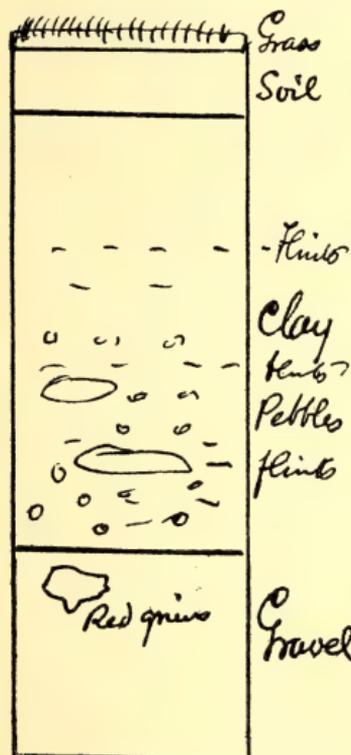
BASIL T. ROWSWELL,
Sec. Ornith. Section.

NOTE ON A DEPOSIT OF GLACIAL CLAY AND ITS CONTENTS

AT AN ELEVATION OF 300 FEET ABOVE O.D., MARCH, 1912,
ST. MARTIN'S ROAD (Behind No. 4 House).

BY MR. A. COLLENETTE.

AN opening was made in the back garden of the house known as "Brooklyn," St. Martin's Road, and was excavated to a depth of 7 feet and about 4 feet square. The



first found distinct layer was 1 foot of soil which graded gradually into underlying clay. At a depth of 4 feet the clay, which was soft and extremely plastic, perceptibly changed colour, and then ceased altogether. The clay was a dirty grey colour but became yellow as the rain fell on it. Under the clay was a soft yellow gravel of exactly the colour of the gravel of St. Germain, Câtel.

From the clay, as it was excavated in layers of about 5 inches depth at a time, were taken all the exhibits accompanying this note.

The small boulders and the pebbles were distributed over the whole deposit, but the lowest foot contained a larger number than the upper layers.

Worked flints were also found, there being a tendency to concentrate in the middle of the deposit.

Two pieces of bone were also found in the lower levels. The bone was much worn and was a mere shell, but the curves enabled it to be determined by Dr. A. S. Woodward, of the British Museum, as "Pig," but the species was undeterminable.

The pebbles and boulders were of all sorts of rocks, showing that the beach from which they were moved was of large area.

The vein and trap rocks contributed a fair proportion and the gneiss of the upper lands was represented, but there were pebbles of two rocks not now known as local. These will be determined later on.

There were angular stones of various sizes in the gravel, but they belonged to the rock which gave rise to the gravel and were therefore *in situ*.

The pit therefore consisted of (a) decomposed gneiss, red in colour and without foliation and undisturbed; (b) clay which had been deposited with its contents from surface at a distance.

The rocks represented and the different sizes of the pebbles indicated the carrying by some moving agent.

The clay and its contents were deposited continuously and from above. There was a complete absence of stratification, hence the clays cannot have been water deposited from streams.

The appearances and the contents are consistent with the deposition by floating or melting ice.

I therefore tentatively associate the deposit with ice movement, which would easily have collected and deposited the clay and its contents.

The flints are indefinite as to age and might be referred, by different persons, to late Paleolithic or Early Neolithic Age.*

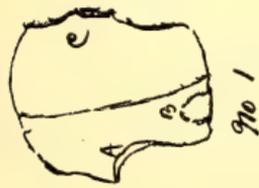
The deposit, being glacial, favours the opinion of the flints being Paleolithic, and if this is confirmed it is practically the first indication of Paleolithic man in Guernsey.

The pebbles give undoubted proof of the prior existence of a beach at a higher elevation than 300 feet. This has been long suspected, but no satisfactory proof has previously been met with.

The points raised by this find are :—

1. Man in Guernsey prior to the last local glaciation.
2. Submergence to a greater depth than 300 feet probably during glacial epoch.
3. Movements of local ice caps.
4. Evidences of great changes of climate.
5. Total disappearance of the land surface which contributed to the deposit.

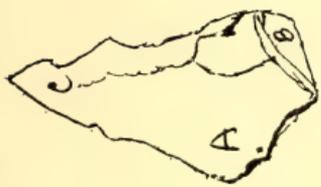
* The flints were examined in Oxford by Mr. R. M. Marrett and Dr. Arthur Evans.



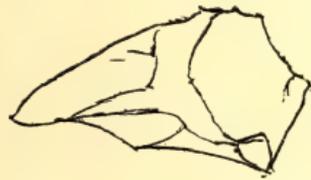
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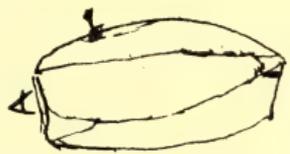
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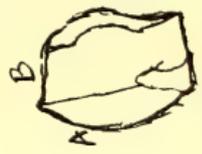
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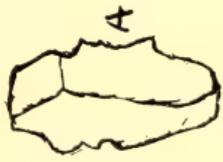
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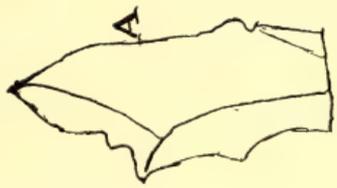
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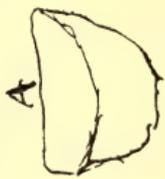
No. 8



No. 9.



No. 11.



No. 12.

ST. MARTIN'S ROAD.—EXHIBITS.

- No. 1.— $24 \times 21 \times 3$ m. Scraper of blackish-grey flint. Knocked flake off at B. Curve A much worn. Flaking crude.
- No. 2.— $31 \times 21 \times 1$ m. Scraper. Grey flint. Flaked into hollow curves at A and B. Edge of B serrated. Much used.
- No. 3.— $36 \times 23 \times 7$ m. Pointed scraper, very rough. No sign of use. Probably discarded. Cherty-grey flint.
- No. 4.— $26 \times 15 \times 6$ m. Scraper. Grey flint. Cutting edges at A and B roughened. Curve at C smoothed by use. 2 punch marks (1m.), one of which slipped down the line D-E, scoring it and removing two curved flakes at E and D-B.
- No. 5.— $14 \times 11 \times 5$ m. Flake. Showing bulk of concussion. Probably flaked off larger piece already partly shaped.
- No. 6.— $29 \times 24 \times 6$ m. Grey flint scraper, much worn at A.
- No. 7.— $20 \times 14 \times 4$ m. Grey flint scraper, worn to a serrated edge at A and smoothed by scraping at B.
- No. 8.— $22 \times 20 \times 5$ m. Grey flint scraper, much flaked at A, evidently an attempt to produce a cutting edge with attempts to limit area at B and C, but a failure.
- No. 9.— $26 \times 13 \times 7$ m. Grey flint scraper, probably originally edged at A, but now edge irregular and spoiled.
- No. 10.—Dark flint. Undoubtedly flaked, but unfinished.
- No. 11.— $41 \times 17 \times 11$ m. Grey flint. Very rough. One sharp edge at A.
- No. 12.— $20 \times 14 \times 7$ m. Grey flint scraper. One cutting edge at A.
- 14 small flint chippings.
- 18 medium " "
- 6 large " " from shapings of cores.
- 1 large flint core—doubtful.
- 1 " " —much worn by attrition since losing chips.
- 2 small cores, also worn by attrition, but less so.
- 3 pieces of baked clay. Not recognised as pottery. May be accidentally baked on side of fire. The true position of these is doubtful, they may have fallen from upper layers in working.
- 1 resinous fluxed mass of doubtful origin.
- 1 bone. Humerus of a young pig. Species undeterminable owing to incompleteness.
- 1 bone splinter. Undeterminable.
- 58 pebbles, worn and sub-angular, beach derived.
- 1 very large ditto and 1 sub-angular ditto.

NOTES ON THE GEOLOGICAL RESULTS OF THE EXCURSIONS.

BY MR. A. COLLENETTE, F.C.S.

ALTHOUGH I have been asked to speak of the results of the excursions, presumably those organised and planned by the Committee, I shall to-night consider myself free to include many which have occurred and which were hurriedly organised to investigate finds reported either by, or to, our members, for these have a place in our summer's work.

The excursions, although spoken of under the heading of "Geological," will include some in which the interest was more "Antiquarian" than geological.

This year I have written under the following sub-heads: (a) Caves; (b) Rocks; (c) Superficial Deposits; (d) Antiquities.

Caves.

I regret to say that the search for signs of occupation of caves by prehistoric man has resulted in failure.

The search was confined to two caves, that over the arch at Les Tielles and the Dog's Cave (Creux au Chien). In neither cave was it considered necessary to organise working parties. The Tielles cave was difficult of access, but Mr. H. Le Messurier and Mr. Tanner made the descent from the cliff by means of ropes and succeeded in examining the cave which, they reported, had a very shallow earth bottom which gave no indication of man's occupation.

A large party went down the cliff to the "Dog's Cave," the work being made easy by ladders and ropes. The cave was found to agree with the description already published.* The search party consisted largely of our prominent members, who gave no hope of the cave proving of value.

Rocks.

Owing to the interest attached to the statement made by the Rev. E. Hill and Prof. Bonney, that the so-called hornblend schist of Pleinmont Point proved to be, under petrological microscopic examination, an altered shale, one of the outings of the Society was organised (and was well attended) to view the rock *in situ*.

* See *Transactions* 1895, fol. 13; 1896, fol. 88; 1911, fol. 280.

The geological section spent the time in examining the rock, its intrusion (mica trap) and its junction with the gneiss. Of its schistose structure there can be no doubt, and its being placed, by the members, in the hornblend-schist series is, I think, excusable, for in the field there is nothing, if we except its unusual thickness, to lead to a different opinion. At present the origin of the rock must rest on the petrographical evidence, but it may well be that the Society may find field evidence to support the microscopic later on.

I have taken the opportunity while visiting quarries during my official work of taking notice of all the hornblend schist met with. In most cases I have been able to trace the schistose portions to more compact portion of the dykes.

In one case, at Richmond, I was unable to do this, and the schist and gneiss were so irregularly mixed that it was difficult to say which was the older rock, but ultimately I came to the conclusion that the schist was intrusive and that its intrusion had shattered the gneiss and so permitted its admission into lenticular cracks.

While on this subject I may say that one of the pieces of stone found in the clay at St. Martin's Road was a piece of a schistose character. In Mr. De La Mare's opinion it much resembled in appearance the Cambrian schist of Cherbourg.

It happened that this piece, found in what I consider to be glacial clay, was striated, and it became important to determine whether it was the schist and therefore brought by ice from France, or hornblend schist, which occurs in many places on the high land here.

As I have always considered that a local ice cap explains this deposit of clay (one of several) I decided to send specimens to England for examination microscopically.

I therefore forwarded :—

No. 1.—A piece of the Cherbourg schist.

No. 2.—The striated stone from the clay.

No. 3.—Hornblend schist from Les Tielles.

The third piece was chosen with a view of deciding if it belonged to the Pleinmont outcrop of shale or not, for at Les Tielles the schistose rock can be followed until a compact greenstone dyke, from which it originates, is reached.

I may say that the hand specimens look very much alike, although there are differences of colour and texture, and that these differences had had the effect of our forming a correct classification.

I herewith give the replies received.

REPORT ON ROCKS.

1.—**CHERBOURG.**—“This rock has a schistose aspect and has been obviously much affected by pressure, being very fissile. In colour it is a pale greenish-grey, resembling a phyllite more than a normal crystalline schist. Under the microscope a slice gives indications of stratification (more or less disturbed) by a slight banding of the material. It shows much mineral change, on a small scale, consisting of a pale green flaky mineral, the exact nature of which—whether a hydrous biotite or a chlorite (neither very rich in iron) is difficult to determine, but one or two larger flakes, here and there present, induce me to think it the former. There are numerous very minute needles (? rutile) and a clear mineral, which probably represents a felspar; much of it, at any rate, very likely secondary. The rock has a general resemblance to phyllitic slates of early Cambrian or late Pre-Cambrian age.”

This rock is therefore microscopically what it is known to be in the field.

No. 2.—**FROM GLACIATED CLAY, GUERNSEY.**—“This is more distinctly green in colour than No. 1, looks more powdery, but is distinctly fissile (cleavage). Under the microscope the slice shows distinctly a cleavage foliation, with signs of great crushing. The constituent minerals are partly the above-named green mica, or chlorite (minute), partly a felspathic constituent in association with it, sometimes earthy looking (probably from crushing and decomposition). Here and there is a rather long phacoidal lenticle, composed of the same minerals, but the felspathic is more fragmental in aspect and rather larger. Occasional spots and lines of a brown staining, and not a few microliths, both clear and opaque, but too irregular in shape or small in size for identification. It is difficult to be sure, but I incline to regard it as a highly crushed and altered diabase rather than a pressure modified sediment. Microscopic examination does not suggest a close affinity to the Cherbourg rock, to which, in the hand specimen, it has a fair resemblance.”

It is therefore consistent with the whole facts to say that the clay specimen is locally derived.

No. 3.—**FISSILE GREEN SCHIST FROM LES TIELLES.**—“This is certain, that the rock has been greatly crushed, owing to that, its structure and, perhaps, its mineral character. The microscope shows a great deal of rather wavy pale-green micaceous mineral, probably a hydrous biotite rather

“than a chlorite, embedded in a matrix generally inert to polarized light, but in it are scattered small pieces (of rather fragmental aspect) of a clear mineral like a felspar, also little grains and granules of a brownish mineral, sometimes semi-transparent with a few clear slightly yellow granules and possibly sometimes epidote. I think there is a little rutile. Comparison of this slice (and specimen) with some from the Alps leads one to think it was once a diabase (probably a dyke) which has been greatly crushed and changed into a sort of green schist.”

During our visit to the Tielles Cave I collected a piece, one of many lying on the foreshore, where it evidently had fallen from the cliff, a compact, granular-looking yellow rock. This specimen presented difficulties, and before venturing to name it I thought it best to have expert opinion on it, which is as follows:—

No. 4.—LES TIELLES.—“Very difficult to be sure about this. Much stained with limonite and altered, but probably by the action of water, not pressure, but under the microscope a rather minutely crystalline structure can be traced. The felspars, now greatly changed and probably replaced to some extent by secondary products, and the augite are no longer easily recognised. It is possible that a number of tiny brown, wavy semi-transparent rods may be connected with the latter mineral. It looks at first like a hard mud-stone, but may be really a decomposed compact diabase.”

Owing to the indefinite opinion expressed I have not yet named the specimen.

While at work on the schists I was fortunate enough to find *in situ* the following:—(a) Amphibole-schist. Greenish amphibolite. This occurred at St. Sampson's, and its schistose structure was so marked that the workmen thought it to be slate.

Not far from this position I obtained a specimen of what I suppose to be a mica-schist. I also obtained, in Herm, a specimen of serpentine schist.

Superficial Deposits.

BEACHES.—The term “raised beaches” which has found a place in every geological report must now give place to the shorter term, for we have, as previously reported, recorded submarine deposits.

The excursion to Pleinmont, besides its other uses, was taken advantage of to view the position of the lower level

beach at Pleimont, where, while sinking wells, a deposit was found, inland, at a lower depth than the present beach.

During the excursion to Lihou Island a patch of beach near the causeway was shown by Mr. Curtis, but as this looked a little doubtful it will need a more careful examination than we were able to give it to determine if it is old beach or only pebbles washed down.

It will be remembered that one patch of submerged beach was found at Vazon and previously reported, so that we now have three positions for this beach level.

I have been able this year to place some of the gravel deposits in a definite order, thus : I have found, in two places, well-marked gravel deposits under, but belonging to the 25ft. beach, and I have also found white blown sand under the cliff head rubble, but overlying the 25ft. beach. The white sand is wind-blown and probably marks the upper part of the beach where it exists. This was between the Monument and Divette. At Noirmont, on the Miellette side of the Hougue, the following deposits can be seen in the following order : Decomposed rock—clay layer probably washed down from top of Hougue—rubble band. Then on the side of the Hougue at a higher level are the remains of the 50ft. beach as far as its extent goes on this side of the deposit and below is a bed of gravel belonging to this beach.

We therefore now have the gravel beds underlying three raised beaches, but belonging to them. I do not think that this has been previously reported.

At Divette I have established the following order of deposits :

- | | | |
|---|----------------------|------------|
| 1. Upper Clay—fairly plastic | ... .. | 4 feet. |
| 2. Upper Rubble—angular stones of small size—with
the upper clay washed in | | 6 feet. |
| 3. Rubble and Gravel Bands | ... .. | 8 " |
| 4. Fluvialite Sandy Clay | ... .. | 2 " |
| 5. 25-foot Beach | { Blown Sand (white) | 1 " |
| | { Pebbles | 4 " |
| | { Gravel (red) | 3 " |

Whether the middle band of clay is the same as that to be spoken of next, which contains shells, or not, is still undetermined. Mr. Derrick reported concretions as occurring at Divette, but I have not been able to place them.

Concretions

IN CLAY. KNOWN AS "LÖSSMANCHEN."

In our *Transactions* former geological notes contain references to concretions in clay at Divette, Fermain, St. Martin's

Point and La Moye Point. As far as my own observations go the layers found at St. Martin's Point are much the best example of this formation. Here we have practically four bands of varying depth of from 3 or 4 inches to 12 to 16 inches.

These concretions are hard and not capable of being broken by hand, but with the hammer they break easily with a friable fracture, showing granular surfaces. In the fractures are found minute pieces of shell, frequently with a cast of the shell originally enclosed but now dissolved. There are also found whole shells (to be described later), but, with one exception, these shells have not been found in the clay deposit.

The concretions are covered and interlayered by clay in which there is comparatively little sand. The clay itself is layered, hence is of fluvial origin.

The mode of origin of the concretions appears to be as follows: A mild period, as regards climate, enabled the shell life to exist, but probably hot summers and cold winters followed each other with greater extremes of temperature than at present. This would cause the washing down of clay, shells and vegetable matter, and would also account for the stratification noticed in this deposit.*

Assuming that the shells were equally divided among the clay of the deposit, but now are found in the concretions only, we may take it that the shells themselves have caused the concretions.

The solution of the carbonate and phosphate of lime has formed the clay into an indurated cement, the concretion being, in fact, a natural concrete. The water thus charged with lime penetrated a few inches only and then its lime formed the first layer of concrete. This being impervious arrested the action, as far as the underlying clay is concerned, but the band would naturally thicken above until all the shells in the immediate super-imposed clay were dissolved.

The layers being four in number, and at distances varying from 1 to 2 feet, show that the processes of deposition and solution were arrested and resumed at least four times. Of course these bands, being on the eroded edge of the cliff, are only slight remnants of much larger deposits and their horizontal position points to a past flat area extending over the present sea at an elevation of nearly 50 feet.

At Divette and Fermain I cannot trace the bands, but find that the clay in which they were has slipped and the con-

*The stratification is not visible everywhere, but is well seen at Divette, St. Martin's Point and Fermain.

cretions are broken up. The shells are more numerous in the clay and the concretions are smaller and the bands thinner. The band of clay at Fermain appears to have suffered less and the shells have escaped solution.

The Fermain deposit studied alone would give a false impression of the mode of formation, the slip having mixed the various bands and rubble, but the bands of concretions, *in situ*, at St. Martin's Point, give, I think, a clear idea of the process.

All along the coast the underlying rubble head has been cemented into a solid breccia. This solid mass falls from the cliffs and lies unbroken on the rocks below.

Whatever the age of the concretions there is no possible doubt that the clay deposit is old, for it is intermediate between two bands of rubble head.

I shall now quote a few authors so as to obtain an idea of these formations.

Beginning with our *Transactions* we find the concretions described in the geological notes of former excursions. They are spoken of by Dr. Andrew Dunlop, in a paper read before our Society,† as occurring in Jersey. The paragraph containing the reference appears to me to deal with more than one deposit of clay, although the author speaks of one deposit only ("The clay is generally unstratified," &c.). The author writes: "It (the clay) contains 'race'—fantastically shaped concretions resembling the 'Männchen' or 'Puppchen' of the German Loess." Again: "The clay is generally unstratified, but occasionally distinct bedding in fine layers is observed."

In Guernsey we have, so far, found the concretions in the sea-eroded cliff. There is no statement in Dr. Dunlop's paper as to their occurrence in inland clay or on the coast only. Mr. Sinel‡ in a recent work draws attention to these concretions in "diluvial clay" at La Motte, Jersey. He, however, makes a definite statement which we may look upon as filling the gap in Dr. Dunlop's paper, for he says: "In the diluvial clay of La Motte there is an abundance of the curious erratically shaped lime concretions known as 'Lössmanchen' or 'Lösspuppen.' The concretions are formed around organic nuclei The presence of these lime concretions in the clay of La Motte, and in that and no other part of the island§ has long proved a puzzle to local geologists, but the recent discovery of the large burial

* See folio 254, vol. 1898.

† Transactions for 1898, fol. 218.

‡ Geology of Jersey, fol. 24.

§ The italics are mine.—A. C

mound . . . above this diluvial clay affords a solution of the problem and points clearly to whence the line was derived."

If Mr. Sinel is correct the concretions will occur wherever there is a source of lime. I see no objection to this view in theory, but I have found that the lime in the inland clay has not, as far as at present observed, had the effect. Evidently, as far as Guernsey and Jersey are concerned, the concretions occur on the sea coasts only, although there is lime in other clays.

Geikie describes Löss a "somewhat calcareous and sandy clay . . . accumulated by the drifting action of the wind."* "Very often contains concretions."†

"The Löss is probably a subaerial deposit formed by long-continued drifting of fine dust by the wind."‡

This description does not adapt itself to our layer in which the concretions are found.

Lyell§ writes: "In Germany the accumulation of Löss has taken place on an enormous scale . . . although for the most part unstratified, it betrays in some places marks of stratification, *especially where it contains calcareous concretions.*"||

This description fits our deposit and in contra-distinction to Geikie; Lyell describes it as "fluviatile" and looks upon it as a river deposit, not as wind blown.

THE SHELLS found in the Guernsey Concretions and named are:—

- | | | | | |
|----------------------------------|-----|-----|-----|-----------------|
| 1. <i>Helix aspersa</i> | ... | ... | ... | (land species) |
| 2. " <i>virgate</i> | ... | ... | ... | " |
| 3. " <i>hispida</i> | ... | ... | ... | " |
| 4. <i>Pupa umbilicata</i> | ... | ... | ... | " |
| 5. " <i>muscorum</i> (marginate) | ... | ... | ... | " |
| 6. <i>Succinea elegans</i> | ... | ... | ... | (marsh species) |

These shells have been found in the corresponding English deposit. They are also present in the Continental deposits.¶ Lyell figures 1 and 5, Prestwich gives a list of 13, of which the above 6 form a part, as being found in the same deposit.

If we may call these shells fossils then they are the first fossils found in the island.

The deposits have been visited by Mr. E. D. Marquand, Mr. Sinel and myself, four times this summer, and the naming of the shells was undertaken by Mr. Marquand.

* Class book of Geology, Archibald Geikie, L.L.D., F.R.S., fol. 202.

† Also fol. 472.

‡ Also Prehistoric Europe, fol. 144.

§ Student's Elements of Geology, 1878. Sir Charles Lyell, fol. 413.

¶ The italics are mine.—A. C. ¶ See Lyell's "Student's Elements," fol. 134.

There is rather an important point to be noticed.

On the Continent the Löss lies in horizontal beds and conforms regularly to the river valley in which it occurs.

This deposit is abutting the inclined cliff, but the layers of concretions are horizontal. Here they are broken off by the erosion of the sea and probably extended seawards for some distance. The deposit must therefore be an old one and little else but the last remnant of a larger deposit.

I do not look upon this deposit as identical with the glacial clay of the upper part of the island, but I admit that we shall have to work out the values of the clays, for as yet there is considerable difficulty in correlating them. My work of this year leads me to classify the clays as of four different periods, and those with different climates.

Antiquities.

Hougue Noirmont on the Miellette side has proved to be a very interesting position and has been the site of several finds of importance.

There have been found stone graves.* The De Hus Dolmen is practically on the same Hougue. The site is also one on which a considerable area of the raised beach of the 50 feet elevation, which with the Capelles and the other Noirmont (near Les Maingys), mark an ancient sea level. The Dolmen and stone graves were at the same elevation, and now we have, also practically at the same level, a new find.

The Hougue is owned by our valued member, Mr. J. S. Hocart, and a quarry opening out into Miellette Bay is worked by another of our active workers, Mr. Le Tissier.

It may be that the interest the Society holds in this site results from the action of these gentlemen in losing no chance of investigation.

In June a blast was made in the quarry and an unsuspected hearth or Potter's Kiln was exposed. The above-named gentlemen at once communicated the fact and working parties were organised.

The following is a description of the find, and accompanying it is a series of drawings giving all necessary details.

POSITION: The hearth or Kiln is situate on the east side of the entrance to the quarry. It consists primarily of a trench which originally had been open at the top, but was found to be covered with the earth and rubble which had accumulated by weathering since its abandonment, so that it was 3 to 4 feet below the existing level of the soil.

FORMATION : After the trench had been cut it was lined with stones of unequal sizes arranged as loose walls but well aligned. These were plastered with a thick coating of plastic clay, evidently (judging from the samples examined) taken from the seashore.

The lining of clay so formed was some two inches thick, but was added to and thickened to 4 inches by the insertion, all around the sides and bottom, of clay bricks previously moulded and baked. These bricks had evidently been formed by pressing plastic clay into spaces made by arranging suitable flat stones to form moulds. The shapes were repeated and there were not many.

The bricks, in some cases, were joined together by a small dowel which fitted into the sockets in the ends of the bricks made by pressing the finger into the soft clay.

That these bricks were baked before use is evident from the fact that they were brick-red all through, whereas the clay surrounding them was red and yellow, depending on its position as regards the kiln. The coating of clay was smoothed and made fairly true and had been baked into brick by use.

It was also evident that the kiln had been refaced, for a thin skin of brick broke away from the older surface. The heat had penetrated to a considerable depth, for only the back of the clay bedding was yellow in colour.

The floor was also clay-lined and on the bottom rested a small quantity of ashes and several stones—blackened by use—as heating stones. Behind the large stones were found broken bricks and refuse stones and clay, the whole filling the trench and supporting the sides of the Kiln, and offering further evidence of the separate origin of the bricks. One piece of worked flint was found by our President and a few pieces of pottery, apparently of Neolithic age. It is evident that before being abandoned the Kiln had been emptied.

This form of Kiln was new to Guernsey, but, strange to say, not long after Mr. S. Carey Curtis, while looking over a refuse heap under the soil at Fort Grey, found some bricks of almost identical shape. Specimen bricks from both localities are in the Museum.

The position at Fort Grey was visited by the Society on the occasion of their excursion to Pleinmont, and other specimens were collected, consisting of hand-bricks, pieces of pottery and pieces of the long shaped bricks. Whether these belong to the Neolithic period or not is not yet decided. On comparing this one with other finds we are met with the fact

that the other such places and bricks are evidently belonging to a late culture.

For instance, there had been found at Quiberon and described by Mr. Le Rouzic, who is known personally to most of us, a very elaborate furnace with a regular grate built in with fire-bars, supported on corbels, which in turn were kept in place by flat bead stones imbedded in the clay. The furnace was also provided with flues and was different in the way it was built up; indeed there seems to have been only a family likeness between this one and ours, the latter being much more crude.

A series of hills or mounds exist near the estuary of the River Colne in Essex. These hills are covered by such a quantity of bricks, whole and broken, and clay which has been burnt, that the earth for some feet in depth is red and the hills go under the name of "Red Hills" in consequence.

In these hills have been found great numbers of broken long bricks like ours but longer, which are thought to be fire-bars. There are, however, no furnaces there, although these hills seem to be the places where the river and marsh clays were collected and burnt. There are hand-bricks also exactly of the same form as we find here at Richmond, Fort Grey, and in this new position. Here again the forms appear to be more developed than ours.

I shall not discuss the probable age of our find, but will simply say that if we had no other guide but the horizon on which we find it we should have called it late Neolithic. Those in other parts of Europe are considered to be late Celtic.

Only two weeks ago Mr. Hocart telephoned to me that he and Mr. Le Tissier had discovered, at Sandy Hook, what appeared to him to be stones of a dolmen. I at once arranged with Mr. Curtis and those of our members I happened to see to go out and view the stones. The first visit was paid by Mr. Curtis and myself, and on that occasion we decided that the find was promising enough to work.

On the second occasion six members came out and we dug out a complete circle of stones. The stones were small—were standing on a natural clay deposit which is common to the whole of the field and were without any cap stones.

I may say that the property belongs to Mr. Joseph Naftel, and he very kindly granted the Society permission to excavate. The position is called Sandy Hook and a little time ago it consisted of large dunes of blown sand, now removed. The sand has mostly been carted off for use in greenhouses and a clay floor beneath the sand has been exposed. This is the clay

floor on which the stones have been placed and on which the men of the day walked. We have been fortunate enough to find flint chips and cores in sufficient numbers to establish the places to be one used by the prehistoric men.

As regards the circle we have excavated—there is no possible doubt that it is the work of man, but, as far as we have gone, it is a circle only, not a dolmen. There is an alignment of stone starting from the circle which we have not yet uncovered; but these we know to be loose stones of the same sizes as those of the circle. Beyond the circle and above the alignment is a large stone looking like an outcrop of rock, for which indeed we at first took it.

On our third visit, we were but three workers, hence could not do much; but we determined the large stone to be a large, loose and weathered stone, and that it rested on a flat surface of stone which we had not time to clear. The flat stone is large enough to be a capstone and there is loose clay below it. These stones have other smaller ones in such positions as point to their being trigs or supports.

The whole must be uncovered as soon as possible. Flint chips and pebbles have been found in the clay to the very bottom of our excavation.

The stones have been in position so long that the line of the clay filling is visible by decomposition of the stones.*

* For fuller details see special report in this number.

SOME HISTORICAL AND ARCHITECTURAL NOTES ON THE PRIORY AT LIHOU.

BY S. CAREY CURTIS.

The Priory was dedicated to Notre Dame de la Roche and was probably in pastoral care of the district comprised in the Fief Lihou extending along the coast called Perelle, from L'Erée to Rocquaine Castle, where the district of St. Brioc begins. It was served by a Prior, appointed by the Prior of St. Michel du Valle, a dependency of the greater Abbey of St. Michel au péril de la Mer in the Bay of Avranches. It was regarded by the Breton fishermen and sailors employed in the coasting trade with great reverence, and they were wont to lower their topmasts when passing, and it was a favourite resort of pilgrims (Guernsey Folk Lore, p. 166).

Note.—Sir Edgar McCulloch derives Perelle not from *péril* but from *pierre*, and *pierre* and *roche* are synonymous in the Guernsey dialect (Folk Lore p. 341).

HISTORY.—Very little is known historically of the Priory. The early records are few and the date of its foundation is unknown to us with any certainty. "The Dedicace des Eglises" gives 1114 as the date of the consecration, but in view of the unreliability of the whole of the Dedicace, not much importance can be attached to this date. It is not, however, impossible, as I shall show later in dealing with the Architecture of the Priory.

In a Bull of Adrian IV., dated 1155, the Priory (in the Bull called Lishou) is scheduled amongst the Guernsey possessions of the Abbey of Mont St. Michel. It was dignified together with the churches of St. Saviour, St. Marie de Castro, St. Peter de Bosco, and St. Michel de Vallo, with the term "ecclesiam" not "capellam" which would show that it was of some importance at that date.

Note.—Incidentally, I understand from the Rev. Walter Brock that the Parish of St. Peter-in-the-Wood includes the Priory of Lihou, and that on the induction of a new Rector, an extra fee has to be paid for the plural benefice.

In 1443 the reversion of Lihou was granted (*inter alia*) to the Provost of Eton College. A search among the Eton College Archives might give some interesting information.

There are many entries of the names of Priors and other matters in the rolls of the Vale Church, but none of note until 1560, when Sire Thomas De Baugy became Prior. He was probably the last, as in 1568 Guernsey was severed from the see of Coutances and transferred to that of Winchester, and the *raison d'être* of Lihou then came to an end, De Baugy about this time becoming, first, rector of the Vale, and later of St. Sampson's in addition.

The above represents the whole of the records I have been able to find of the pre-Reformation history of the Priory. Probably at the transfer of the Guernsey benefices from Coutances to Winchester, the veneration in which the Priory was held diminished, and it began to fall into disrepair. Heylin in his book "Journeys to France and the Channel Islands," published in 1656, records that it was then in ruins and had been for a long time, but the steeple, which then served as a "sea-marke," was still standing. The tradition is well known that a Governor of Guernsey during the Napoleonic wars ordered the demolition of the Priory in order to prevent its being used by the enemy* ; but Heylin's account effectually disposes of this legend. The steeple, in all probability, fell down in lapse of time, and the story of the Priory having been blown up is certainly mythical and probably invented to account for its ruined condition.

In 1838 Mr. F. C. Lukis visited it and made certain sketches and plans which are virtually of what may be seen at the present time. He left two sketches, one from the N.E. and the other looking at the N. wall from the S., showing the walls which then existed. Examination shows that fortunately no destruction has apparently taken place in the walls since that date. Mr. Lukis left in his *Collectanea*, now in the Lukis Museum, a long account of his researches on the site, but the results are very meagre and of not much importance. He found a few pieces of glass and pottery, some coins (which have now all disappeared), one or two pieces of carving, of which similar pieces can be seen built into the walls of the farm-house, and a piece of green Egyptian porphyry, which he found in the Sanctuary under the pavement and to which he attached great importance. It seems to me, however, that it came into that position by accident as rubbish to fill up under the flooring. Mr. Lukis left no record of discoveries of larger importance, or information of any kind, which would help a subsequent explorer to get any idea of the Priory in its original condition.

* Tupper's History of Guernsey mentions 1793 as the year in which the Priory was demolished, but a search among the military records of that time at the Headquarter Office does not confirm that statement.

ARCHITECTURE.—The Priory, as far as can be gathered from the existing scanty remains, consisted of a nave, 41ft. 6in. long by 29ft. wide; a choir or sanctuary, 41ft. long by 17ft., on the north-eastern corner of the nave, and a tower about 12ft. square on the north side of the nave.

Certain straight joints in the masonry show that the Priory was without much doubt built in three parts, and the evidence points to the nave having been first built, then the sanctuary was added, and the tower was added later, the then existing north wall being utilized for one of its walls.

We have still existing the greater part of the north wall of the nave, the lower part of the tower complete, the lower parts of the sanctuary, and the east wall of the nave. The north wall of the nave still shows the springing of the vaulting and the construction and nature of the roof, giving us data by which we can arrive at the height of the roof of the nave.

On the south side of the sanctuary are the remains of a building the use of which I have not been able to determine with any degree of certainty. It extends the whole length of the sanctuary with an internal width of only 6 feet. The dimensions indicate that it was not, as might be expected, a side chapel as the masonry at the S.E. angle of the choir shows that it was built at a later date than the walls of the sanctuary. It might have been a platform where the pilgrims collected before entering the Priory. The ground near is very broken, and a procession moving across it would not have been able to proceed in an orderly manner. Or it might have been a robing vestry for any ecclesiastics who came with the bands of pilgrims.

On the south side of the nave is a mass of masonry, in which I have made some few excavations and which appear to establish the fact that it is the south wall collapsed outwards. I have hopes that further investigations will reveal the presence of windows and, possibly, some of the stained glass remaining still in them. On the site Mr. Lukis discovered a small piece of blue glass, which is now in the Lukis Museum.

Of the western wall nothing now remains except the return end to the north wall. Mr. Lukis shows in his plan of 1838 a doorway about 10 feet from the angle, but of this no trace now remains.

The pavement still remains *in situ* in one place. It was formed of alternate quarries of malachite green and buff, $6\frac{1}{2}$ inches square, all over the nave and sanctuary. There used

to be within recent years a few in the sanctuary near the east end, but they have now all disappeared. The sanctuary floor was about 2 feet above the level of the nave floor.

The worked stones, which are found on the site and also built into the farm buildings (for which the ruins undoubtedly formed a quarry), show that the design of the building of which they formed part must have been far more ornate than any other ecclesiastical building, still existing, of the same date in the Channel Islands. They are of Caen stone and consist of voussoirs of arches, shafts, caps and bases of columns, shiny courses, many with the familiar chevron decorations, and ashlar both moulded and also plain work.

The remains of the arch stones give us some information as to the arches of which they were an integral part. The setting out from their centres gives us, in four taken at random, arches of the following radius: 1ft. 3in., 3ft. 9in., 2ft. 3in., and 2ft. 6in.; they were all of one pattern, the usual Norman moulding with a bird's beak or dog's tooth stop in the centre of each stone. There are no stones as far as I have discovered, of a large arch, and I am led to think from the larger number of the stones of smaller arches, that part of the wall of the Priory was arcaded. The centres show they were mostly of too small radius to belong to a doorway, and there are quite sufficient of fairly large radius for any openings which could be required.

At the N.E. and S.E. angles of the sanctuary were two Caen stone shafts with caps and bases. Now these at the time when the sanctuary was built were used to support the ends of the ribs of a groined roof. Hence I arrive at the deduction that the sanctuary roof was groined. The roof would naturally have been vaulted and the step to groining would have been easy. In this case there must have been similar shafts in other parts of the sanctuary, but they have quite disappeared.

The carvings, mouldings and general details of the worked stones are those of the Transition period, between what is known in England as Norman and early English, and the date in which this was prevalent corresponds to the late 12th and early 13th century.

There are, so far as I have been able to discover, no traces of worked stone in the nave. The attention of the builders was apparently concentrated on the beautifying of the sanctuary, and the nave remained always, as we see in the older Parish Churches of Guernsey, a kennel-like building without any architectural refinements.

Recapitulating then the deductions at which I have arrived as regards the building of the Priory :

- (1) About 1100-1150 the nave was built.
 - (2) About 1200-1250 the sanctuary was added.
 - (3) Later, say in the 14th century, the tower was built.
-

Mr. Lukis gives a plan of a building at the west end of the Priory which does not appear to have had any distinctive name or use. No record is left of there having been a monastery on the island, as a Prior only is mentioned ; but any pilgrims who came to do reverence to Our Lady of Lihou would necessarily have to reduce their pilgrimage to the shortest possible time or depend on some kind of shelter, as the tides in those days were no more thoughtful than they are nowadays, and I conclude this was some sort of hostel, where the pilgrims might be received during their stay. According to Mr. Lukis it was an L-shaped building. The foot of this, divided into two chambers, probably those of the Prior, remains, and the longer limb of the L consisted of a refectory, 36ft. long by 19ft. wide inside, with a circular building at the end of the refectory farthest away from the Priory. This was perhaps the kitchen, and colour is lent to this surmise by the discovery by him in a drain close by of the usual refuse from some fish bones, pottery, pieces of iron, &c., &c.

To the N.W. of the Priory is the lower part of another circular building with curious niches close to the ground. Tradition gives this as the Colombier or pigeon house, but I have not come across any records which would establish the fact.

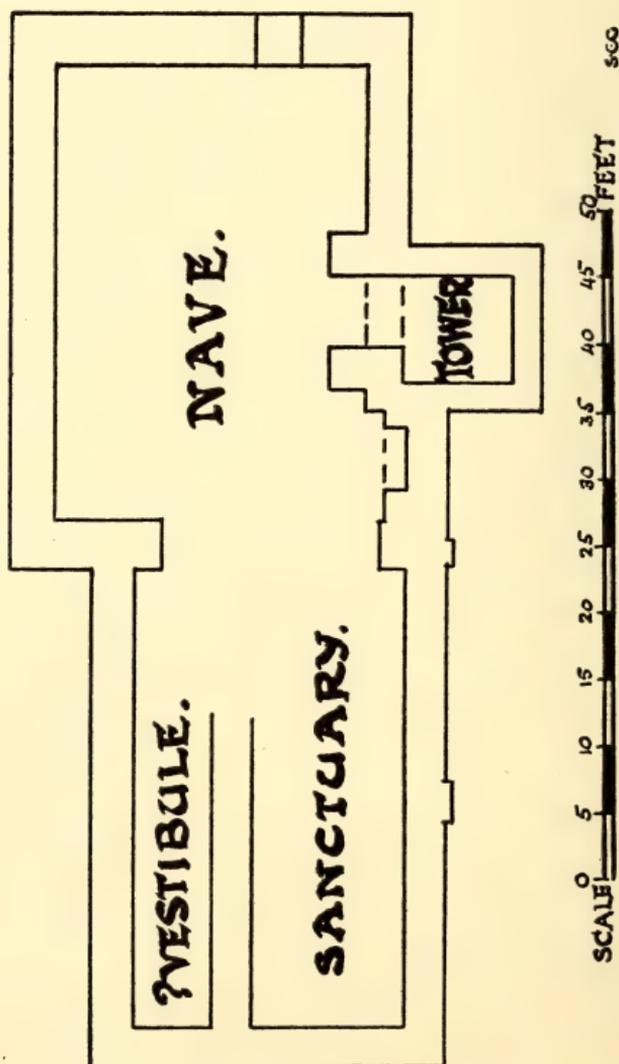
A field close to this is called "Le Cimetière," and to the east of it is an enclosure called "Le Jardin." These names possibly referred to the use they were put to in monastic times.

N.B.—These notes represent the result of occasional visits to the island during the last fifteen years, particularly during the past winter. They by no means exhaust the subject, and may be regarded as arriving only at the broad facts of the measurements and character of the Priory of Lihou, and not as an attempt to enter into details. There is still plenty of work for an interested explorer and work, which will well pay research in the investigation of the ruins of one of our most interesting mediæval ecclesiastical relics, which,

owing probably to its inaccessibility, has up to the present received scant attention.

The theories I put forward in this paper are my own as regards the general architecture. No others have, as far as I can find, dealt with this subject, and I am quite open to criticism on any points, and if the discussion thereby entailed leads to a greater interest being taken in the Priory, a useful object will have been gained.

August 16, 1912.



PLAN OF PRIORY OF NOTRE DAME AU PERIL DE LA MER, LIHOU.

NOTES ON THE RAINFALL OF THE BAILIWICK IN 1912, WITH SPECIAL REFERENCE TO SARK AND ALDERNEY.

BY BASIL T. ROWSWELL.

THE very wet year, 1910, has been quickly followed by another twelvemonth of abnormal rainfall, a few facts in connection with which it is my intention to touch upon briefly in the following notes. The two years (1910 and 1912) at Guernsey, as shown by the records at Les Blanchés, had to all intents and purposes a similar rainfall. At Sark there was a perceptible difference, the figures proving 1912 to have been the drier of the two years in that island by rather more than one inch. Alderney cannot enter into the comparison because of an unfortunate break in the record which occurred during October, 1910, but this notwithstanding the eleven months' figures show that Alderney by no means escaped the 1910 deluge.

As, speaking in a general way, the same weather obtains in all the islands of the Bailiwick—more, in the whole of the Channel group—a few words on the building up of the $45\frac{1}{2}$ inches of rain constituting the 1910 and 1912 total at Les Blanchés and its relation to the normal of 34 inches may not be out of place in these introductory remarks because of its applying with equal force, if dealing with a smaller rainfall total, to Sark and Alderney. As regards the three islands, Guernsey, Sark and Alderney, the figures appear to point conclusively to Sark being the driest and Guernsey the wettest place, but bearing this in mind and the natural effect of accidental differences, such for instance as are sometimes occasioned by local thunderstorm rains or heavy partial showers, a dry month or a wet year in one island is equally so in the other two.

Rainfall of 1910 and 1912 Compared.

The year 1912, similarly to 1910, enjoyed a surplus of rainfall from beginning to end. At the start 1910 proved very decidedly the wetter of the two, and held the position until the advent of March when 1912 temporarily took the lead owing to March proving abnormally wet in this year. On March 31st, however, the two years were running each other very closely, 1912 having topped 1910 by 0·23 in. only. The figures are: 1912, 12·08 in.; 1910, 11·85 in.; normal, 7·62 in.

During the next three months 1910 again led the way—by as much as 2·07 in. at the end of May, but by 0·08 in. only at the end of June when the figures were: 1910, 17·52 in.; 1912, 17·44 in.; normal, 14·27 in. The year 1912 now forged ahead as the result of two very wet months—July and August—months which in 1910 only secured the average amount. September, too, in 1910, considerably checked the growth of that year's figures through its being a remarkably dry month, and it was at this period that the greatest difference in the totals for the two years occurred, 1912 being then the wetter (January to September) by no less than 9·11 in. The actual figures are: 1910, 22·68 in.; 1912, 31·79 in.; normal, 22·08 in. From the figures it will be seen that whereas at the end of the third quarter the 1910 rainfall was in excess by 0·60 in. only, that of 1912 showed a surplus of 9·71 in. But 1912's big effort at rain-making was practically at an end while that of 1910 was but just beginning.

Each year had an unusually dry month—in 1912 it was April, in 1910 September. And in the same way the months of excessive rainfall—the months responsible for the year's mountainous grand total—were different in each year. In 1912 these unenviable periods were in particular March and August, about which more will be said later; in 1910 October and November were, *par excellence*, the wet months. The persistence of cyclonic activity was indeed so marked in the Autumn of 1910 and the daily rainfalls so copious, that November, with 11·13 in., stands out as the wettest month at Les Blanchés of the 19 years 1894-1912, and October, with 7·59 in., as the fourth wettest month of the same period. As together these two months totalled no less than 18·72 in. of rain, against 9·52 in. in the corresponding months of 1912, the fickle downpours had the effect of again practically equalising the aggregates which, at the end of November, were: 1910, 41·40 in.; 1912, 41·31 in., 1910 thus having the lead at this point by a paltry 0·09 in. In December, however, it lost this small gain, for 1912 ended with the grand total of 45·55 in., against 45·54 in. the equally grand total of 1910. The year 1912 at Les Blanchés was therefore wetter than 1910 by 0·01 in. ! And both years had an excess over the normal of, roughly speaking, 11·50 in.

General Remarks on the Weather of 1912.

January 1st, 1912, was a beautifully bright and mild day over the Bailiwick of Guernsey—it was a perfect New Year's day, and a lovely moonlight night followed. The year in no way opened as it was going to continue, for rain fell smartly

in all the islands on the 4th, Alderney reporting over half-an-inch (0·51 in.), and the weather generally became unsettled. January's contribution to the year's weather was a help in the direction of "warm and wet" for the month had three important rainy intervals and was very mild until the last few days when the only cold snap of the 1911-12 winter occurred. Alderney felt the wintry nip, for it was reported that "hard frost held the Blayes and bound the Marais cattle troughs" on the 29th.

The cold snap was most severe in the first week of February, but came to a sudden end on the 5th, after which extremely mild conditions with rainy weather prevailed to the end of the month. One very wet week for the time of year was experienced—the 18th-24th—when a total of 1·61 in. of rain fell at Guernsey (Les Blanchés), 1·44 in. at Sark, and 1·52 in. at Alderney.

March was another month of unusually high temperature and of much rainfall. At Guernsey (Les Blanchés) it proved to be the wettest March of the 19 years (1894-1912) and in the two smaller islands the total is a big figure (see Table). During some rough cyclonic weather in the first week big differences of rainfall were experienced. For the 5th and 6th the measurements were as follows:—

	GUERNSEY (Les Blanchés).	SARK (Vallée du Creux).	ALDERNEY (Le Huret).
March 5th (Tuesday) ...	0·60 in.	0·38 in.	0·11 in.
„ 6th (Wednesday)	0·20 in.	0·19 in.	0·03 in.
Totals	0·80 in.	0·57 in.	0·14 in.

Hail, thunder and lightning was a frequent accompaniment of the stormy spells. For instance violent thunder and lightning occurred at Guernsey on the evening of the 5th, and Alderney reported "squalls, hail, thunder, lightning" for the 19th, and "increasing gale, thunder in squalls," for the 21st. Jersey, by the way, reported a thunderstorm in being to the Meteorological Office at 7 a.m. on the 20th.

An unusually wet week was that of Sunday to Saturday, March 17th to 23rd, when no less than 2·78 in. of rain fell at Guernsey (Les Blanchés), 2·31 in. at Sark, and 2·13 in. at Alderney. Much better weather, however, was at hand for, in striking contrast to the above, the measurements for the following week (March 24th to 30th) were: Guernsey, 0·08 in. ; Sark, 0·06 in. ; and Alderney, 0·06 in.

April proved a delightful month—warm and very dry. It was, everywhere, the driest month of the year, and more than that. At Sark it was the driest *month* experienced since

rainfall observations were commenced by Capt. Henry in January, 1906, and, with September, 1910, which had a similar rainfall, it was also the driest month recorded by Mr. Picot, at Alderney. At Guernsey (Les Blanchés) it proved to be the driest April of the last 19 years. At Sark no rain at all fell after the 9th, and at Alderney and Guernsey (Les Blanchés) after the 10th. As the dry interval included more than 14 consecutive days a drought in the technical sense of the word was experienced. A tabulated statement of the year's droughts, &c., is given at the end of this paper.

The dry weather continued all through May, but was much less pronounced than in April, occasional showers falling in all the islands sufficiently heavy to refresh the surface of the ground. A report from Sark in the second week ran: "A little rain fell on Tuesday (the 7th) but only enough to moisten the surface of the ground. Crops are already suffering from the long drought." Guernsey was blessed with a thunderstorm during the early night of the 11th which gave a very welcome rainfall of 0·26 in. at Les Blanchés. Both Sark and Alderney managed to escape the shower! May was a very warm month, especially in the first half. As a whole it proved to be the warmest month of the name at Guernsey (Les Blanchés) of the 19 years 1894-1912.

And now began the wretchedly cold and very wet summer of 1912—a summer that will be as memorable for its remarkable unseasonableness as that of 1911 was for the glorious sunshine and warmth enjoyed. The change set in immediately with the advent of June in the first week of which the whole of the Channel Islands were deluged with rain from passing Atlantic depressions. The rainfall on some of these days was so very variable at the several stations it has been thought worth while to give a table of the daily measurements, including that registered at St. Aubin's, Jersey, and at Portland Bill, near Weymouth, just across the Channel:—

	PORTLAND.	ALDERNEY.	GUERNSEY.	SARK.	JERSEY.
	in.	in.	in.	in.	in:
June 1	0·10	0·14	0·43	0·84	0·95
„ 2	0·02	0·13	1·05	0·75	0·64
„ 3	0·30	0·14	0·16	0·12	0·14
„ 4	0·24	0·32	0·32	0·25	0·41
„ 5	—	0·51	0·79	0·65	0·83
„ 6	0·01	0·55	0·24	0·60	0·62
„ 7	0·74	0·06	0·05	0·04	0·19
Totals	1·41	1·85	3·04	3·25	3·78

Notice the very small rainfall at Alderney and Portland Bill on the 1st and 2nd and the big measurement at Sark and Jersey on the 1st. The Alderney total for the week is in keeping with that at Portland Bill, while Jersey, on the south side of the Channel, experienced the heaviest fall of all, followed by Sark as a very good second. The effect of this peculiarity in the rainfall was to alter the normal relative positions of the islands as regards the June aggregate, Sark, usually the driest place, registering the biggest total. As a matter of fact Capt. Henry's total for Sark exceeded the Guernsey (Les Blanchés) amount by 0·18 in., and that at Alderney by no less than 1·73 in.

June was unsettled all through, a cyclonic westerly type of pressure distribution prevailing from beginning to end, but onward from the 7th rainfall though frequent was not by any means heavy.

July was the warmest month of 1912, but very cold at that. As a summer month nothing of good can be said of it—more days were cold than warm, no seasonable hot interval was experienced, the period was unsettled all through and became very wet at the close. On the evening of Saturday, the 13th, the islands were visited by a thunderstorm which deposited 0·55 in. of rain at Guernsey (Les Blanchés), 0·63 in. at Sark, and 0·62 in. at Alderney. On Friday, the 26th, a day of little wind, and that little variable in direction—in fact with everything pointing to the presence of a shallow depression in our neighbourhood if not actually over us—one of those big differences of rainfall occurred in the islands which is worth putting on record. The measurements on the morning of the 27th were as follows:—

GUERNSEY.	SARK.	ALDERNEY.	JERSEY.
0·38 in.	0·52 in.	0·95 in.	1·46 in.

In connection with the downpour at Jersey (St. Aubin's) a thunderstorm is reported to have occurred, and thunder was heard at Guernsey during the evening.

The next day (Saturday, the 27th) a cloud burst of exceptional violence deluged Guernsey and to a lesser extent Sark. At Guernsey, in something like 15 minutes, beginning at 7 p.m., from three-quarters of an inch to one inch of rain fell at Les Blanchés. Many shops in St. Peter-Port were flooded, and at the Vauxlaurens walls were washed away by the rush of water. This day's measurements, as given below, were again very different everywhere—in fact the order of the previous day was exactly reversed.

GUERNSEY.	SARK.	ALDERNEY.	JERSEY.
1·02 in.	0·53 in.	0·21 in.	0·18 in.

August was the wettest month of the year at all the stations. Unsummerlike as July had proved itself August turned out many times worse. For downright all round unseasonableness it was fortunately an August we are not likely to see a repetition of in a hurry. At Sark, where rain fell on 25 days, it was, with a total of 6·57 in. of rain, the third wettest month of the 7 years 1906-1912. At Alderney, contrary to the usual order, somewhat less rain fell than at Sark, but the state of things may be gauged by the following :

“Special prayers for the cessation of rain were offered up in the St. Anne’s places of worship on Sunday last.”—*Evening Press*, August 19th.

Court of Alderney, Tuesday.—“The Court, taking into consideration the extraordinary bad weather which has hindered the harvesting of 1912, and that the safe and rapid garnering of the crops is of the greatest public utility, after having heard the King’s Procureur, passed an Act granting permission to whomever wished, to reap and harvest during the remaining Sabbaths of the season, said permission to date from Sunday, August 25th, and ordered the publication thereof in the ordinary places.”—*Evening Press*.

“A number of farmers availed themselves of the recent Act of Court relating to Sunday harvesting, and worked hard at reaping on Sunday last.”—*Evening Press*, September 12th.

At Guernsey (Les Blanchés) the month had 27 rain days and its total of rainfall (7·43 in.) made it the wettest August of the 19 years 1894-1912 ; it was also the coldest.

August 12th was the wettest day of the year both at Sark and Alderney where 1·35 in. and 1·30 in. respectively of rain fell with a freshening east wind and a steadily dipping barometer. At Guernsey (Les Blanchés) 1·19 in. was measured while at Jersey (St. Aubin’s) the amount reached 2·18 in. !

Two cloud-bursts at Guernsey on the 19th, both accompanied by thunder and lightning, gave a rainfall of 0·90 in. at Les Blanchés. At Sark the day’s rainfall only totalled 0·23 in., but at Alderney the measurement reached 0·55 in. and Mr. Picot reported : “squally, cloudy, thunderstorm, much rain.”

Sark had a big downpour all to itself on Sunday, the 25th. It was another of those still days when, often, heaviest rain-falls occur. A depression of some depth (Barometer 29·5 in.) but little energy lay near us, and while Guernsey (Les Blanchés) measured 0·31 in. only of rain and Alderney 0·35 in., Capt. Henry’s gauge at Sark collected 0·92 in.

September brought no improvement as regards temperature—it was again miserably cold all through and the coldest month of the name at Les Blanchés of the 19 years period

1894-1912. But in the matter of rainfall an anticyclonic distribution of pressure gained the ascendancy in the early days and a lengthy spell of dry weather was experienced. At Sark only 0·20 in. fell in the four weeks ending on the 28th, and at Alderney the figure was still smaller, viz., 0·12 in. In both islands an "absolute" drought was experienced (see Table). A sudden change to cyclonic on the 28th resulted in two very wet days as shown below :—

	SARK.	ALDERNEY.	GUERNSEY.	JERSEY.
Sept. 29 ...	0·89 in. ...	1·24 in.	1·35 in.	1·52 in.
„ 30 ...	0·87 in.	0·93 in.	1·12 in.	0·72 in.

On Tuesday, October 1st, Sark was visited by a deluge of rain, with thunder and lightning, between 3 and 4 p.m. That day's rainfall, as measured by Capt. Henry, reached the very big figure of 0·95 in. Alderney, which escaped the cloud-burst, had less than a quarter of an inch of rain (0·22 in.). At Guernsey, where thunder and lightning occurred between 3.30 and 4 p.m. in connection with a smart squall of wind and rain, the day's total was 0·36 in.

A spell of absolutely dry weather, of 11 days' duration at Sark and Alderney, and of 10 at Guernsey, began on October 3rd, and then the weather broke up for good, cyclonic conditions prevailing practically without break onward to the end of the year.

One feature of the weather of 1912 is the large number of big downpours bordering on or passing the inch in amount. Several of these have already been referred to and one more remains to be mentioned. This latter fell on October 20th during the passage north of the islands of a well-marked Atlantic low-pressure area. At Sark the fall reached 0·80 in., at Alderney 0·94 in., and at Guernsey (Les Blanchés) 1·21 in.

A thunderstorm, severe at Sark, was felt in the three islands during the early morning of October 21st. The disturbance was of the winter or "cyclonic" type known as a "line squall," and occurred with a shift of wind from S.W. to N.W.

November was a typical month of the name, cold on the whole because of much northerly wind, and continuously unsettled in spite of a frequently high barometer. In the last week the weather became rough and very wet, 1·68 in. of rain falling at Sark in the four days, 26th-29th, 2·20 in. at Alderney, and 2·17 in. at Guernsey (Les Blanchés).

December's weather was a continuation of that experienced in November with this difference, that the prevailing direction of the wind being west a much milder temperature

obtained and also a heavier rainfall. No cold at all visited the Bailiwick (at Les Blanchés the screened thermometer dropped below 40 deg. on two days only), but rain was of almost daily occurrence, and for several days about Christmas-time fell in big amount. For the week ended the 28th the totals were: Sark, 2.16 in.; Alderney, 2.46 in.; Guernsey (Les Blanchés), 2.23 in.

As shown in the Table the year, at Sark, is the second wettest of the seven years, 1906-1912; at Alderney it is the wettest of the series, but owing to a gap in the series (1910—a very wet twelvemonth) the comparison for that island includes six years only. At Guernsey (Les Blanchés) the year is the wettest on record—that is since 1894.

In conclusion I have again to tender hearty thanks to Capt. Henry, of Vallée du Creux, Sark, and to Mr. W. J. Picot, of Le Huret, Alderney, for their valued co-operation in recording the rainfall in their respective islands, and in sending me weekly returns of the measurements for tabulation and comparison with the Guernsey figures. Seven years have now elapsed since the establishment of the stations in these smaller islands of the Bailiwick, and already a good general idea of their rainfall as compared with our own has been obtained.

ABSOLUTE DROUGHTS IN 1912.

An Absolute Drought, as defined in *British Rainfall*, is “a period of *more than* 14 consecutive days, no one of which is a rain day.”

SARK.

April 10 to May 2 = 23 days.
September 11 to 26 = 16 „

ALDERNEY.

April 11 to May 2 = 22 days.
September 12 to 27 = 16 „

GUERNSEY (LES BLANCHÉS).

April 11 to May 2 = 22 days.

PARTIAL DROUGHTS IN 1912.

A Partial Drought, as defined in *British Rainfall*, is “a period of *more than* 28 consecutive days, the mean rainfall of which does not exceed .01 in. per day.”

SARK.

Apr. 1 to May 6 ... = 36 days. Rainfall 0.34 in. on 6 days.
Aug. 30 to Sept. 28. = 30 „ „ 0.21 in. „ 5 „

ALDERNEY.

Apr. 1 to May 5 ... = 35 days. Rainfall 0.26 in. on 6 days.
Aug. 29 to Sept. 28 = 31 „ „ 0.19 in. „ 6 „

GUERNSEY (LES BLANCHES).

April 1 to May 3... = 33 days. Rainfall 0·32 in. on 9 days.

LONGEST RAIN SPELL IN 1912.

Inclusive dates giving the longest unbroken succession of "rain days" for the year.

SARK.

March 12 to 24 ... = 13 days. Total rainfall, 3·16 in.

ALDERNEY.

August 11 to 26 ... = 16 days. Total rainfall, 4·19 in.

GUERNSEY (LES BLANCHES).

Feb. 26 to Mar. 24.. = 28 days. Total rainfall, 5·75 in.

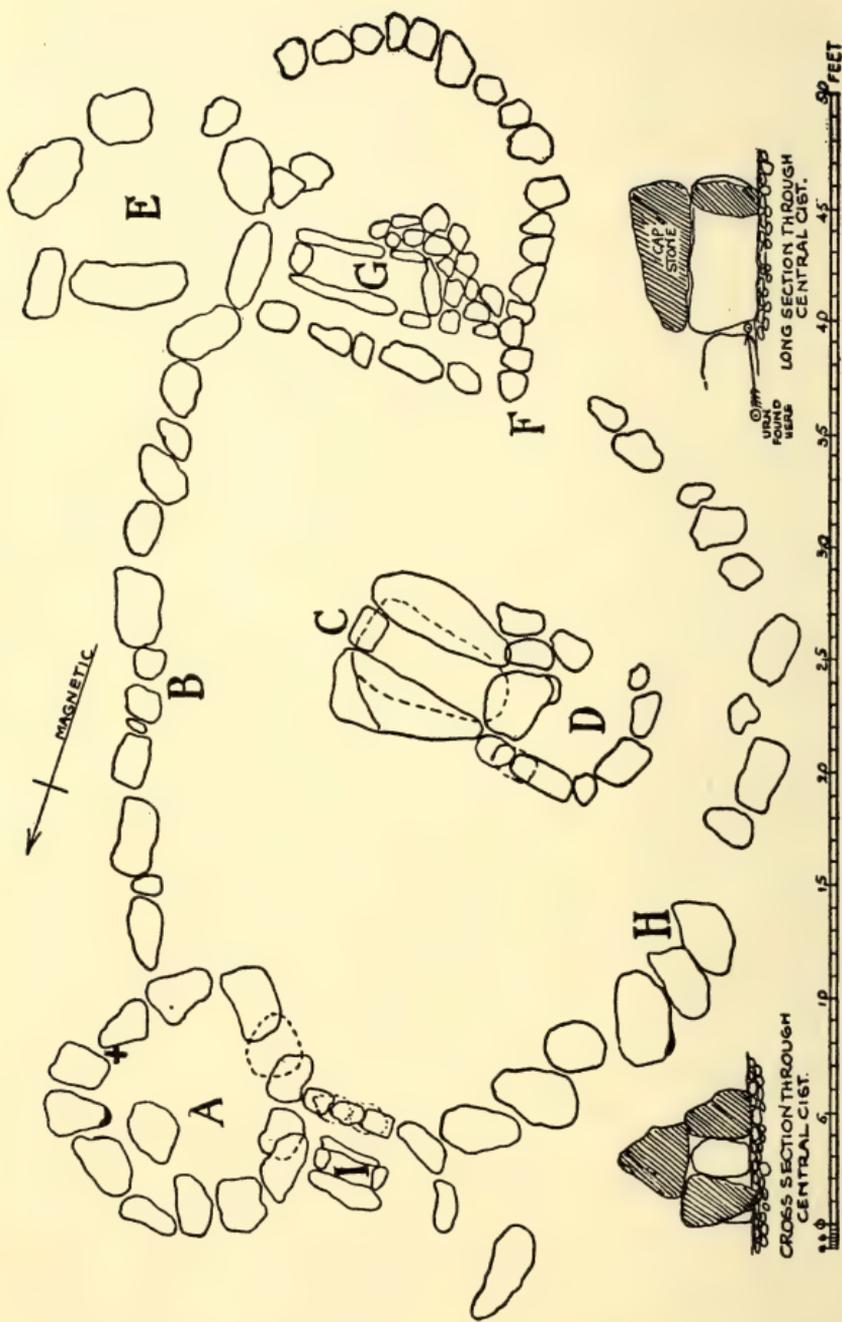
SARK AND ALDERNEY RAINFALL, 1912.

Months.	Monthly Totals.		Rain Days.		Heaviest Daily Rainfall.		Falls of 0·50 in. and above.	
	Sark.	Alderney.	Sark.	Alderney.	Sark.	Alderney.	Sark.	Alderney.
January	3·01	3·85	17	16	0·72 6th	0·62 16th	1	4
February	2·18	2·66	19	21	0·39 22nd	0·41 22nd	—	—
March	4·88	4·20	25	25	0·50 20th	0·45 23rd	1	—
April	0·16	0·20	4	4	0·07 9th	0·16 9th	—	—
May	0·73	0·62	10	10	0·23 30th	0·18 6th	—	—
June	4·16	2·43	20	14	0·84 1st	0·55 6th	4	2
July	2·98	3·58	15	20	0·63 13th	0·95 26th	3	2
August	6·57	6·21	25	25	1·35 12th	1·30 12th	6	3
September	1·96	2·29	6	6	0·89 29th	1·24 29th	2	2
October	4·67	5·34	17	18	0·95 1st	0·94 20th	3	4
November	2·79	3·42	17	16	0·69 29th	0·78 27th	1	2
December	3·78	4·24	22	22	0·60 25th	0·64 27th	1	3
The Year	37·87	39·04	197	197			22	22

Totals and Heaviest Rainfall for the Seven Years, 1906-1912.

1906.....	26·07	28·63	161	168	1·16 June 28th	0·85 Nov. 8th	10	15
1907.....	26·15	28·84	178	188	1·11 Nov. 25th	1·15 Oct. 1st	6	7
1908.....	18·51	24·02	155	150	0·62 Feb. 16th	1·04 Apl. 24th	1	6
1909.....	26·13	32·99	146	157	1·38 June 3rd	1·55 Nov. 15th	14	15
1910.....	39·04	?	203	?	1·84 Oct. 13th	?	14	?
1911.....	26·71	29·12	152	158	1·40 Oct. 27th	1·21 Nov. 11th	10	14
1912.....	37·87	39·04	197	197	1·35 Aug. 12th	1·30 Aug. 12th	22	22
Averages	28·64	30·44	170	169			11	13

NOTE.—The Sark averages are based on seven years' observations, those for Alderney on six years.

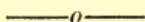


GENERAL PLAN OF DOLMEN AT L'ISLET.

AN ACCOUNT OF THE DISCOVERY AND
EXAMINATION OF A CIST OR DOLMEN OF A
TYPE NOVEL TO GUERNSEY IN OCTOBER AND
NOVEMBER, 1912.

BY S. CAREY CURTIS,

Associate of the Royal Institute of British Architects.



THE attention of the Guernsey Society of Natural Science and Local Research was drawn in October, 1912, to the peculiar position of some stones, of which the points projected above the soil, giving them the appearance of having been set there purposely, in a field known locally as "Les Fouaillages,"* situated close to the hamlet of L'Islet, in St. Sampson's Parish. This field slopes gently from N.E. to S.W., and at this S.W. edge lies what was originally the sea beach prior to the reclamation of the Braye du Valle by Sir John Doyle in 1812, the margin of which now forms the road known as "Sandy Hook." This is clearly seen on comparing the map published by the War Department in 1787, in which the Braye du Valle is shown as an arm of the sea, with the modern Ordnance Map of the same scale of 6 inches to the mile ($\frac{1}{10560}$) made in 1900. The surface of the field was, like the adjoining fields, covered originally with blown sand, but being to leeward of them, the prevailing wind, S.W., brought more sand on to it than on to its neighbours, and hence instead of being brought into cultivation like them, was used chiefly as a sand pit for building operations in the neighbourhood. Local tradition says the field was covered at one time to a depth of 30 feet with sand. The result of this removal of the sand was that mounds of various

* Gu. Fr. Fouaille = mod. Fr. fougère = Engl. Bracken, indicating a fern-brake at one time stood on the spot.

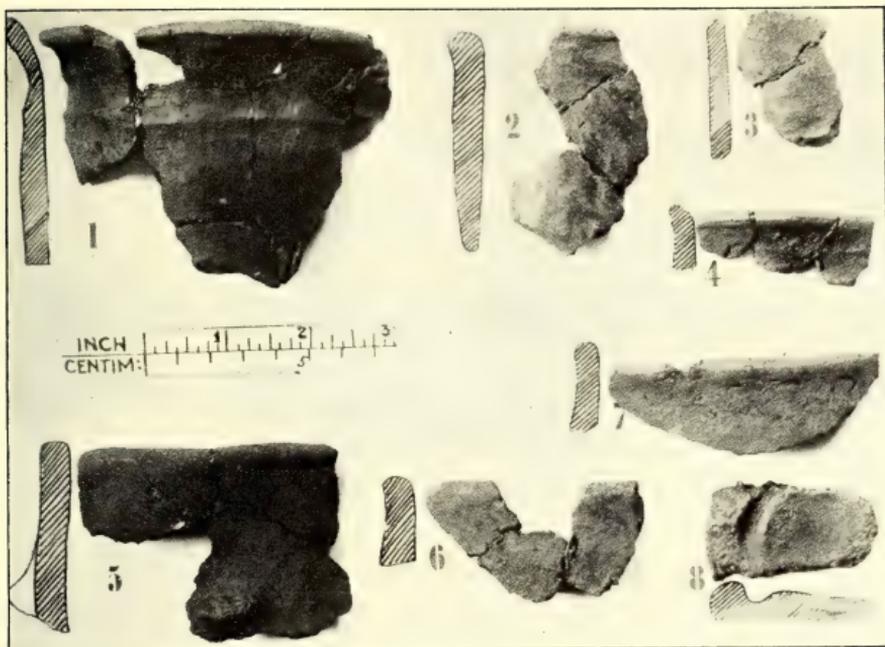
sizes stood scattered over the field, and it was under one of these mounds, at the N.E. or higher end of the field, the furthest removed from the road, and hence the last portion to be attacked, that the discoveries were made. Under the sand, and exposed in places, was a layer of peaty mould, and dotted here and there were boulders of all sizes and shapes of a greyish syenite, and underneath the whole was a bed of rounded sea-worn pebbles, apparently an old sea beach. The surface of the sand heap was rough and irregular as might be expected following the operation of carting away. A few points of boulders projecting above the surface, some patches of wiry turf, a large clump of brambles, were all there was to be seen. These boulders, where they were most seen, were obviously in the form of a circle about 10 feet in diameter externally. (See plan at A). They were of the same syenite as the boulders dotted over the rest of the field. From one face of this rough circle projected a line of points of boulders running approximately 17° West of magnetic North. (Plan at B.) In the rear of this line were dotted about in the heap of sand, which here rose quickly off the bed of peaty mould, other points of the same syenite as those already described.

The preliminary examination of the spot led the observers to believe that the line of boulders referred to was one line of stones, leading to what was almost certainly a rude circle, and evidently placed there by the hand of man.

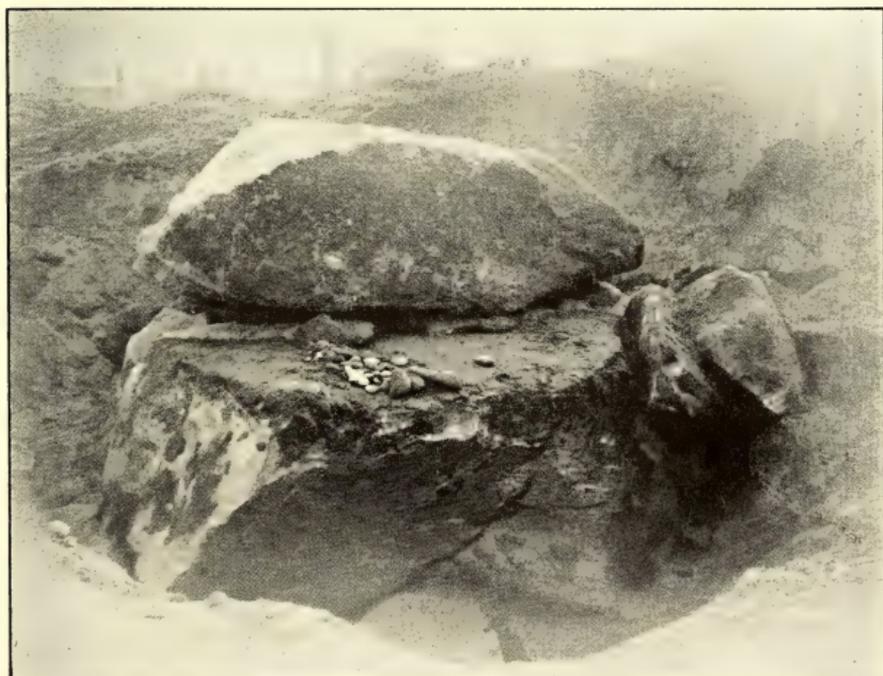
A few days later a volunteer working party of members commenced work. A very short spell of digging was sufficient to show that the circle was complete, and that it was put in place by the hand of man. Excavations carried down to the base of the stones showed that they had been placed on the beach, and what was more remarkable, that they had in some cases been "trigged."* The stratification of the soil surrounding the stones was as follows: 1 ft. 3 inches (38 cm.) of the same peaty mould with which the field was covered, and next about 12 inches (30 cm.) of so-called clay (decomposed gneiss), and lastly 6 inches (15 cm.) of finer clay, almost mud, on the top of the beach. This mud may have arisen from the further decomposition of the gneiss forming the "clay" in conjunction with the hard pebbles.

After the circle had been cleared of the overlying soil, which was carefully examined for signs of human activity, but without success, search was made on the exterior and also

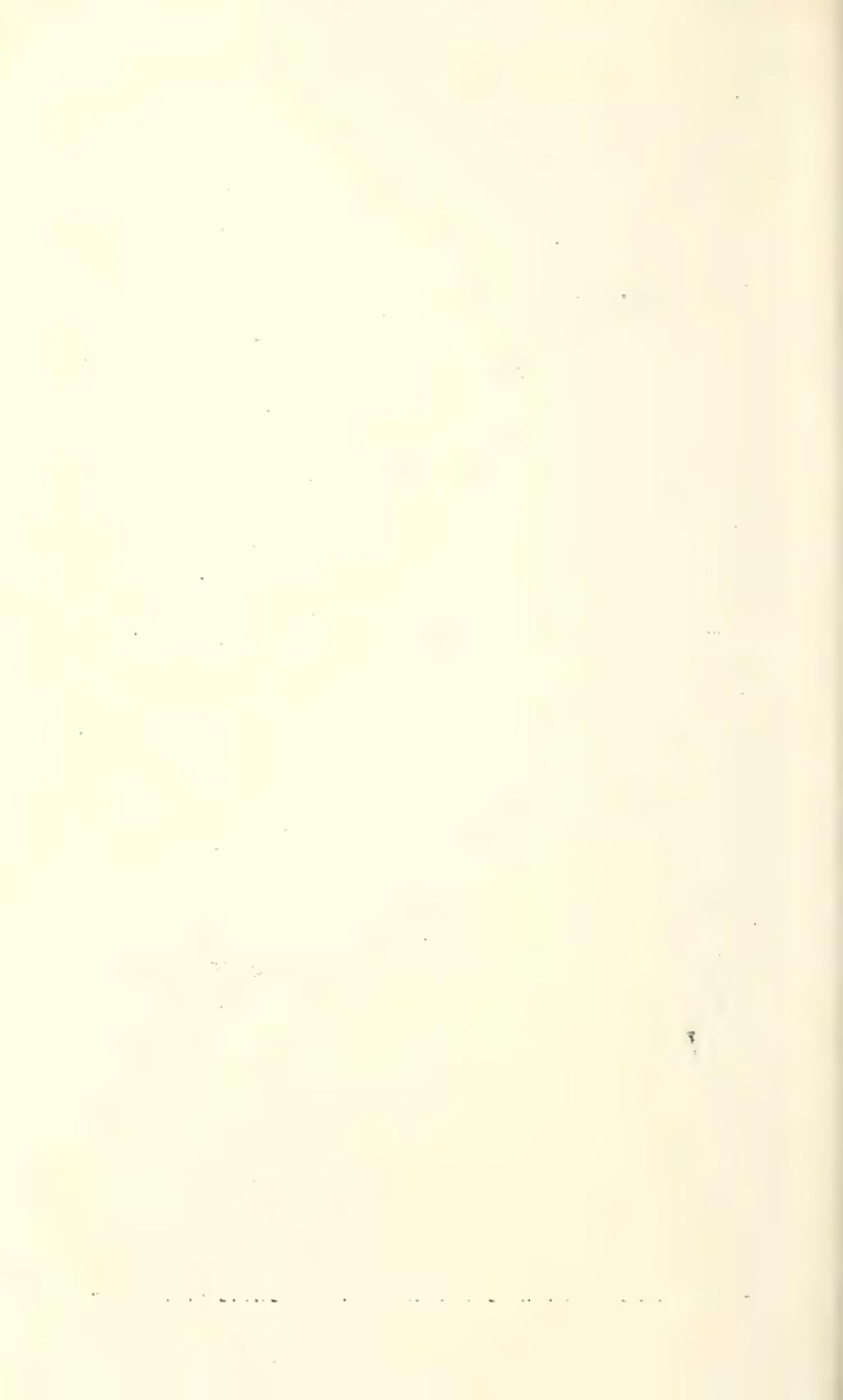
*To "trig" is an expression used by the Guernsey quarrymen to denote the process of wedging a block of granite with smaller stones round the bottom to prevent its rocking while being worked.



A.—THE POTTERY FOUND DURING EXCAVATION WITH SECTIONS.



B.—CENTRAL CIST FROM N. DURING EXCAVATION SHOWING "TRIGGING."



between the stones, with the result that four pieces of pottery of a thick and pronounced dolmenic type were found about 1 foot (30 cm.) above the pebble floor and at the spot marked X in the circle A on the plan. These pieces were later found to fit together. See illustration A, No. 5.

The line of stones marked B on plan was also examined, and was found to be continuous, and wherever a sinking was made the base of each stone was found to be resting on the beach already mentioned.

A few days later the party resumed operations. A point of a larger boulder at C, which on being struck by a spalling hammer gave indication of being a stone of considerable size, presented a promising spot on which to commence work. A start was made by digging a trench from the point C in a line parallel to B. After an hour's digging it was ascertained that the point showing at C was the top of a large boulder, triangular in section, resting on two other boulders at a lower level, and also that, as in the case of the circle A, it had been "triggered," a line of small flat stones being set between the two (see illustration B). Further digging showed the upper stone and also the two lower ones extended in a Westerly direction, and that the end in this direction was not reached at 4 feet from the point C, and also that on digging to the Southward, the width of the two lower stones was found to be about 4 feet. At one place where the upper stone was not "triggered," it was found that the space under was hollow and filled with blown sand.

The strata met with during this day were practically the same as on the previous working day. There was on top also 1 foot of blown sand and then a depth (on this occasion not determined) of the peaty mould.

No objects of interest of pottery or flints were found during this day's work.

The prospects now being so promising, the Society decided to proceed with the work of clearing away the mound which covered the stones at its own expense, and men were engaged.

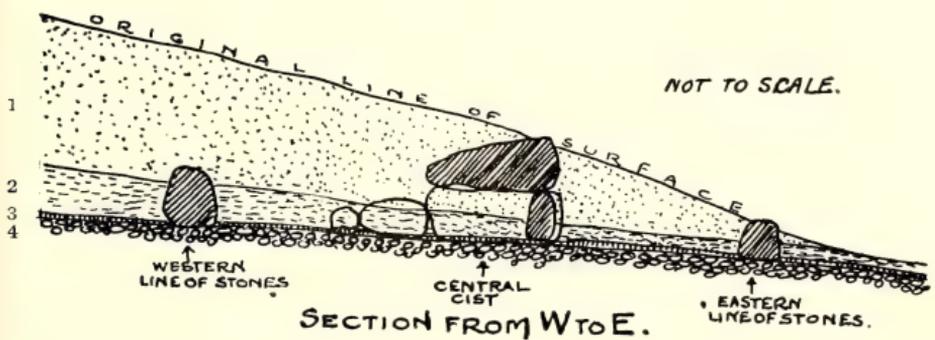
Work had not long proceeded when it became an assured fact that the workers had come across a discovery of great interest. The upper stone, on being uncovered, was found to be about 6ft. long, with the longer axis running East to West. This was resting on two other stones of approximately the same length, forming a chamber about 5ft. 8in. (1.70m.) long and 2ft. 3in. (67.5cm.) to 2ft. 6in. (75cm.) wide. The depth

still remained to be ascertained. It was also discovered that the Eastern end of this chamber was closed in by a well-fitting stone, and in such a way as to preclude any possibility of its having served as the entrance to the chamber. The entrance was obviously to the West and was open, but on further excavation a stone was discovered in front of it in a half fallen position, having either fallen or been purposely thrown down. This left no doubt as to its having served the purpose of closing in the chamber. A trench dug all round this structure showed that the lower stones were about 3ft. high and that they rested with little or no excavation on the beach in the same way as all the stones discovered up to the present. The chamber was found to be filled to within two or three inches of the under side of the covering stone with a layer of blown sand 1ft. (30 cm.) thick, resting on a bed of peaty mould, formed by the decomposition of vegetable matter in the sand. On the trench already mentioned being completed to the entrance of the structure, an ante-chamber (D on plan) was met with, about 6 feet (2 m.) square, formed of flat stone slabs about 4-6 inches (10-15cm.) thick placed on edge in the soil with dry walling at the N.W. and W. sides. This enclosure was, as regards the walls, fairly perfect with an entrance at the S. No covering stones of any kind to this enclosure were to be found, and on being excavated later yielded nothing of importance beyond a few sherds.

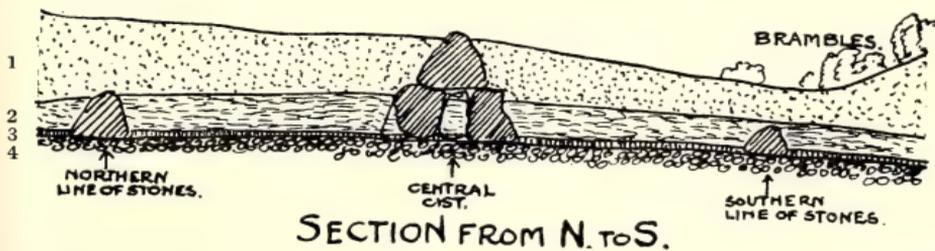
The clearing of the chamber of the central cist next received attention, and in order to facilitate this, the capstone was moved back some feet, marks being made on each stone and photographs taken to ensure its being replaced as before. The first layer met with was the blown sand already referred to. This was found to be 12 inches (30cm.) in depth, reckoning from the underside of the covering stone. At 7 inches (17.5cm.) down in this layer were a few pieces of carbonized wood, almost certainly modern, and probably arising from the burning of the furze which at one time or another covered the mound. At 10 inches (25cm.) down a few pebbles, such as would be found on the neighbouring fields and placed there quite indiscriminately, with some limpet shells, were met with. Under this layer, and separated by a very decided line, was a stratum of the same peaty mould found elsewhere over the surface of the field 1ft. 9in. (52.5cm.) thick. Almost on the surface of this layer, 1 inch (2.5cm.) down, were found some flakes of flint, but these proved on examination to be of no interest. Close under these were found some fragments of mediæval pottery and the handle of a jug, and under these



C.—CENTRAL CIST FROM S.W. SHOWING CLOSING STONE AND ANTECHAMBER.



SECTION FROM W TO E.



SECTION FROM N. TO S.

1. Blown Sand. 2. Peaty Mould. 3. Clayey Loam. 4. Old Sea-beach.

D.—STRATIFICATION OF MOUND THROUGH CENTRAL CIST.

close to the entrance at about 6 inches (15 cm.) two pieces of bone.*

At 8-10 inches (20-25 cm.) down, scattered about the chamber, but chiefly near the entrance, were a few sherds of the same dolmenic type met with elsewhere on the site, and a portion of the rim of a vase of much finer pottery of dark colour (illustration A, Nos. 2-4). Interspersed throughout were some large stones which must have been inside before the covering in of the west end of the chamber by the deposit of blown sand. This layer of peaty mould was followed by one of clayey loam, 3 inches (7.5cm.) thick, resting on the beach.

The ground in front of the entrance of the chamber was also examined. A few fragments of pottery were found at the base of the half fallen stones in front. They continued for some little distance into the chamber, and gradually become fewer, only one piece being found towards the eastern end. A small blue glass bead was found at this level, but it is open to question whether it may not have fallen down from a higher layer during the excavation, as small portions of sand and soil were still adhering to crevices in the stones. (Blue glass beads are however found in graves of Bronze Age II. in the south of England, and one identical in shape and size, found in the neolithic head at Le Crocq, St. Saviour's, is now in the Guille-Allès Museum). A few flint implements or flakes were found in this layer.

Examination of the fragments of pottery showed that they were from at least five different vases (see illustration A). No traces of bone or ashes could be seen in the layer in which these fragments were found, in spite of a careful watch being kept for them, and it was quite evident that the contents of the chamber had been rifled at some bygone time.

A few days later another examination was made of the soil of the ante-chamber. A few flakes of flint and two small fragments of a vase of a very coarse red pottery were all that was found on digging down.

At the western end of the northern supporting stone, where the stone was broken off, forming a slight recess, an urn was found (see illustration E.) It was half imbedded in the layer of clayey loam referred to above. It was in fairly good preservation, one side being perfect; it had two lugs,

*These pieces were submitted to Dr. A. Smith Woodward, of the Natural History Museum, Kensington, who reported: "I think from their texture, there is no doubt that the bones are human, but I am sorry to say that they are too imperfect for exact determination." Mr. Collenette has since by careful measurements been able to match them in the skeleton and considers them to be portions of the ulna and humerus.

one on each side, both pierced horizontally, for convenience of being hung by a suspending string. Between the lugs on one side is a small projection or "mamelon," such as is found in urns discovered in the Guernsey dolmens; the position where the other "mamelon" would be was where the side was broken away. The urn at the time of discovery was full of the same clayey loam in which it was imbedded, and on being emptied, after being dried, nothing was found in it.

After the emptying of the chamber, the capstone was slid back again, and comparisons with the photographs and the marks on the stones showed it was again in its position as discovered.

The clearing of the enclosure was now proceeded with. The face B on plan had been partially cleared and it was now completed, and a trench was carried on as the stones were met with. Another circle was discovered to the S.E. of the eastern face (see E on plan), formed of fewer and much larger stones than the circle A, but of much the same size externally. No objects of interest were found in this circle when dug down into, and the same stratification observed on the other parts of the site was met with, the stones of the circle again being found to rest on the same beach, and this proved to be the case in the whole of the excavation of the enclosure.

From the circle E the enclosure was found to project to the West, almost at a right angle to the face B, and in the angle formed by the circle E and the continuation of the enclosure (marked F on the plan) was a confused mass of small stones. These when cleared away exposed a small cist, G on plan, 5ft. 2in. long (1.35m.) \times 1ft. 9in. to 1ft. (52.5cm. to 30cm.) wide \times 1ft. 6in. (45cm.) deep, formed of one large and one small stone set up on edge on each side, and one stone at each end also set on edge and fitting in between the side stones, as in the central cist (see illustration F). A stone found at the head or Eastern end of this cist had the appearance of having formed part of the capstone. It is noticeable in this cist that there are appearances of its having formed two cists, the larger section (to the Eastward) 3ft. 2in. (95cm.) long \times 1ft. (30cm.) wide, being narrower than the section, 2ft. (60cm.) long \times 1ft. 9in. (52.5cm.) wide, to the Westward. In that case the interments would have taken place in different directions thus **I** and the Western interment would have been of a small person. Possibly it was of a mother and child. This cist, or cists, were surrounded by an enclosure of stones nearly perfect and subsidiary to circle E. On being cleared this cist contained nothing worth recording.



Looking from above.

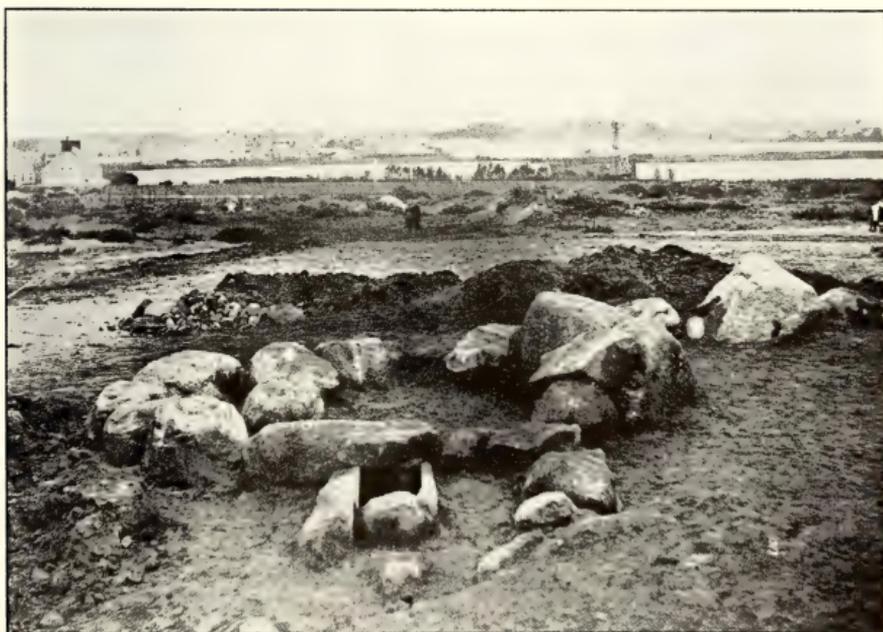


Side View.

E.—THE URN DISCOVERED IN CENTRAL CIST.



F.—CIST AND SOUTHERN CIRCLE.



G.—CIST AND NORTHERN CIRCLE.

The clearing of the enclosure was carried on, and as anticipated it completely encircled the central cist in an irregular ellipse. The stones were fairly regular, some gaps however occurring, but at H the stones were of much greater size than elsewhere in the line, and this was found to be the case until the original circle A was reached. As on the opposite side, in the angle formed by the circle A and the enclosure, was a confused mass of smaller stones, and this on being cleared was found to be a part of another circle partly of dry walling, partly of boulders as in other parts, subsidiary to circle A, with a single cist in it, 2ft. 5in. (67·5cm.) long × 1ft. (30cm.) wide, formed as in the other double cist of two side stones set on edge, with two end stones fitted in between the side stones, and also on edge. A large flat stone lying 5 or 6ft. (1·50m.-2m.) away, might have formed the covering stone to this cist (see letter I on plan and illustration G).

On being cleared this cist only contained a sherd of the same type of pottery found on the rest of this site.

The clearing of the enclosure and the cists being now completed, all excavations were filled up to a uniform level, which was about half way up the component stones of the enclosure, or about 1ft. (30cm.) above the underlying beach. In this way the stones will not be liable to displacement by traffic, and will not be so deeply buried as to preclude any further measurements or examination of them. In addition, any stones which were not fast were made secure from moving. Most of the stones, from having been so long buried in the peaty mould, are stained, but the bleaching action of the sun, wind and rain will soon restore their colour, and when the grass has grown over the site the general plan and disposition of the stones will be quite clear.

Notes.

OBSERVATIONS ON THE ARRANGEMENTS OF THE COMPONENT STONES OF THE VARIOUS PARTS.

(1) **THE ENCLOSURE.**—A glance at the plan will show that it is in different sections or compartments. Thus the circle A is self contained and this is also the case with circle E. Take either of these away and a gap in the general line of the enclosure results. This points to their having been in place before the construction of the main enclosure took place. Take again the smaller enclosures containing the cists; each was an appendage to its particular enclosure. They can be removed from the general plan without interfering with their own circles A and E, but their removal would cut into the larger enclosure.

(2) **THE CENTRAL CIST.**—The stones of which it is composed have been obviously selected with care. The two top flat surfaces of the lower supporting stones are almost level, not only in themselves, but also to one another, and are also as nearly as possible parallel with one another. The Eastern closing stone is a very excellent fit and, in most parts, it is almost a hair joint. But no marks of tooling or working are evident.

(3) **THE SMALLER CISTS.**—The walls of these are set truly and are nearly parallel with one another.

ORIENTATION.—The orientation of the central and the smaller cists is similar.



H.—GENERAL VIEW OF CIRCLE AND CIST FROM S.W. BEFORE EXCAVATION WAS COMPLETED.



I.—GENERAL VIEW OF CIRCLE AND CIST FROM N. AFTER COMPLETION OF EXCAVATION.

COMPARISONS OF THE L'ISLET DISCOVERY WITH GUERNSEY DOLMENS.

Certain divergences in details are noticeable between this and the dolmens hitherto found in Guernsey and the Channel Islands.

GUERNSEY DOLMENS.

I.—The capstones have their longer axis North and South and are laid transversely to the length of the structure.

II.—The props are three or more to each capstone and are always in the form of a menhir, set on their ends.

III.—The props are always buried in the ground and rest on the underlying rock.

N.B.—There is a dolmen at Herm on the beach, but the props are buried as in the other dolmens.

IV.—The enclosing stones have always a form of a circle.

V.—The enclosing circles had no attached monuments.

VI.—Enormous banks of limpet shells surround each dolmen. At Du Tus, the bank was 3 or 4 ft. thick.

VII.—The Entrance to all the Dolmens is to the East.

VIII.—All Dolmens have some sort of paving to the chamber.

L'ISLET DISCOVERY.

I.—The covering stone has its longer axis East and West and is laid the long way of the Cist.

II.—The supports of the covering stone are on their sides and are only two in number.

III.—The supporting stones are placed with very little if any excavation on the beach.

IV.—The enclosure is irregular, has no definite form; if it has any particular shape, it is an irregular ellipse.

V.—Adjoining the enclosure are two smaller enclosures, each with another enclosure having one or more cists in each.

VI.—Only sporadic limpet shells were found.

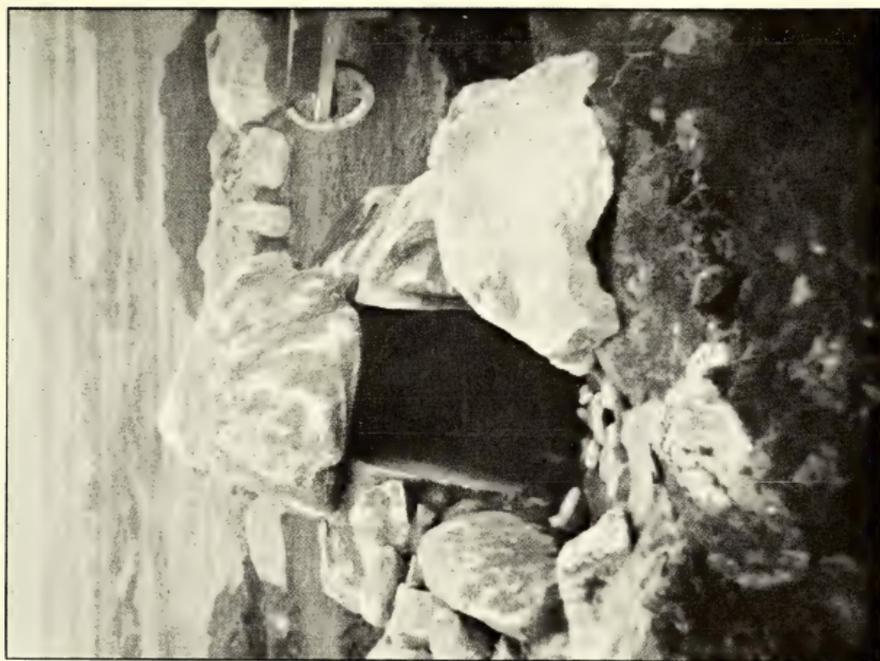
VII.—The Entrance lies to the West.

VIII.—The chamber bore no signs of having been paved.

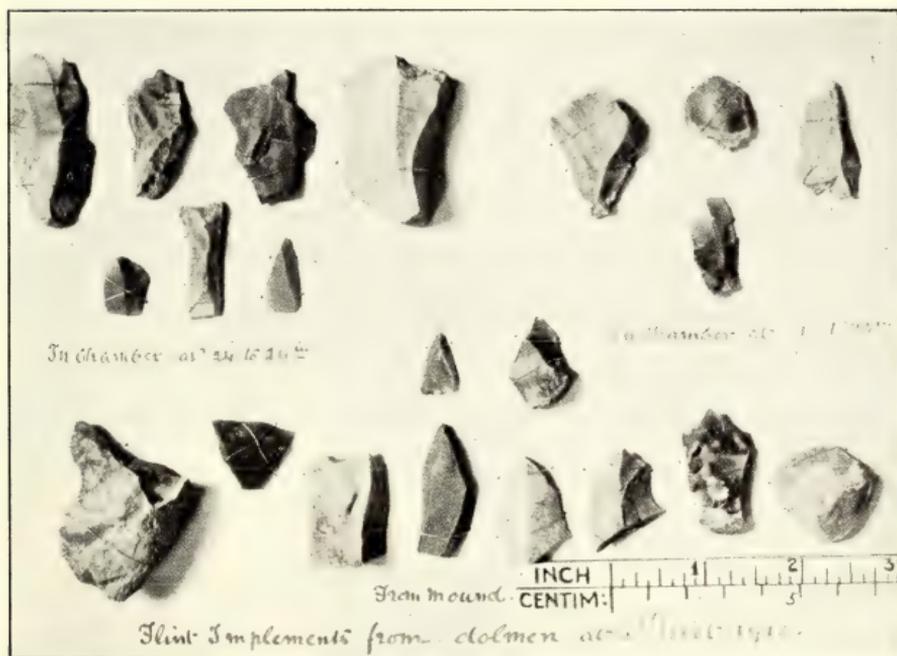
THE POTTERY (see illustrations A and E).

The nearly perfect urn (illustration E) found in the recess at the entrance of the chamber has already been described. It resembles very nearly in shape the cinerary urn found at Clahar Garden, Mullion, Cornwall, illustrated in Abercromby's *Study of the Bronze Age Pottery of Great Britain and Ireland*, Vol II., Plate XCI., fig. 429a, except that the latter has no "mamelon" between the handles. A similar arrangement of handles and mamelons is however shown on another urn of slightly different shape from Melbourne, St. Andrews, Dorset, see figure 456k, Plate XCIII. of the work quoted above.

On examination of the fragments of pottery found in the interior of the cist, it was found that enough pieces could be put together of several urns to give a fair idea of their size and shape. The largest number of pieces belonged to a flower-pot shaped urn (illustration A, figs. 1, 4 and 8), with a curved over rim, of dark brownish grey colour, burnished outside and ornamented with a narrow raised band running round the neck, $1\frac{1}{2}$ inches below the rim. This was about $5\frac{3}{4}$ inches (30cm.) in diameter at the mouth, and was probably about $6\frac{1}{2}$ to 7 inches (31-33cm.) in height and had a flat base, resembling fig. 416, Plate LXXXIX., in the above-mentioned work, except that the raised band on the latter is ornamented and the rim is not so much curved over. Another urn (figs. 2 and 3) was of a light greyish red colour, burnished and of rather thicker paste than the last, but smaller and of less diameter. Another urn was of very coarse and thick red pottery, but the fragments were too small and worn at the edges to allow them to be put together to determine its shape. Fig. 5 is of the fragments of the urn discovered in the first excavated circle, that to the N. They are of a coarse neolithic pottery, of a dark brown colour, ornamented with a lug or mamelon $1\frac{1}{2}$ inches (3.25 cm.) below the rim and had evidently formed part of a flower-pot shaped vase. Fig. 6 was of an urn of thick brown paste with a straight rim. Probably a fragment with a raised band of the same paste belonged to this urn, and possibly it was also of flower pot shape. Fig. 7 belongs to an urn of fine texture, burnished, grayish black in colour, but only the rim was found, and as the neck curved outwards gradually from a straight rim it was probably of globular shape. It is to be noted that no traces of beakers or caliciform urns were found, though many specimens of these urns have been found in Guernsey dolmens.



K.—CENTRAL CIST FROM W.



L.—FLINT IMPLEMENTS FOUND.

FLINT IMPLEMENTS (see illustration L).

Many flint flakes were found at various depths in the soil surrounding the cist, but for the most part they were discarded flakes chipped off in the manufacture of implements. A few small implements such as scrapers, saws, points and burins, were found both in the interior of the chamber and in the surrounding soil of the enclosures, in the former chiefly in the lower 4 inch (10cm.) layer of soil above the layer of yellow clay.

NOTES ON THE GEOLOGICAL CHANGES WHICH HAVE OCCURRED SINCE THE CONSTRUCTION OF THE STRUCTURE. (By Mr. A. COLLENETTE, F.C.S.)

1.—The structure in all its detail is placed upon the fairly flat top of a raised beach.

The raised beach belongs to the series for which the mean elevation above O.D. of 25 feet has been adopted.* It is a beach of large extent and composed of fairly large pebbles. The pebbles are not cemented, but are very much decomposed, the softer rocks being represented by pebbles which have become disintegrated.

There evidently has been an absence of cementing material overlying the beach at this spot, for in other places, underlying head, the beach is found conglomerated. The absence of high land in the immediate neighbourhood confirms the opinion, so that it is possible and even probable that the beach has never been covered by deposit other than eolian, in which wild plants have grown to such an extent that four feet of black vegetable mould covers the beach at its south and west margins, and everywhere this mould has penetrated the beach itself, so that instead of having a yellow colour, as is found in other places, due to oxidised iron, the stones and gravel of the beach are black.

2.—The beach appears to be of less depth under the structure than on the west and south sides of the deposit, where there is evidence of a thickness of pebbles of eight feet; this is owing to the beach material having been driven by storms to the lower levels on the south and west sides.

When the structure was erected the foundation stones were placed, not on, but in the beach, and the black earth and blackened pebbles disturbed have been found around the

* The raised beach in question varies in detail just as does the present sea-level beach, but there is no reason to suppose that the mean level of the L'Islet raised beach is unusual.

constructions practically where they were thrown by the constructors except for one thing. There is evidence that they have been washed into cavities between the stones and into the graves.

The black mould is of considerable depth in the gardens behind the low stone wall on the West, and the levels show that the blown sand, which must have covered these gardens, has been removed until the black earth was reached.

This black mould covered the whole of the ancient beach, for openings made on the South, East and North all proved that the pebbles were black and the interstices were permeated by the black vegetable mould.

This black mould was very visible on the floor of the first circle and attracted the attention of the workers. Later on the earth which covered the small grave on the North side was found to be black, and a quantity of black material formed a thick layer of horizontal structure which looked so much like burnt bone that the workmen were directed to cease work on that spot so that its nature might be determined.

It was found to be vegetable humus, or rather it was a partly decomposed vegetable mould with both humus and fragments of plants. The portions of plants had retained their woody structure and their carbonaceous character because they were protected from oxidation by a layer of compact clay.

This black earth was therefore on the site before and when the stones were erected.

We have no evidence at all that the dolmen builders covered their structure with a mound of earth. This was usual, at all events for late structures, but the mound we found over these stones was not placed there by man. The evidence is all against that theory.

The constitution of the mound was as follows:—

3.—(1st) The lowest level was largely composed of the black earth and blackened pebbles belonging to the beach. These were also found within the enclosures and graves. A small remnant has been left in position by the excavators. (2nd) Superimposed on this black layer was a mound of clay and decomposed gravelly deposit of varying thickness but averaging 5 feet. This began above the level of the tops of the smaller graves and filled up the dolmen and was rain-washed into a more or less conical hill. This clay mixture was stratified everywhere with horizontal strata, interlined with black vegetable lines—just as is the sandy deposit at

L'Anresse. These lines are lines of interruption when the clay deposit was arrested and vegetation grew undisturbed.

The clay deposit was not confined to the mound proper but thinned out to smaller layers to the N. and S., and at considerable distances from the dolmen the neighbourhood showed the same layering and stratification.

The black mould may be associated with the submerged forest period in its last phase. The conditions under which it was formed were altogether different from the present ones for the sea had not yet broken in the Braye.

Whether that had occurred before the dolmen builders erected their structure or not cannot be said, but it is probable that the coast line was still outside the last barrier in Grande Havre before the inundation of the Braye at the time they chose the spot, for it seems unlikely that they would have chosen a spot the foot of which was being washed by the sea.

The dolmen builders therefore saw no sea in the immediate neighbourhood of their mound, but not long after this time the barriers in Grande Havre were broken through by the joint action of the sea and the advance of sea level, and the sea entered into the low lands of the Braye du Valle.

At first this would not influence the spot, but in course of time the insular position of the low hill was developed, and the sea at high tide lapped the base of the hill very nearly in the positions of the present roads.

When the present sea level was reached, Grande Havre was practically open sea, and the Braye du Valle was swept by storm waves.

These storm waves, when they occurred coincident with spring tides, swept over the mound on which the dolmen stands and washed away everything except the stones. But the stones of the alignment of the circles, the smaller cap stone of the minor graves and the closing slab of the dolmen were displaced and the bones were washed out. The smaller graves and the bottom of the larger one received the mould-earth and blackened stones lying about from the building operations.

Clay was torn up from the lower levels of the old beach and washed up, forming slowly and gradually a kind of upper head of very much larger area than found during our excavation. Much of this was rain-washed into the central dolmen.

Some cessation of the action occurred, during which the mound of clay was reduced in size by rain-wash, the megalithic structure acting as a stop and an oval-topped mound resulted. This in its turn was covered by blown sand, and in our day this was overgrown by wild plants.

4.—Thus is accounted for, the fact that the tombs had been emptied, the stones disturbed and moved, all before the formation of the mound, the horizontal layering and the clean section of the horizontal layers.

The gravel, which has disappeared from under the beach on the East side, is at present *in situ* in the wells on the South and West sides; hence it may be inferred that the storm waves beat in from the N.W. and W., in other words through Grande Havre—where they met those reflected from the Folie hill—and rushed up the dolmen hill.

5.—There is a valuable item of evidence which must not be lost sight of.

The urn has been emptied as described, and was found to contain clay-mould. Between the clay and the inner surface of the urn we found a network of fibrous root.

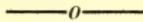
We have tried to get the roots named but so far without success; the roots are fibrous and have all the characteristics of ivy. When the plant grew in the pot or urn there must have been clay or soil, the urn must have been in contact with air and moisture, hence the growth occurred before the deposit of the clay of the mound.

The excavations were carried out from first to last under the superintendence of Lt.-Col. T. W. M. de Guérin, the President of the Guernsey Society of Natural Science and Local Research, who interested himself specially with the account of the pottery and flint implements; of the late Rev. G. E. Lee, M.A., Rector of St. Peter-Port, and local Secretary of the Society of Antiquaries, whose sudden and much regretted death during the time of the excavations deprived the Society of a most valued worker in every matter archæological and also of the report on this discovery which he was preparing at the time of his death; of Mr. A. Collenette, F.C.S., who is responsible for the geological account and conclusions; of Mr. S. C. Curtis, who undertook the measurements and general account; and of Mr. A. Le Tissier, of St. Magloire, who supervised the actual excavation. He had interested himself previously in the local antiquities, and it was felt that nothing of any interest would be missed by him.

Mr. S. Falla, of the Vale, was the one to originally call attention to the stones first described, and Mr. J. S. Hocart reported the fact to the Society.

THE RAINFALL OF GUERNSEY FOR THE YEAR 1912.

BY MR. A. COLLENETTE, F.C.S.



AGAIN we have passed through a year much wetter than the average.

The year 1910 totalled 46"16, 1911 fell to 37"11, and this year is again up to and over 46 inches. We have had three wet years in succession after 5 dry years.

The total for the year exceeds the average of 70 years by 9.89 inches. The fall 46"57 has been exceeded in the 70 years four times only, viz. :—

	in.
1848	48.01
1852	49.13
1860	48.04
1872	56.96

The total over 40" are more numerous.

One effect of the excess has been to raise the average from 36"43 to 36"62. In the comparisons given in this paper the latter figure is used.

Seven months of the year were wetter than their averages, and one of these made a record, for August's rainfall totalled over 8" which was 2" in excess of its previous highest quantity. August exceeded its average by 5"56 which is a very large excess.

Of the dry months April was the driest and narrowly escaped being without rain at all, having less than a quarter of an inch as a total. This was also a record.

No fewer than eight of the twelve months gave 20, and over, wet days, these eight months contributing together 188 out of the 236 wet days of the year. The wet days have exceeded the average by 55. The wetness of the year is well illustrated by the fact that nearly two out of three days were wet.

The wet months contributed 75% of the year's total. These months usually yield 37% only, hence we see that the rain has fallen in greater quantity in the drier months of the average year.

The difference between the wettest station, which this year proves to be the Grange, and the driest, is 10"38.

Counting the three wettest stations, viz. : St. Martin's-road, The Grange and Rohais, as 100, then the south of the island had a rainfall of 97% ; the west, 86% ; the north, 79% ; the south-west from 86% to 90%. L'Anresse had 198 wet days only ; Mont Saint still fewer with 194, but all the other stations were in excess of 200 and the average of all stations was 220.

As was to be expected the droughts are but two in number instead of, as last year, four.

The partial droughts are also two, last year yielding three. Heavy falls have been numerous, the wettest stations yielding seven falls of one inch and over, but L'Anresse had one fall only of over 1 inch.

The island as a whole received 43" which is 10" more than the established average.

Mr. Catford has been taking the rainfall at the Platte Fougère lighthouse and has obtained a total of 17.76 or 48% of the fall at Fort Doyle. This also represented only 36% of the fall at St. Martin's. It is thus shown that the rainfall induced by the rise of the land is exhausted by the time the rain bearing air reaches the N.E. point of land.

TABLE I.
RAINFALL AT ST. MARTIN'S ROAD, 1912. Inches.

Months.	Rainfall.			Previous Records.		Greatest fall in one day.		Proportion of the month's falls to the year's total.		Wet Days.	
	Monthly Tls.		Difference of 1912 from 70 years' Averages.	Monthly Tls.		Amount.	Day.	1912.	Averages.	1912.	Averages.
	1912.	70 years' Averages.		Highest.	Lowest.						
January ..	3.46	3.74	- 0.28	7.90	0.79	0.71	6th	7.4	10.5	17	19
February..	2.86	2.63	+ 0.23	6.19	0.08	0.46	7th	6.2	7.2	26	16
March	6.17	2.59	+ 3.58	6.44	0.34	0.69	20th	13.5	7.2	27	16
April	0.22*	2.30	- 2.08	5.13	0.23	0.04	5th	0.5	6.3	9	14
May	1.01	2.08	- 1.07	4.64	0.02	0.23	6th	2.5	5.5	11	11
June	3.90	2.08	+ 1.82	5.03	0.43	1.01	2nd	8.4	5.5	20	11
July	3.67	2.14	+ 1.53	6.58	0.12	1.04	27th	7.8	5.8	20	11
August ..	8.02*	2.46	+ 5.56	6.01	0.33	1.32	12th	17.2	6.8	27	12
September	3.00	3.03	- 0.03	9.39	0.25	1.39	29th	6.3	8.2	11	14
October ..	5.41	5.02	+ 0.39	11.04	1.92	0.95	20th	11.6	13.5	20	19
November	3.79	4.47	- 0.68	9.08	0.88	0.85	28th	8.0	12.1	20	19
December	5.00	4.18	+ 0.82	11.47	0.80	0.56	25th	10.6	11.4	28	19
The Year..	46.51	36.62	+ 9.89	56.96	25.04	1.39	Sep 29	100.0	100.0	236	181

* New record.

TABLE II.
DISTRIBUTION OF RAINFALL OVER THE ISLAND.—1912.

Months.	South & South East.			East.		West.		North.	South-West.		Island
	St. Martin's Road.	Les Blanches.	Hautnez.	Villa Carey, Grange.	Colborne Villa, Rohais.	Mont Saint.	St. George.	Fort Doyle.	Les Hêches, St. Peter-in-the-Wood.	Villiaze, Forest.	Means of all Stations.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January	3·46	3·31	3·42	3·37	3·59	3·18	3·35	2·80	3·44	2·97	3·29
February....	2·86	2·69	2·66	2·93	3·01	2·64	2·90	2·15	2·49	2·46	2·68
March	6·17	6·08	6·09	6·23	6·29	5·20	5·46	4·77	5·62	5·34	5·72
April	0·22	0·26	0·23	0·19	0·15	0·08	0·17	0·14	0·28	0·20	0·19
May.....	1·01	1·12	0·99	0·95	0·95	0·69	0·69	0·80	0·68	0·82	0·87
June	3·90	3·98	4·14	3·42	3·46	3·10	3·14	2·88	4·34	3·95	3·63
July	3·67	3·76	3·74	3·90	3·61	2·87	3·20	3·12	3·57	3·59	3·57
August	8·02	7·43	7·32	6·93	7·37	6·67	6·83	6·40	5·80	6·37	6·84
September ..	3·00	3·16	3·01	2·85	3·25	2·83	3·19	2·15	2·74	3·03	2·92
October	5·41	5·44	5·30	5·60	5·79	4·83	4·89	4·93	5·04	4·12	5·14
November...	3·79	4·08	3·32	3·58	3·52	3·65	3·45	2·76	3·49	3·04	3·47
December...	5·00	4·24	4·50	5·00	5·21	4·16	4·37	3·85	4·41	4·17	4·49
The Year...	46·51	45·55	44·72	47·13	46·77	39·89	41·38	36·75	41·90	40·14	43·07
Comparisons	100	98	96	101	100	86	86	79	90	86	92
Wet Days...	236	237	228	220	214	191	233	198	220	225	220
Observers ...	Mr. A. Colletette.	Mr. B. Rowsell.	Waterworks Co.	Dr. F. Carey.	Mr. T. Guilbert.	Mr. S. C. Curtis.	Rev. Stevens Guille.	Mr. E. O. Catford.	Mr. F. Lilley.	Waterworks Co.	

TABLE III.
PREVIOUS YEARS OF LOWEST RAINFALL WITH THE 5 YEARS
BEFORE AND AFTER THE MINIMA.

In.	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
56											
46								48.04			
36	34.98				31.90		43.41				34.47
26		29.29	30.42	30.36		25.03			31.22	32.50	
In.	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875
56								56.96			
46	43.30	44.43									
36			37.07	34.76	32.99		36.26		37.72	35.38	36.28
26						27.05					
In.	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	
56											
46								46.16		46.51	
36	40.88	37.72			34.00		34.00		37.11		
26			34.12	33.43		26.22					

TABLE IV. DROUGHTS, PARTIAL DROUGHTS AND FALLS OF 1 INCH AND OVER.

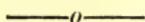
1912.		St. Martin's	Les Blanchés.	Hautnez.	Grange.	Rohais.	Mont Saint.	St. George.	Fort Doyle.	St. Peter's.	St. Saviour's.
DROUGHTS, DAYS.											
Commencing:											
April 11th	22	22	22	22	22	22	22	22	22	21	22
September 13th	14	—	14	16	16	16	16	14	16	16	14
PARTIAL DROUGHTS, DAYS AND AMOUNTS.											
Commencing:											
April 1st	36	36	36	36	36	36	36	36	37	36	36
"	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
August 30th	0.29	0.36	0.31	0.29	0.23	0.23	0.17	0.24	0.34	0.34	0.26
"	days	28	28	28	29	29	30	29	30	31	28
"	amounts	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
"	0.25	0.27	0.28	0.23	0.24	0.24	0.30	0.24	0.21	0.29	0.29
FALLS OF 1 INCH AND ABOVE.											
Day.											
June 2nd	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
July 27th	1.01	1.05	1.00	—	—	—	—	—	—	1.20	—
August 5th	1.04	1.02	—	1.12	1.11	1.11	1.02	—	—	1.16	—
" 12th	1.10	1.03	—	—	—	—	—	—	—	—	—
" 19th	1.32	1.19	1.20	1.19	1.28	1.28	?	?	1.24	—	1.16
September 29th	1.17	—	—	1.22	—	—	—	—	—	—	—
" 30th	1.39	1.35	—	1.44	1.55	1.55	1.32	1.42	—	1.25	1.37
October 20th	1.25	1.12	1.18	1.30	1.34	1.34	1.21	1.30	—	1.20	1.22
"	—	1.21	1.01	—	—	—	—	—	—	—	1.01
7	7	5	5	4	4	3	2	1	4	4	4

TABLE V.
 GUILLE-ALLÈS LIBRARY, SARK AND ALDERNEY, RAINFALL, 1912.

	GUILLE-ALLÈS LIBRARY.				SARK.				ALDERNEY.			
	Total.	Heaviest Rainfall.	Rain Days.		Total.	Heaviest Rainfall.	Rain Days.		Total.	Heaviest Rainfall.	Rain Days.	
	in.	in.		in.	in.		in.	in.	in.	in.		
January	3.46	0.65	16	0.72	3.01	6th	17	0.62	3.85	16th	16	
February	2.92	0.44	18	0.39	2.18	22nd	19	0.41	2.66	22nd	21	
March	6.65	0.68	25	0.50	4.88	20th	25	0.45	4.20	23rd	25	
April	0.17	0.06	6	0.07	0.16	9th	4	0.16	0.20	9th	4	
May	0.97	0.22	12	0.23	0.73	30th	10	0.18	0.62	6th	10	
June	3.75	0.80	18	0.84	4.16	1st	20	0.55	2.43	6th	14	
July	4.19	1.25	17	0.63	2.98	13th	15	0.95	3.58	26th	20	
August	7.89	1.38	27	1.35	6.57	12th	25	1.30	6.21	12th	25	
September	2.90	1.36	7	0.89	1.96	29th	6	1.24	2.29	29th	6	
October	5.59	1.00	18	0.95	4.67	1st	17	0.94	5.34	20th	18	
November	3.89	0.80	20	0.69	2.79	29th	17	0.78	3.42	27th	16	
December	5.21	0.55	27	0.60	3.78	25th	22	0.64	4.24	27th	22	
Totals	47.59		211		37.87		197		39.04		197	

THE SUNSHINE OF GUERNSEY FOR THE YEAR 1912.

BY MR. A. COLLENETTE, F.C.S.



WE have just experienced the gloomiest year on record. The year has yielded 1,704 hours. The previous record was 1,724 hours in 1894. Last year, being over 2,000 hours, increased the average from 1,912 to 1,923 hours, but 1912 has been calamitous and the average is now reduced to 1,905 hours.

Only one record has been made, October had 3 hours more sunshine than its previous highest.

The falling off in monthly totals were chiefly in July and August which had totals of practically 100 hours each below their averages. These deficits practically decided the character of the year.

Instead of the year yielding 45% of the possible sunshine the proportion was only 38%.

As regards the monthly totals, May to August inclusive should have yielded over 50% of the possible, but this year only May came up to this standard.

TABLE I.

DURATION OF SUNSHINE AND
Campbell-Stokes

Months.	SUNSHINE.								
	Monthly Totals.		Nearest Hours.		Percentages of the Possible.			Mean Daily Range.	
	1912.	19 Years' Averages.	Highest on Record.	Lowest on Record.	1912.	19 Years' Averages.	Highest on Record.	1912.	19 Years' Averages.
	1	2	3	4	5	6	7	8	9
January	58	59	82	28	21	22	30	1·8	1·9
February ..	81	84	119	45	27	28	40	2·5	2·9
March	113	145	228	84	31	39	62	3·6	4·7
April	248	199	261	129	60	49	63	8·0	6·4
May	260	251	339	181	55	53	72	8·4	8·1
June	231	247	314	192	48	51	65	7·6	8·2
July	171	270	382	187	35	55	78	5·5	8·7
August	139	239	326	186	31	54	74	4·5	7·7
September ..	157	187	269	107	41	49	72	5·2	6·2
October	157*	109	157	85	47	33	47	5 0	3·6
November ..	47	69	113	40	17	25	42	1·5	2·3
December ..	44	46	71	18	17	18	28	1·4	1·5
The Year ..	1704*	1905	2215	1724	38	43	50	4·6	5·2
Highest	260	270	1899						
Lowest	44	46		1894					

* New Record.

TABLE I.
PREVALENCE OF CLOUD.

Instrument.

SUNSHINE.			Sunless Days.		Sunniest Days.			CLOUD.	
Differences from Averages Columns 1 and 2.	Proportion of the Year's Total.				1912.		Previous Record.	0 to 10.	
	1912.	Averages.	1912.	Averages.	Duration.	Day.		1912.	Averages.
10	11	12	13	14	15	16	17	18	19
— 1	3·4	3 1	14	10	8·5	28th	8·5	7·1	6·6
— 3	4·7	4·4	4	6	8·1	20th	9·7	6·1	6·2
— 32	6·6	7·6	2	1	11·2	30th	11·8	6·7	4·5
+ 49	14·6	10·4	0	1	13·1	30th	13·6	4·5	4·8
+ 9	15·3	13·1	1	1	14·4	28th	14·7	5·4	4·5
— 16	13·6	13·0	0	1	14·6	22nd	15·6	5·2	4·9
— 99	10·1	14·2	1	0	12·5	16th	15·5	7·4	4·6
— 100	8·2	12·6	4	1	10·3	2nd	13·9	7·4	4·6
— 30	9·1	9·8	1	1	11·3	7th	12·4	4·3	4·6
+ 48	9·2	5·8	2	4	9·6	5th	10·8	5·1	5·9
— 22	2·7	3·6	7	7	6·2	24th	8·8	7·8	6·4
— 2	2·5	2·4	13	11	5·0	31st	7·9	6·9	5·8
200	100	100	49	46	14·6		15·6	6·4	5·3

TABLE II.
ANNUAL TOTALS OF SUNSHINE IN GUERNSEY, 1894 to 1912.

	Hours.
Lowest	1912..... 1704
6 years	1912—1894—1902—1903—1905—1910 .. from 1700 to 1800
4 years	1896—1897—1901—1907 .. from 1800 to 1900
3 years	1904—1908—1909 .. from 1900 to 2000
6 years	1895—1898—1899—1900—1906—1911 .. over 2000
Highest.....	1899..... 2214

TABLE III.
SUNSHINE RECORDS.

Months.	Monthly Totals.		Sunniest Day.		Averages.			
	Highest.	Lowest.	In each Month.	Date.	Sunniest Day.		Gloomiest Day.	
					Mean.	Day.	Mean.	Day.
January	82	28	8·5	31st, 1911	3·0	26th	0·8	4th
February	119	45	9·7	26th, 1899	4·9	28th	1·5	6th
March	228	84	11·8	30th, 1907	7·0	26th	2·6	25th
April	261	129	13·6	24th, 1905	8·1	24th	4·8	5th
May	339	181	14·7	24th, 1910	10·5	4th	6·0	2nd
June	314	192	15·6	20th, 1905	11·5	4th	6·7	27th
July	382	187	15·5	5th, 1911	11·5	4th	6·7	25th
August	326	186	13·9	12th, 1900	10·5	2nd	5·6	27th
September	269	107	12·4	3rd, 1895	7·8	7th	4·5	24th
October	157*	85	10·8	1st, 1898	5·1	14th	1·9	30th
November	113	40	8·8	3rd, 1908	3·9	5th	1·0	29th
December	71	18	7·9	25th, 1905	2·7	25th	0·5	16th
The Year	2215	1724	15·6	20th June 1905	11·5	2	0·5	16th Dec.
	1899	1894				June, July.		

* New Record.

