ANNUAL REPORT

AND

TRANSACTIONS

OF THE

PLYMOUTH INSTITUTION

AND

Devon and Cornwall

NATURAL HISTORY SOCIETY.

VOLUME IV. PART I.

1869–70.

PLYMOUTH:
W. BRENDON AND SON, 26, GEORGE STREET.
1870.

ANNUAL REPORT

OF THE

PLYMOUTH INSTITUTION

AND

Devon and Cornwall Natural History Society.

1869-70.

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SECRETARIES' REPORT,

1869–70.

Your Secretaries beg to congratulate the Society on the close of what has been in all respects a very successful Session.

The attendance in the hall, including the Conversazione, has averaged nearly seventy-one persons on each evening; and the debates have been, with few exceptions, well sustained.

The following is the list of papers read:—

1869.		
Oct. 7.	Inaugural Address . . .	The President.
„ 14.	Cavour, the Italian Statesman . .	Mr. E. Spender.
„ 21.	Seo Englisce Spræc . . .	Mr. D. Slater, M.A.
„ 28.	Political Economy . . .	Mr. W. Adams.
Nov. 4.	The Flora of Plymouth: its Denizens, Colonists, and Aliens . .	Mr. T. R. A. Briggs.
„ 11.	Common Salt	Mr. G. W. Ormerod, M.A., F.G.S.
„ 18.	Bases of History: the Materials .	Mr. A. Rooker.
„ 25.	The Centenary of the Steam Engine .	Mr. R. Oxland, F.C.S.
Dec. 2.	Is it a Fact?	Mr. W. Pengelly, F.R.S.
„ 9.	The Bessemer Process of Manufacturing Steel	Mr. J. Carkeet, C.E.
„ 16.	Mesmerism, and its allied conditions .	Dr. C. A. Hingston.
1870.		
Jan. 13.	Conversazione	
„ 20.	The Art and Science Claims of Photography	Mr. T. W. Coffin.
„ 27.	Degeneration of our Deep-Sea Fisheries	Mr. J. N. Hearder, F.C.S.
Feb. 3.	Cornish Names	Rev. J. Bannister, LL.D.
„ 10.	Recent Applications of the Spectrum Analysis	Mr. R. Bishop.
„ 17.	Our Brains	Mr. W. Square, jun.
„ 24.	Philosophy *versus* Materialism . .	Rev. J. M. Charlton, M.A.

Mar. 3.	William Cowper: Poet and Letter Writer	Mr. E. S. Jackson, M.A.
„ 10.	Additional Evidence respecting Marie Stuart	Rev. J. E. Risk, M.A.
„ 17.	On an early English Romance of Sir Ferumbras, and the Charlemagne Romances generally . . .	Mr. J. Shelly.
„ 24.	National Education . . .	Mr. W. Adams.
„ 31.	Pauperism	A. P. Prowse.

A new feature has been introduced in the arrangements of the Session by the publication of a weekly Journal of the Society, containing the programme of the lecture for the week, and an abstract more or less full of the lecture delivered in the week previous: to these have been added notices of any occurrence in science, art, archæology, natural history, &c. which seemed worthy of record.

It was hoped that the Journal would have been more largely used by members for this latter purpose than has been the case: failing such a use of it, it becomes a question how far the expense of continuing the Journal is met by any adequate result.

At the anniversary meeting, held on the 1st of May, short papers were read before the Society as follows:—

By Mr. T. R. Archer Briggs—On some Plants discovered in the neighbourhood.

By Mr. Spence Bate, F.R.S.—On some of the Antiquities of Dartmoor.

By Mr. A. P. Prowse—On Railway Facts and Statistics.

By Dr. C. A. Hingston—On the Relation of Temperature to the Health of Plymouth.

The Conversazione was held on January 13th, and was most successful, both in the number present and the interest excited. Portraits of local worthies formed an interesting feature in the decorations of the hall, and included amongst other the following: —The late Mr. D. Derry, Mr. Jacobson, Mr. T. Woollcombe, Mr. C. Trelawny, Dr. Butter, Mr. S. Cook. Music, both vocal and instrumental, was added to the engagements of the evening, which were varied by the exhibition of microscopic objects through a powerful oxyhydrogen microscope.

In August last the British Association held their meeting at Exeter. One day was given to excursions to Plymouth and Devonport and the neighbourhood; but beyond the personal attendance of many of the members your Institution was not identified with

their visit. It was regarded as a very successful day by all who took part in it.

The Obituary of the year includes the death of one of your members, who for many years has been connected with the Society. Mr. J. Boswarva, at an advanced age, died somewhat suddenly in November last. He was for some years one of the Museum curators, making the study of the marine algæ his special pursuit.

The acknowledgments of the Society are due to the Librarian for untiring and most valuable service in the library during the past year. This will be most clearly shown by his own report, which is as follows:—

"During the past year the shelves in the Library have been cleaned, all the books dusted and re-arranged, and many serials and other works bound.

"The Librarian has prepared a new catalogue, which is now in the printer's hands; so he expects to be soon able to distribute copies among the members, whose approval he hopes it will meet with.

"The Society are much indebted to the Royal Institution of Cornwall, the Berwickshire Naturalists' Club, the Literary and Philosophical Society of Manchester, the Literary and Philosophical Society of Liverpool, and the Royal Dublin Society, for having, on the application of the Librarian, most generously *given* numerous back numbers of their respective 'Transactions' or 'Reports' towards completing sets for the library.

"They have to thank the British Association for their Report for 1868 and 1869; the Smithsonian Institution for theirs for 1867, and also for a copy of Part I. of Binney and Bland's Land and Fresh Water Shells of North America; the Royal University of Norway for several scientific pamphlets; the Geological Society for their Quarterly Journal for 1869; the Royal Geological Society of Ireland for portions of their Journal; the Natural History Society of Northumberland and Durham for the first part of vol. iii. of their Transactions; and the Devonshire Association for their volume for 1869.

"The Librarian suggests the desirability of establishing a correspondence with a larger number of scientific and literary societies, and so securing their respective publications for the Library. Those of the Geological Society of Cornwall would be a valuable addition to the geological division.

"Three corresponding or honorary members—Dr. Bannister, Mr. Hearle Rodd, and Mr. Wareing Ormerod—have shown the interest they feel for the Society by kindly presenting to the library a copy of their respective works—'A Glossary of Cornish Names;' 'A List of British Birds, as a Guide to the Ornithology of Cornwall;' and 'A Classified Index to the Quarterly Journal of the Geological Society.'

"A zealous naturalist of the north of England, Mr. George Tate, has kindly given a copy of his work on the 'Geology, Botany, and Zoology of the Neighbourhood of Alnwick;' and the Rev. F. E. Anthony, M.A., has presented Part II. of Roscoe's edition of Kirchoff's 'Researches on the Solar Spectrum.'

"Mr. Spence Bate, Mr. Hearder, and Mr. F. H. Balkwill, have severally shown their regard for the Institution by giving the botanical portion of the 'Journal of the Linnean Society,' the 'South Devon Monthly Museum,' and a work on the 'Comparative Anatomy of the Teeth.'

"There have been purchased during the past year 'Jeffrey's Conchology' (vol. 5, to complete a set), 'Darwin's Plants and Animals under Domestication,' 2 vols., 'Owen's Comparative Anatomy' (vol. 3, to complete a set), 'Dr. Masters's Vegetable Teratology' (the volume of the Ray Society for 1869), and 'Hosack's Mary Stuart and her Accusers.'

"The Librarian regrets to say, that his endeavours to recover missing volumes have not been so successful as he could wish, as the following list of books that are *still* missing will show:—

American Journal of Science, vols. 39, 40 (1865).
Aristotle's History of Animals.
Bellamy's Natural History of South Devon.
British Association Reports for 1844, 1848, 1851, 1852.
Cambridge Philosophical Transactions, vol. 2.
Chevreul on Colour.
Encyclopedia Britannica, vol. 3 and 7 of Supp.
Farrar on the Origin of Language.
Heyne's Homer, vol. 1.
La Place's Théorie des Probabilities.
Lindley's Botany.
Linnean Society Transactions, vol. 9.
Magazine and Annals of Natural History, vol. 16, second series.
Rig Veda.
Reed's Chemistry.
Schelister's History of Music.

Singer's Electricity.
Theories of History.
Welsford on the English Language.
Welsford's Mithridates.
Zoological Record, vol. 3.
Zoological Society's Proceedings for 1855.

"He is sorry to say that a work of great local interest, entitled 'A Picture of Plymouth,' of the date 1812, recently disappeared from the library; and as there is no entry respecting it in the book on the table, he is obliged to consider this also a missing volume.

"The only serial that has been added during the past year to those previously subscribed for is "Nature"—one devoted to science."

"Some of the volumes in the library have been injured by damp, and the Librarian hopes that before next winter some practically scientific member will devise a means for at least occasionally heating the room during that season.

"T. R. ARCHER BRIGGS.

"*April 8th*, 1870."

In the Natural History Department one of your associates, Mr. G. C. Bignell, has continued his kind offices in arranging the specimens of entomology in the Museum.

The Rev. J. Bannister, LL.D., Vicar of St. Day, Cornwall, and author of a valuable Glossary of "Cornish Names," has been elected corresponding member of the Institution during the year.

The best thanks of the Society are due to Mr. E. Lane for the gift of a very handsome and valuable portrait of the late Mr. Jacobson. As the portrait of one of our own members, and painted by a local artist, such a gift is both appropriate and acceptable to the Plymouth Institution.

(Signed)
FREDERIC E. ANTHONY,
C. ALBERT HINGSTON, } HON. SECS.

April 14th, 1870.

TREASURERS' REPORT.

1869-70.

Presented at the Annual Meeting April 14th, 1870.

The Treasurers of the Plymouth Institution and Devon and Cornwall Natural History Society herewith present the Balance Sheet for the year ending March, 1870.

The total amount received for subscriptions is £102 18s., as against £107 2s. last year, and the same sum in 1868. The rental for the past year amounts to £51 19s., as against £67 4s. in 1868–69. In consequence of the alterations in the law the Treasurers have received notice of the intention of the Court of Bankruptcy to terminate the existing tenancy. The expenditure has been on the whole much the same as in previous years. It must be borne in mind that the expenditure exceeds the income. Many bills, some not yet delivered and others sent in recently, will have to be paid out of the balance in hand.

(*Signed,*)

J. BROOKING ROWE,
A. P. PROWSE, } *Treasurers.*

AN ACCOUNT OF THE EXPENDITURE AND INCOME

OF

The Plymouth Institution and Devon and Cornwall Natural History Society,

For the Year ending March, 1870.

Dr. Cr.

	£	s.	d.
To Rates, Taxes, and Insurance	9	15	8
Salaries	21	2	10½
Repairs	12	19	8
Lighting and Warming	17	16	0
Interest	6	0	0
Incidentals	5	7	2½
Printing	47	8	11
Museum	3	4	2
Library and Binding	31	11	5
Conversazioni	3	15	4
	£159	1	3
Balance	66	12	10¼
	£225	14	1¼

	£	s.	d.
By Balance from last year	67	9	1¼
Arrears of Subscriptions	2	2	0
Sale of Old Materials	0	18	0
Annual Subscriptions	99	15	0
Ditto (Junior)	3	3	0
Rental	51	19	0
Admissions	0	8	0
	£225	14	1¼
Balance brought down	£66	12	10¼

Audited 11th April, 1870,

T. W. COFFIN.

An ABSTRACT from the METEOROLOGICAL REGISTER, from 1st April, 1869, to 31st March, 1870, kept at the Navigation School, Gascoyne Place, Plymouth (Lat. 50° 22½′ N., Long. 4° 7¼′ W.), by JOHN MERRIFIELD, F.R.A.S.

MONTH.	STANDARD BAROMETER FOR MEAN LEVEL OF THE SEA, AT 32° FAH.			SELF-REGISTERING THERMOMETERS. (*Negretti and Zambra's.*)					Average Dry Bulb for Month.	Average Wet Bulb for Month.	No. of Days on which Rain or Snow fell.	Amount of Rain or Snow Water during the Month.	REMARKS.
	Maximum for Month.	Minimum for Month.	Mean for Month.	Average Minimum for Month.	Average Maximum for Month.	Average Temperature for Month.	Maximum (in shade) for Month.	Minimum for Month.					
1869.													
April . . .	30·290	29·340	30·012	45·5	60·9	53·2	72	32	52·9	49·	13	1·370	
May . . .	30·172	29·113	29·785	45·4	59·3	52·4	65	35	53·9	50·5	18	5·300	A very cold and wet month.
June . . .	30·341	29·538	30·110	49·6	67·9	58·8	78	40	61·2	56·2	6	·225	Barometer very steady throughout the month.
July . . .	30·438	29·783	30·107	54·6	71·7	63·2	82	45	64·8	60·2	9	·695	
August . .	30·312	29·798	30·161	53·1	71·7	62·4	86	44	62·8	58·3	8	·630	
September .	30·420	28·877	29·743	53·2	64·9	59·1	70	42	59·3	56·7	23	3·815	Severe gale on 11th: several vessels wrecked.
October . .	30·516	29·485	30·079	47·0	59·0	53·0	74	32	52·5	50·6	15	2·095	
November .	30·490	29·172	30·040	42·3	53·7	48·0	59	28	45·9	44·6	12	2·285	Great fluctuations in barometer.
December .	30·433	29·205	29·833	35·9	46·5	41·2	55	14	41·0	39·0	18	3·245	On 16th a gale which had all the characteristics of a cyclone.
1870.													
January . .	30·534	29·171	29·964	38·4	46·2	42·3	53·5	25	41·4	39·2	19	3·130	On 8th severe gale: vessels wrecked.
February .	30·334	29·389	29·822	35·0	43·5	39·3	53	23	38·3	36·9	14	3·435	A very cold month.
March . .	30·474	29·406	30·064	37·7	49·5	43·6	62	27	41·9	39·4	8	2·265	Max. bar. Jan. 18, Min. Sept. 11.
Average for the Year...	30·396	29·356	29·977	44·8	57·9	51·3	67·4	32·2	51·3	48·4	163	28·490	total rain for year.

The Observations are made between Eight and Nine a.m. The Instruments are supplied by the Meteorological Department, and compared at Kew.

TRANSACTIONS

OF THE

PLYMOUTH INSTITUTION

AND

Devon and Cornwall Natural History Society.

1869-70.

The Council by no means wish it to be understood that the printing of the abstracts will preclude them from publishing in full papers read before the Society that may be thought to possess sufficient merit or local interest.

Although at first the Journal, on account of the expense of publication, is necessarily small, yet should it be found to answer the expectations of the Council, it may be increased so as to contain a report of the discussions that take place at the meetings of the Society, and be the means of scientific communication between the members and others interested in Science, Literature, and Art.

PRESIDENT'S ADDRESS

AT THE OPENING OF THE SESSION 1869-70.

ABSTRACT.

The President drew attention to the recent meeting of the British Association at Exeter, and more especially to those papers that were read at the meeting which bore any relation to Devon and Cornwall. He remarked that the experience of the meeting demonstrated that the great landmarks of science were obtainable through the study and minute investigation of the common things that are met with, of which the life history is unknown to us.

He noticed the papers of Mr. Godwin-Austin, on "The Devonian Group, considered Geologically and Geographically;" Mr. Davidson's, on "The Brachiopoda of Budleigh Salterton;" Mr. Ormerod's "Discovery of Scapolite in Devonshire;" Mr. Peacock's memoir, on "The Wastage and Probable Destruction of the Warren or Natural Embankment of the River Exe;" Mr. Peach's notice of the "Discovery of Organic Remains in the Rocks between Nare Head and Porthalla Cove, Cornwall."

The President noticed at greater length Mr. Richard Edmonds's communication on "Extraordinary Agitations of the Sea," and

stated that the object of the paper was to show that the progressive wave riding inland is no evidence of a submarine earthquake, as stated by many, or at least but a secondary instead of a primary evidence, and is itself dependent on the magnitude of the preceding efflux, which in its turn is dependent on the violence and duration of the subaqueous shock occasioning it.

The President also drew attention to the statements that had recently been published, that the Great Gulf Stream was by no means the important oceanic current that has been generally supposed, but these, he thought, must be tested by fresh and carefully made observations before they can be accepted as correct, although, no doubt, much has been attributed to the influence of the Gulf Stream that is dependent upon other causes.

He also drew attention to the interesting results obtained by Dr. Carpenter's and Professor Wyville Thompson's deep sea dredgings. These have been successfully carried on at 2400 fathoms—a depth equal to the height of Mont Blanc—a varied fauna is found to exist, but its character is influenced by the reduction of the temperature to that of Arctic coldness. They moreover show that at this time there is going on a submarine chalk formation.

Mr. Pengelly read a paper on the "Clays in the Bovey Basin;" and also on the "Vertebræ of a Whale washed up at Babbicombe," which Dr. Gray has pronounced to be unlike those of any living whale, but resemble those of a skeleton found in Sweden by Professor Lilljeborg. Dr. Gray has named it *Eschrichtius robustus*. (Lillj.)

Mr. Etheridge described the bed of Terra Cotta Clay near Torquay; Mr. Whitley communicated a paper on the "Distribution of shattered Flint Flakes in Devon and Cornwall;" and Mr. Townshend Hall gave a paper on "The Method of Forming Flint Flakes used by the early inhabitants of Devon and Cornwall."

Mr. Frank Buckland, in his paper on "The Salmon Rivers of Devon and Cornwall," stated that the entrance of fish into rivers depends upon the rapidity of the rise of the river to the colder altitudes, the fish preferring those rivers that have a low ascent, and avoiding those that have a too rapid slope in the outgoing stream.

The President then drew attention to the scientific work done at the Devonshire Association this last year at Dartmouth. He noticed at some length the president's (Mr. Bidder's) address on Rivers. He also noticed especially Mr. Parfitt's researches on "Spontaneous

generation," which subject, he thought, will be yet more fully discussed in England, as it has been for some years on the Continent.

He next noticed the Report of the Explorers of Kent's Cavern at Torquay, where this last year a flint flake had been found associated with the teeth of the Cave Bear, in a position that demonstrated that the flint was much anterior to the period in which the Cave Lion and Mammoth were living, thus carrying back the antiquity of man in England to a date far earlier than geologists had previously thought probable.

After drawing attention to Mr. Phillips's memoir, on "The Feasibility and Advisability of Holding Industrial and Art Exhibitions at the Annual Meetings of the Devonshire Association," the President concluded with a short notice of the removal by death of two of the oldest members of the Institution—Mr. Charles Prideaux and Dr. Cookworthy,—and of the departure of Dr. Weymouth from the neighbourhood.

A Paper will be read on October 14th on

COUNT CAVOUR: The Italian Statesman.

By Mr. Edward Spender.

Communicated by Mr. A. P. Prowse.

PROGRAMME.

Contrast between Cavour and Pitt—Ancestry and Early Years of Cavour—A Page at the Court of Charles Albert—Falls into the disfavour of the King—Throws up the Army in disgust. Youthful ambition and anticipation of fame—Young Italy—The Revolution of 1830: Cavour's disappointment—Travels through Europe and to England—A Man of Fashion and Pleasure—A Country Gentleman—A Writer—The Revolution of 1848: the Disaster of Novara—Election to the Sardinian Parliament, and entrance into official life—The Russian War and the Sardinian Contingent—The Orsini Plot—The Plombières Interview—The Campaign of 1859—The Treaty of Villafranca: Cavour's disgust—The Political Chessboard: Cavour *v.* Napoleon—Annexation of the Duchies—Garibaldi—Annexation of the Two Sicilies—Illness—"A Free Church in a Free State"—Death.

COUNT CAVOUR.

ABSTRACT OF MR. SPENDER'S PAPER.

The writer commenced by pointing out that the Revolutionary fire of 1848 broke out first in Italy; but while it led to the downfall of the French Monarchy, and the abdication of the Austrian Emperor, it left Italy more enslaved than before. History has been called the biography of great men: Italian history was for many years the biography of Cavour and Garibaldi. The two men, so different in both character and circumstances, worked towards the same end, though in different ways. Garibaldi's career is known to most of us. No satisfactory life of Cavour has been published. Those whose theory it is that "the child is father of the man," would have found in Cavour's early years little indication of his career. At the age when Pitt was Prime Minister, the first Prime Minister of a united Italy was unknown. And yet how different were the ends of these two statesmen! Cavour's death-bed was overshadowed by a cloud of glory; Pitt's, by a cloud of terrible calamity. Cavour could look upon his work, if not as finished, at least as well advanced. Pitt sank beneath the bitter stroke of an overwhelming defeat. The bloodless capture of Naples was almost the last event of Cavour's life; the bloody rout of Austerlitz was the event which broke the heart of Pitt.

Camillo Benso, Count of Cavour, was born at Turin, July 14th, 1810. His family was antient and distinguished. At three years old he was described by his mother as "a good, romping boy, stout, obstreperous, and always ready for play." As a school-boy he was popular, although by that time he had begun to show his love for books, and rarely joined in school sports. He studied for the Engineers, and passed the examinations with such credit, that he obtained a Lieutenant's commission at sixteen, four years before the usual age. He seemed to have a distinguished military career before him. But an imprudent remark, expressing sympathy with the French Revolution of 1830, offended King Charles Albert, and led to a sort of honourable banishment to a fortress in the Val d'Aosta. Disgusted, he threw up his commission, and for ten years travelled in Europe and England. At twenty-four he wrote to a friend: "I am enormously ambitious; and when I am

Minister, I shall justify my ambition. In my dreams I see myself already Minister of the Kingdom of Italy." This was a remarkable anticipation, seeing that at this time Italy was "only a geographical expression." It shewed, too, that Cavour's predilections were for a political career. He never allowed his enthusiasm to lead him into any of the dangerous political conspiracies which were so rife at that time. Mazzini was then seducing the most ardent young patriots; but he could not seduce Cavour, who, as he said, loved the *juste milieu.* During the years that he waited for better times he was a man of pleasure. But not only this. He became an agriculturist, and spent much time and money in cultivating a large farm. Though little fond of the pen, he wrote on political subjects; and among others, the condition of Ireland, and Free Trade. He took enlightened views of both matters. At the end of 1847 he helped to start a Liberal paper—the *Risorgimento.* A few weeks later came the time for action. A new thing was seen in the land—a reforming Pope; and the Italians were nearly mad with joy and passionate expectation. Then came the darkening of all their hopes at Novara, where Charles Albert was hopelessly defeated, and abdicated. Cavour did not despair.

By this time Cavour had become known as a politician, and during the next five years he filled almost every important ministerial office. The Russian war gave him the opportunity which he needed for "making" Italy. He felt certain that the Western Powers would win, and he was equally certain that if the little kingdom of Sardinia would but throw in her lot with England and France she would then be able to get the Italian "question" recognised. It was with the greatest difficulty that he could persuade Sardinian politicians or the king to incur the pecuniary burden involved by sending an expedition to the Crimea. But he succeeded, and the victory of Tchernaya rewarded his efforts, and laid the foundation of the Italian kingdom.

It was not immediately after the Peace of Paris, however, that he was able to turn the victory to account. Lord Palmerston gave him the cold shoulder, because he supported France rather than England at the Congress. It needed the Orsini conspiracy to force Napoleon into action. That took place in January, 1858. In July of that year there occurred the celebrated interview, at Plombières, between the French Emperor and the Sardinian minister which led to the war of 1859. The programme of the war was "Italy free

from the Alps to the Adriatic." Napoleon stopped short with it only half completed. Thenceforward Cavour determined to work alone; thenceforward Italy became a chess-board on which Napoleon and Cavour played against each other. Napoleon won Savoy and Nice, but Cavour won the Duchies, the Legations, and the Sicilies. He hoped to win Rome also; but another player stepped in and took possession of the board. That player was Death. Cavour was worn out by the protracted struggle and the terrible anxiety. On May 29th, 1861, he returned home from the Chambers, after a stormy debate, weary and out of sorts. Typhoid fever set in, and, in accordance with the barbarous medicine of the country, he was repeatedly bled. He gradually sank, amid the distress and lamentation of all Turin. His last thoughts were for the country, in whose behalf he sacrificed his life, no less than if he had died on the battle-field. His last words were to the friar who attended him, "Brother, brother, a free church in a free state." Fit epitaph for the man who uttered them, and who had endeavoured to the utmost to realise them.

A Paper will be read on October 21st on

SEÓ ENGLISCE SPRÆC.

By Mr. D. Slater, M.A.

PROGRAMME.

On the propriety of the term Anglo-Saxon. The name by which the language was first known according to Grimm, *Seó Englisce Spráec.*—The relations of the Anglo-Saxon to the other languages of the Indo-European family.—The ancient Germans: testimony of Cæsar and Tacitus.—Bishop Ulfilas and the Mœso-Gothic Translation of the Scriptures: the Skeireins.—Fall of the Western Empire: the Invasions of Britain.—Divisions of the Gothic stock of languages: general view of Ancient Gothic Literature.—Characteristics of the Anglo-Saxon Language: details.—Comparison of Anglo-Saxon and Modern English: the grammatical categories of the words in a period determined by their relative positions, the true characteristic of English as distinguished from Saxon.—Anglo-Saxon Dialects: the West-Saxon, the Northumbrian, the Mercian.—Importance of the study of Anglo-Saxon.

LOCUSTS IN PLYMOUTH.

Plymouth has been visited during the last few days by a flight of Locusts (*Œdipoda migratoria*).

Under the general name of the Migratory Locust would seem to be included more than one species. Whether our present visitants are the true *Œ. migratoria* or not I cannot just now state confidently, but I believe them to be so. All that I have seen are of the same species; some individuals, however, being much darker in colour than others.

One I have alive now which was caught in Frankfort Street, Plymouth, on Saturday last. It is very active, although it has suffered an enforced fast since its capture.

It is to be hoped that the Corporation of Plymouth will never be called upon to pay large sums of money for the destruction of Locusts, as some Continental cities have from time to time been obliged to do. Marseilles one year paid 20,000 francs, and Arles 25,000 francs, for dead Locusts, at the rate of a quarter of a franc per killogramme. If so a special department will have to be created, with accommodation in the new Guildhall. I venture to say that none of the competing architects have made provision for such a state of things. A board in the entrance-hall might run thus—"Locust Destruction Offices to the left."

J. Brooking Rowe.

A NORMAN DOORWAY IN PLYMOUTH.

The curator of antiquities, Mr. Hine, has called the attention of the society to a small but interesting Norman doorway in the St. Andrew's Alms-houses now being pulled down. It has been known to a few local antiquaries for some time, but until now there has been some uncertainty as to its genuine Norman character, it being well known that builders at the period when the alms-houses were erected (the 17th century) not uncommonly imitated, though in a coarse manner, the earlier styles; but the doorway having been denuded of its many coats of lime and plaster is found to be an unquestionable specimen of late Norman construction. It has a

round arch with a bold roll moulding and an enrichment of the tooth ornament well carved and undercut, which is continued down the jambs on either side. There were small attached pillars and capitals to the jambs; but it is evident, from the former being now at the base of the masonry, that the doorway was taken from some other place (probably an ancient religious house in the immediate locality), and worked into these alms-houses of the seventeenth century.

This doorway is probably the oldest existing architectural fragment in Plymouth, and belongs to the earliest period of the town's history, when Sutton or South Town was an appendage to the monastery of St. Augustine at Plympton, which was founded in 1121. Amongst the remains at Plympton is a Norman arch of about this date; the Plymouth doorway here described was probably erected between forty and fifty years later. It is of freestone; and it is a curious fact that the Norman and Early English masons appear never to have used granite in their buildings.

This interesting piece of ancient masonry has been kindly placed at the disposal of the curator by Mr. Price, builder (who bought the old materials of the alms-houses), and will be re-erected in the garden at the back of the Athenæum.

A Paper will be read on the 28th October

ON POLITICAL ECONOMY.

By Mr. W. Adams.

PROGRAMME.

Political Economy, the Science which investigates the laws regulating the production and distribution of Wealth.—Wealth, whatever men need and desire to enable them to attain their object in life, and which therefore has exchange value.—Three requisites of production: natural agents, labour, and abstinence.—Function of Capital to make Abstinence possible.—Distribution of Wealth between the Contributors to its production.—Theory of Rent.—Effect of increase of Wealth on number of Population.—Result to a Nation of an exclusive desire for Wealth.—Need and advantage of the study of the Science at present.

SEÓ ENGLISCE SPRÆC.

ABSTRACT OF MR. SLATER'S PAPER.

Some have taken exception to the use of the term "Anglo-Saxon," to designate that form of the English language which was spoken before the Norman conquest, on the ground that our ancestors called themselves and their language "English," and their country "England." The lecturer was of opinion that the difference between Anglo-Saxon and English is too essential to allow of their being called by a common name. "Seó Englisce Spráec" was the original name, meaning "The English Speech." (Grimm, Deutsche Grammatik.)

The Anglo-Saxon is a member of a family of languages spoken in Europe and Western Asia, whose genealogical relation was first seen by Friedrich von Schlegel, who gave them the simple name

of "Indo-Germanic," afterwards altered to "Indo-European" to include the Celtic stock. Max Müller and M. Pictet propose to call them "Aryan" (from a Sanskrit root, applied to the ploughing of the ground), believing that it was originally applied to themselves by the remote ancestors of the Indo-European family. The Gothic stock of this family, to which the Anglo-Saxon belongs, is characterized by the want of any verbal tenses, except for the present and the past, and the co-existence of a weak and a strong order of inflexion.

Very little is known of the barbarians of Western Europe before the time of Julius Cæsar. The natives of Gaul, though brave, bowed their neck to the Roman yoke, and ultimately adopted the language of their conquerors, importing into it some of their vocabulary, and infusing into it still more of their spirit. To the east of the Rhine dwelt a far different race, destined to play a more conspicuous part in the annals of human history. In Cæsar's *Commentaries* we ever and anon catch glimpses of the fierce and terrible tribes of Germany, who seem throughout his campaigns to hover in the distance like a dark thunder-cloud. When the Roman army found they were going to be led against these tribes, the fierceness of whose glance no eye could endure, a panic spread through the entire camp. While the whole of the "Germania" of Tacitus is valuable, the lecturer referred specially to the thirty-seventh chapter as a remarkable tribute of the Roman historian to their indomitable valour and martial spirit.

The Mœso-Gothic is of great philological importance, as being the earliest specimen of any Teutonic language. In it we have a translation of considerable portions of the New Testament and fragments of the Old, together with portions of an explanation of the Gospel of St. John under the name of "Skeireins" (Gothic Skeirjan, to interpret or make clear). All these we probably owe to Ulfilas, or Wulfila (Gothic Wulfs, a wolf), an Arian Bishop of the Visigoths (318–388, A.D.). Mœso-Gothic is considered by some to be, like Anglo-Saxon, of the Low-German type, and it is easy to find expressions in it very similar to the English; *e.g.*, "I am the door," "Ik im thata daur." (H. G. Thür.)

In the fourth century after the Christian era, the vast fabric of the Western Empire, of which Livy had said, "Eo creverit, ut jam magnitudine laboret sua," was falling to decay, and the blow, like the rough soldier of Clovis, who shattered in pieces the pre-

cious vase at Soissons, came from Germany. One new year's eve the Rhine was crossed by a vast heterogeneous host, who took permanent possession of Gaul, and parcelled it out among themselves and their kindred tribes who had preceded them. Not half a century later, this island began to fall a prey to a series of invasions from the northern shores of Germany, which changed Roman Britain into Saxon England. The lecturer maintained that the accounts of these invasions, as given by Gildas, Bede, and the *Anglo-Saxon Chronicle*, were on the whole to be relied on, and protested against their straightforward accounts being confounded with the fabulous tales published by Geoffrey of Monmouth from his wonderful "book written in the British tongue."

As the languages of the Celtic stock are divided into two branches—(i) the British or Cambrian, and (ii) the Gaelic or Erse—so the Gothic are divided into (i) the German proper or Teutonic, including the Mœso-Gothic, the High German, and the Low German,—embracing Anglo-Saxon and modern English, old Saxon (now extinct), Friesian, Platt Deutsch, &c.,—and (ii) the Scandinavian, including the Icelandic, Feroic, Swedish, and Danish. The Saxons, Angles, and Jutes, who invaded Britain, belonged to the Low German division. The Saxons are first mentioned by Ptolemy, who places them in Holstein, and the islands of Nordstrand, Föhr, and Silt; but they gradually became the head of a powerful confederacy, including the Friesians. The Angles are first named by Tacitus among certain tribes of the Suevi, and Ptolemy, some time after, places them on the banks of the Elbe near the Lower Saale, and therefore in the neighbourhood of High German races. They subsequently migrated to Angeln, and came in contact with Scandinavians, both which facts are important. The affinities of the Jutes are obscure.

The lecturer then passed in rapid review the ancient Gothic literature, observing, with reference to the Nibelungen Lied, that one celebrated legend of heathen times had left its traces in both Germanic and Scandinavian literature,—that of Sigfried the Dragon Slayer, who forged his mighty sword in the depths of the primæval forest. This saga was borne to Iceland, where it still preserves its old mythic shape. It was not, therefore, borrowed by the Icelanders from the Germans, nor by the Germans from the Icelanders, but should be regarded as the joint production of these twin sisters of the Aryan family. The debt that philology owes to Chris-

tianity was illustrated by a reference to the old Saxon poem, "The Heliand," as well as to Otfried's "Krist."

The Anglo-Saxon language, containing High German, Scandinavian, Celtic, and even Slavonic elements, is less precise and uniform than either the Mœso-Gothic or the Icelandic; yet it belongs, on the whole, to the Low German division. It differs from English both in respect of its vocabulary and its grammar. In the first place, its vocabulary is more homogeneous than that of modern English. This may be illustrated by a reference to the Anglo-Saxon Gospels, where we find "scribe" is translated "bocere;" "centurion," "hundred-man;" "disciple," "leorningcniht;" and so on. In respect to its grammar, the Anglo-Saxon is more inflexional than English, having three genders and four cases; so that while the English word "good" has only one form, the corresponding Anglo-Saxon adjective "gód" had ten. The verb, too, had many inflexions that are now lost. Special attention was called to the existence of an ablative first discovered by Grimm, as in thy (the), the Latin eo, as well as in hwy (why).

After reading a few quotations illustrative of Anglo-Saxon literature from Beowulf, Cædmon, and King Alfred's translation of Orosius, the lecturer called attention to the three (so-called) Anglo-Saxon dialects — the West Saxon, the Northumbrian, and the Mercian. It is in the West Saxon, which may be called the classical form of the language, that the great body of Anglo-Saxon literature has come down to us. The Northumbrian division once had an extensive and flourishing literature of its own; but only a few fragments have escaped the general wreck produced by foreign invasion. It is characterized by the form of the definite article, and the omission of –n both in the plural of nouns and the infinitive of verbs. Of the Mercian forms of speech in a definite and certain form very little is known.

The lecturer observed with satisfaction a general tendency in the present day to revive obsolete Anglo-Saxon and old English elements, as likely to enrich our vocabulary, and especially to add melody to verse. The fourteenth century saw the introduction of a large number of foreign words from the French, and the sixteenth from the Latin; the nineteenth enjoys the honour of having recognized the superior force and fitness of a Saxon phraseology as a medium of literary effort.

POLITICAL ECONOMY.

ABSTRACT OF MR. W. ADAMS'S PAPER.

The object of the lecture was to afford a clear and concise view of the nature and subjects of the science of Political Economy, and to direct attention to the benefit and importance of its study.

Political Economy is the science which investigates the facts relating to the production and distribution of wealth, that is, of things which are capable of exchange, or have exchange value, in a given state of knowledge of the physical facts which affect this production and distribution, such investigation being for the purpose of ascertaining the laws regulating such facts.

Whatever may be a man's aim or tendency in life, he has certain material needs which must be supplied in order that he may attain any success, and which he will, of course, try to supply as easily and conveniently as possible. This is the source of the laws of Political Economy. In all except the very simplest modes of life we find that men adopt a division of labour. Instead of every man providing for his own wants, a system of commerce is established, men taking up different branches of industry, and supplying each other's wants by exchange. All things which are capable of supplying some of the desires of members of the community, and are therefore exchangeable, are articles of wealth. Being the result of an essential need of mankind, wealth has a true position in the normal condition of society, and Political Economy shows that in such normal condition, when all men fulfil their true work, society naturally assumes an harmonious organization for the supply of the articles of wealth required. It is the primary object of the science to ascertain the normal function of wealth, and of the laws regulating its production and distribution; but it is also within its province to consider the confusions introduced into society by the abnormal use of wealth, and to trace them to their particular sources. It is, however, strictly a science, not an art. It does not teach what remedies are best to cure the evils it can detect. It is an investigation of facts, showing which are due to health and which to ailment, what conditions are necessary for the former, and what have been the causes of the latter.

The production of wealth involves three requisites: natural agents, labour, and abstinence. Men are dependent for their power of producing anything on their ability to avail themselves of the powers of nature. Any natural object which is capable of affording a man a suitable basis for his efforts is termed a natural agent. It may have exchange value or not; that is determined by its being either limited in supply and monopolized, or readily accessible. In order that a man may utilize the advantages presented by the natural agent, he must exert his bodily and mental faculties; and then, that he may accomplish his work, he must abstain from the consumption of the result of the labour expended until the desired product is brought to completion. In order to be able to wait until he has finished his product, a man evidently needs to be furnished with some of the fruits of previous production to supply his wants in life. Often also, to bring his work to completion, he will need the labour of other men, and the use of various articles to aid the labour employed. To provide these he will require the possession of articles of wealth which will enable him to obtain them. These fruits of previous production, or articles of wealth employed in the production of wealth, are called capital.

There are two main laws relating to production. 1st. That where there is an increase in the production of any article, such increase, so far as it is dependent on natural agents limited in supply, will be produced necessarily at a greater proportionate cost. 2nd. That so far as such increase is dependent on labour, it will have a tendency to lessen the proportionate cost of such produce. We may therefore state as rules—1st. That additional labour when employed in agriculture is less efficient in proportion than that previously applied, and therefore, although an increased demand may be met, it will be at an increased proportionate cost. 2nd. That additional labour when employed in manufactures is more efficient in proportion than that previously applied, and therefore that an increased demand for manufactured articles tends to lower the cost of their production.

The other branch of the science investigates the distribution of wealth, in other words, shows what portion of the produce is naturally payable respectively for the three requisites for its production; that is, what is due to the owner of the natural agent, if an article of wealth, for rent, what to the labourers for wages, and what to the capitalist for profit. The portion payable as rent is the

difference between the value of the produce and the cost of production. Therefore anything which tends to lessen or increase the value of production tends to lower or raise rents, as the case may be. Thus improvements in agriculture, by rendering land more productive, tend to lower rents; and improvements on land have the same effect. On the other hand an increase of population, by increasing the demand for agricultural produce, raises rents.

An increase in wealth has no effect on the increase of that class of people who have no position in society which they wish to maintain. The increase of these is only checked by what are called positive checks, such as sickness and hardship. The increase of all others, however, is limited by what is called the preventive check, which keeps them from increasing beyond the means of maintaining their mode of life. Up to this limit, however, they will increase. Therefore, if an increase of wealth is regarded as a good in itself, its benefit will soon disappear before a corresponding increase of needs; and it is only when wealth is regarded by a nation as the means for the attainment of high ends in life that an increase of it can be of any lasting advantage.

A Paper will be read on the 4th November on

THE FLORA OF PLYMOUTH:

ITS DENIZENS, COLONISTS, AND ALIENS.

By Mr. T. R. Archer Briggs.

PROGRAMME.

Difficulties of Phyto-Geography.—Influence of Man on the Vegetation of the World.—Explanation of the terms Denizens, Colonists, and Aliens.—Purposes for which several Denizens might have been introduced.—Old Popular Names of Plants.—The Monks as Introducers of Plants.—Popular Names sometimes illustrative of the History of Species.—Grounds for considering a Species a Denizen examined.—Particulars respecting Trees, apparently of the Denizen Class.—Importance of the subject to Historical Painters.—Critical Remarks on the Origin of some of our Fruit Trees.—Particulars respecting various Herbaceous Denizens, introduced for Food or Domestic Purposes; for Medicine; for Ornament.—Vitality of Seeds.—Colonists.—General Remarks on Plants of this Class.—Ways in which they have been introduced.—Aliens.—The Mistletoe, &c.—Conclusion.

THE FLORA OF PLYMOUTH:

ITS DENIZENS, COLONISTS, AND ALIENS.

ABSTRACT OF MR. ARCHER BRIGGS'S PAPER.

This Lecture may be considered as an attempt towards supplying an answer to such a query as the following: Which plants of the existing Flora of Plymouth must we reject when questions relating solely to aboriginal species are under our consideration?

The lecturer commenced by observing that a thoughtful student of nature often finds mysteries where a superficial or careless observer would suppose that there were none. The Phyto-geographer—who studies the distribution of plants over the earth's surface, examines and enquires into their respective distribution—has, however, to confess that his science, like that of the geologist, has problems which he cannot solve; that why this plant is *here*, that *there*, is sometimes a mystery, as differences of surface, soil, and climate, three most powerful influences in controlling vegetation, do not always supply a reason. Moreover, in some quarters of the world he has to encounter the difficulty of having to duly estimate the extent to which man's influence has gone to control the range of certain species. He sees the lord of creation, especially when in a civilized state, selecting and propagating such plants as he finds necessary to his well-being, either from their furnishing food for himself or for the domestic animals with which he surrounds his dwelling: cherishing, indeed, all those species that in any way contribute to his enjoyments or his pleasures. The productions of his own country are not sufficient to satisfy his desires; for, when there are not insurmountable obstacles, he, to satisfy them, transports certain species from one part of the world to another. Then, to carry out his plans the more fully, it becomes his aim to reduce in number, or even extirpate, such others as would interfere with the growth or due development of the favoured ones. Nor is it only *directly* that he exercises an influence on the vegetation of the world; but *indirectly*, and often unconsciously, he has done, and is still doing, much to control or alter the range of certain plants. The words Denizens, Colonists, and Aliens entering as they do into the title of this paper, suggested

the preceding remarks, and it is hoped that their bearing on what follows will be clear.

The following explanation of these three terms, together with that of "Natives" (which is added that it might be contrasted with the others), is taken from a work by one of our greatest British botanists, Hewett Cottrell Watson:

"1st. A Native. Apparently an aboriginal British species; there being little or no reason for supposing it to have been first introduced into this island by human agency.

"2nd. A Denizen. At present maintaining its habitats as if a native species, without the direct aid of man, but liable to some suspicion of having been originally introduced by human agency, whether by design or accident.

"3rd. A Colonist. A weed of cultivated land, by road-sides, or about houses, and seldom found except where the ground has been adapted for its production and continuance by the operations of man.

"4th. Alien species are those certainly, or very probably, of foreign origin."

With regard to many species it is extremely difficult to ascertain whether they ought to be considered Natives or placed with the Denizens or Colonists; hence occasion is given for nice observation or critical remark.

Among the purposes for which our ancestors may be supposed to have introduced various plants belonging to the denizen class are for use as food for man or beast, for medicine, or for ornament. In pursuing researches in this direction, the old popular names of certain plants sometimes assist the student by referring to the purposes to which the species bearing them were severally applied. We know that in the Middle Ages the monks cultivated simples, and the denizens that now cling to the walls of many monastic ruins, or thrive best among their crumbling remains, are witnesses of their practice of the healing art, and of the care they took to provide medicines for the members of their fraternities and such rustics as lived near their sanctuaries. Members of religious orders who went on pilgrimage to other parts of Europe, or the more distant Holy Land, might bring back with them roots or seeds of foreign plants.

The fact of a species being always found about dwellings, or in

spots where there is good reason to suppose houses have stood, would, notwithstanding its propagating itself readily in such places, be a sufficient argument for placing it in the category of denizens. Supposing all remains of a house had been obliterated, the presence of two or three such species in one locality would lead a judicious botanist to conclude at once that they mark the site of an old garden, or had been introduced in some way. Should they be plants that are still objects of cultivation, or historical evidence show them to have been this, the case would be still stronger against their being considered indigenous. When, too, a species is found only sparingly a great distance beyond the bounds of its general range, its occurrence, as a native, where it so sparingly appears would be held to be very improbable geographically, unless the spot afforded peculiar physical features adapted to its requirements, not possessed by the intervening country.

The love of flowers seems natural to man. We see the child in the nurse's arms trying to get into its baby grasp every bright flower it sees near it. It will pull them to pieces certainly, but it is its regard for them that makes it do so; a curiosity, we may well believe, to know as much about them as its dawning intellect will enable it to discover—consequently, it is not surprising to find the cultivation of flowers, as objects of beauty, prevailing in various parts and at different ages of the world.

Among the denizens apparently introduced for their uses (excluding medicinal, superstitious, or ornamental ones) are several forest and fruit trees, two or three fruit bushes, and some potherbs.

Questions as to the indigenous character, or period of introduction of our trees must, it is imagined, be of great importance to historical painters in cases where they have to introduce scenery into their works.

It is extremely difficult to assign a position to several fruit trees—whether to regard them as the originals of cultivated species, or to consider them as the degenerated produce of these—individuals reverting to a natural condition from a cessation of man's care.

Among the herbaceous denizens introduced either for food, or for domestic, medicinal, or ornamental purposes, the lecturer placed *Saponaria officinalis*, L.; *Smyrnium Olusatrum*, L.; *Chenopodium Bonus-Henricus*, L.; *Helleborus viridis*, L.; *Chelidonium majus*, L.; *Althæa officinalis*, L.; *Ægopodium Podagraria*, L.; *Sambucus Ebulus*, L.; some *Menthæ*; *Narcissus biflorus*, Curt., &c.

The fact that the class of Colonists consists of species that are weeds of cultivated land, and so are seldom found except when the ground has been adapted for their production and continuance by the operations of man, makes a British botanist regard such species as strangers; for, when there was no cultivation and the entire land was wood, heath, or undrained marsh, scarcely a suitable habitat for a single plant of this category could have been afforded by the whole country. Thus he is driven to conclude that commerce introduced them, and that agriculture has fostered them; and these opinions are confirmed by the fact that the first appearance and subsequent naturalization of several species of the same character are on record; moreover, many at present are becoming naturalized. He knows too, how species settled in this country are constantly being conveyed into some of its colonies. A large number of this class were doubtless introduced with grain, and seeds of other kinds. Cattle may have brought others in their wool or hair, as well as in other ways. *Papaver Rhœas*, *Fumaria officinalis*, and *Alopecurus agrestis* will serve as examples of colonist species.

Among the Aliens, or certainly introduced species, of the Plymouth Flora are *Koniga maritima*, Br.; *Œnothera odorata*, Jacq.; *Gnaphalium margaritaceum*, L.; *Polemonium cæruleum*, L.; *Scrophularia vernalis*, L.; *Mimulus luteus*, L., species grown for ornament. *Medicago sativa*, L.; *Trifolium hybridum*, L.; *Trifolium incarnatum*, L., plants cultivated for fodder. *Carum Carni*, L.; *Petroselinum sativum*, Hoffm.; *Melissa officinalis*, L., employed in domestic economy. *Lepidium Draba*, L.; *Barkhausia taraxacifolia*, D.C.; *Barkhausia setosa*, D.C.; *Crepis biennis*, L.; *Veronica Buxbaumii*, Ten., apparently accidentally introduced, or unintentionally sown.

The lecturer placed *Viscum album* (the Mistletoe) with the Aliens, as he considered it had been introduced into the Plymouth Flora through a mistake, and that it does not exist in the neighbourhood, except where originally planted.

At the conclusion of his lecture, he asked those present to take into consideration the very difficult nature of his subject, before they criticised his paper.

A paper will be read on the 11th November on

COMMON SALT.

By Mr. G. W. Ormerod, M.A., F.G.S.

A paper will be read on the 18th November on

BASES OF HISTORY—THE MATERIALS.

By Mr. Rooker.

PROGRAMME.

Having spoken in the previous lecture of the Authenticity of Early History as derived from contemporary testimony under different forms, it is reserved for the present lecture that we should consider the sources from which historical testimony is derived; as from tradition; from pictorial representation; from inscriptions, whether mural or monumental, or from coins and medals; from treaties and state papers; from statutes and codes of law; from private biography and the speeches and letters of public men, and from more formal historical records: the gradual construction of history; its development and perfection.

COMMON SALT.

ABSTRACT OF MR. G. WAREING ORMEROD'S PAPER.

This mineral, "the Chloride of Sodium," is procured for the most part from fossil or rock salt, mineral springs, or the evaporation of sea water. The use of salt in connexion with sacrifices by the Jews, the Greeks, and Romans, and its symbolical applications, were noticed. The amount of salt consumed by each person, the necessity of using it by human beings, (with certain exceptional cases,) the great importance of the mineral to the agriculturist, and the fondness of many animals for it, were then mentioned. The manner in which salt was placed on the tables in former days occupied the next part of the paper. The duty on salt in France, England, and India; the abolition of the duty in 1825; the cost of salt in England from 1314 to 1727, and the produce of the Cheshire works, were then referred to. The next portion of the paper contained descriptions of the localities in the Continent of Europe, in Asia, Africa, and America, where salt was procured. As there was not sufficient time to allow of these being read, the names of the places were shown on diagrams, and the author proceeded to a more extended account of the salt of England. This,

it was stated, was found as brine or salt springs in the silurian rocks of Cumberland and Radnorshire, and in the carboniferous and triassic rocks of Northumberland, Durham, Lancashire, Cheshire, Leicestershire, and Worcestershire; as rock or fossil salt in Cheshire, Worcestershire, and Durham; and was procured by evaporation of sea water at Salines, as at Lymington. The author then gave an historical sketch of the rise and progress of the salt trade, commencing at the time of the Confessor, and particularly noticing the discovery of the rock salt at Northwich in 1670, and the subsequent extension of the trade. The geological position in Cheshire, and some of the physical results arising from the extensive workings, were then mentioned, and the paper concluded with an account of the manner in which the salt was manufactured at the salt works in Cheshire, and at the Salines.

A Paper will be read on the 25th November on

THE CENTENARY OF THE STEAM ENGINE.

By Mr. R. Oxland, F.C.S.

PROGRAMME.

Early History of Steam Power.—Different methods of using steam previous to the production of the Steam Engine by James Watt in 1769.—Description of Watt's Low Pressure, High Pressure, and Locomotive Engines.—The principal Improvements introduced since the time of Watt.—The purposes for which the Steam Engine has been employed.—Effects already produced thereby and probabilities of the future.

THE BASES OF HISTORY. THE MATERIALS.

ABSTRACT OF MR. ROOKER'S LECTURE.

This lecture, on the Materials available for the construction of History, was supplementary to previous lectures on the Bases of History, in which the lecturer, having considered early legendary traditions,—the myths of history,—and its doubtful or insoluble facts,—the enigmas of history,—had endeavoured to show that history, as being the relation of political events in their order of succession, is distinct from the past conditions of social life—from

isolated facts which have no historical continuity—or from evidence that only establishes the existence of national or political association; and having traced the controversy which, originating in the seventeenth century, has been continued to the present time, as to the authenticity of early history, and pointed out the disturbing causes that affected historical testimony, and the distinction that exists between judicial and historical evidence, he sought to indicate the legitimate limits of historical testimony.

The previous treatment of the subject led the lecturer in the present lecture to consider more fully the sources from which historical testimony is derived; in a word, the materials of history. Dealing principally with the secondary and less direct sources of information, he referred to tradition, on which alone but little reliance could be placed, but gaining value when tradition is accompanied by continued observances, illustrating this by reference to sacred rites, or to popular commemorative festivals, and to several instances in connection with English history. He then referred to early pictorial representation, independently of writing, such as the Mexican picture writing (if authentic), the pictorial, hieroglyphic, and the Bayeux tapestry. Then to pictured or symbolic writing, as the Egyptian Hieroglyphics in the pure Hieroglyphic, the Phonetic, the Hieratic, or the Demotic forms. He pointed out the difficulty which arises with reference to these early historical signs from unacquaintance with the character in which they are presented, or the language they express, as in the Arrow-headed writing at Nineveh, and the old Etruscan Alphabet The evidence derived from mural and numismatic inscriptions was considered, and its value as well as its limitations. Then the evidence afforded by statutory enactment and legal decisions as illustrated from several sources, but particularly by reference to the historical facts indicated in several of the early English Statutes. Treaties and State Papers were regarded as sources of history, but these in general are comparatively of late date, and as to the latter subject to destruction, and often burdensome from their fulness. The lecturer traced the history of the English Records and their publication, and further illustrated the subject by describing the repository of Spanish state papers at Simancas, and their recent investigation, in aid of English history. He further showed that history is illustrated by private biography, and the public acts of individuals, and by reference to general unhistorical literature; but that the

foundation of history must necessarily depend on the facts originally collected by annalists and chronologers, and which have been subsequently arranged and compared with other evidence by the historian. The lecturer concluded with a reference to the special ends and objects of history.

A Paper will be read on 2nd December entitled

IS IT A FACT?

By Mr. W. Pengelly, f.r.s. etc.

PROGRAMME.

Necessity for verification.—Russian scandal.—Is it a fact that flint implements are manufactured at Westward Ho, and sold to Museums at a great price?—that there is a subterranean passage from Kent's Hole, Torquay, to the County of Kent?—that the Fellows of the Anthropological Society believe in the Ape-origin of man?—that Marazion is the oldest town in Cornwall, and was named by Jews shipwrecked there from the fleets of Hiram and Solomon?—that human skulls have been found *in* the Devonshire limestones—that toads and frogs have been found alive in solid rocks?—that newspaper reports are trustworthy?—that Florence of Worcester stated that St. Michæl's Mount, in Cornwall, was once in a wood six miles from the sea?—that Carew was the earliest writer who mentioned the supposed Cornish name of the Mount?—that a silicified basket of eggs had been found forty feet deep in solid chalk?—that the name "Robert Hedges" is inscribed on the Stalagmite in Kent's Hole?—that the concurrent and independent testimony of credible witnesses must be taken as *conclusive* evidence?—that the scrapings of Irish books are an antidote to the poisonous bite of serpents?—that the Bernicle Goose is developed from the Duck Barnacle?—that current stories and anecdotes are trustworthy?—that the public ultimately disbelieve the continued cry of "Wolf"?

CENTENARY OF THE STEAM ENGINE.

ABSTRACT OF MR. R. OXLAND'S LECTURE.

The year 1769 was noteworthy for the births of the two greatest soldiers of modern times, but much more so for the publication of the improvements of the Steam Engine by James Watt, and of Arkwright's Patent for the Spinning Jenny.

The present year will be memorable for the accomplishment of two very important enterprises—the Great Pacific Railway, traversing the continent of North America—opening a daily route from the Atlantic to the Pacific Ocean, and the opening last week of the great ship canal, uniting the Mediterranean and Red Seas, and reducing the voyage to the East Indies to one-half of the time hitherto required.

As the Steam Engine has been the great agent in producing these results, a sketch of its history during the past hundred years has been made the subject of this paper.

As early as 124 B.C., Hero invented an engine in which motion was produced by the elastic force of steam issuing from the extremities of radial arms fixed on an axis.

In 1629, Branca caused a wheel to rotate by the force of a jet of steam striking on vanes fixed on its periphery.

In 1663, the Marquis of Worcester described the receiving of water into a close vessel, and then forcing it up to a higher level by steam conveyed into the vessel from a separate boiler.

In 1698, Savery describes the use of steam for producing a vacuum in such a manner that the pressure of the atmosphere would lift it about 20 feet, and then by the further admission of steam on the surface of the water, it would drive it up to a height of about 40 feet, making a total elevation of 60 feet. This was the first practical application of steam power.

Newcomen and Cawley are said to have obtained a patent in 1707 for the use of steam in a cylinder, with a moveable piston attached by a rod to the vibrating beam of a pump, for lifting water out of mines.

The steam was used for the production of a vacuum, so that the atmospheric pressure on the piston at the top of the cylinder made the piston descend, and with it the end of the beam to which it

was attached, thus causing the lifting of water in the pump. This was not a steam, but an atmospheric engine.

James Watt's attention was directed to the Steam Engine, by having to repair a model of it for the University of Glasgow.

In 1769 he obtained his first patent, and in the specification he describes the principles involved. In another patent, dated 1782, the perfect Steam Engine was described. From that date, the use of the Steam Engine for mining purposes rapidly increased.

In 1808, Fulton in America applied the Steam Engine to the purposes of inland navigation. Bell, in 1812, was the first to introduce steam navigation in Great Britain on the Clyde.

Coasting vessels soon followed. In 1824, the Sir Francis Drake commenced running from Plymouth to Portsmouth and the Channel Islands. In 1837, ocean steamers began to run regularly between Great Britain and the United States. Now there are two lines of steamers to the East Indies and China starting in opposite directions, making regular voyages round the world.

The Steam Engine for locomotives, first employed 1825, has now been extended to every quarter of the globe; and by the aid which it has afforded in the production of materials and in the provision of means of action, has enabled railways to be carried over and under rivers, over and through mountains, until even the crossing of the sea is become a project for serious consideration. The application of the Steam Engine in the working of iron and other metals, in the manufacture of cotton and wool, of paper and for printing, for agricultural operations, and for many other purposes were glanced at.

The feasibility of great improvements was suggested by the fact, that although a pound of coal is capable of producing power sufficient to lift ten million pounds a foot high, as yet the highest duty accomplished has not exceeded one and a quarter millions.

Some of the possibilities of the future suggested: Deeper mining for minerals with improved engines; the improvement of the ventilation of mines, and the certain prevention of colliery explosions; locomotives for tramways and common roads; improvement of health and enrichment of the soil by sewage utilization: but in order to the utilization of the power at hand in the Steam Engine, there must be greatly extended education throughout all classes of the population.

IS IT A FACT?

ABSTRACT OF MR. PENGELLY'S PAPER.

The author commenced by remarking that "Every one who has had occasion to verify a statement, or has watched the progress of a story as it passes from one person to another, must have had his faith shaken in much that passes as history, and have felt himself drifting more or less rapidly towards that state which asks respecting, at least, very many a statement, 'Is it a Fact?'"

Having recommended the game of "Russian Scandal" to those who wished to cultivate the verifying spirit, he proceeded to notice discrepancies and untruths arising from subjectiveness, partizanship, untruthfulness in "small things," a tendency to "improve" or "complete" narratives, a habit of bolstering up favourite but slenderly-supported hypotheses, a tendency to generalize from insufficient or ill-understood data, the introduction of the trading instead of the scientific spirit, newspaper reports of technical questions, the inconclusiveness of "legal evidence," and untrustworthy current opinions and beliefs.

The several positions were illustrated and enforced by instances which had occurred within the author's experience and reading, the latter including the works of Bede, Florence and William of Worcester, Carew, Camden, Böece, Gerard, and others.

A Paper will be read on December 9th, on

BESSEMER PROCESS OF MANUFACTURING STEEL.

By Mr. J. Carkeet, C.E.

PROGRAMME.

Introduction — Popular idea of the Bessemer process — Early methods of producing Steel—Patented processes of Mushet, Krupp, and others—Decarburization by blowing atmospheric Air through molten Pig Iron, commonly known as the Bessemer process—Description of the Apparatus—Manufacture of Bessemer Steel Rails, Engine and Carriage Tyres, Crank Axles, &c., &c.—The Siemens-Martin process—Conclusion.

Obituary.

It is with regret that we have to record the death of one of the oldest members of our Society. Mr. Boswarva was elected a member of the Natural History Society in 1842, and in the amalgamation which took place between it and the Plymouth Institution, he joined the latter as a lecturing member. In the early years of his membership, Mr. Boswarva occasionally lectured on his favourite subject, the Marine Algæ, of which he was a diligent student.

The Report for the years 1861–2 contains from his industry, "A Catalogue of the Marine Algæ of Plymouth," arranged according to Harvey's "Manual of British Algæ and Phycologia Britannica," which has been of considerable service to the students of that department of Botanical science. The zeal and attachment that he always exhibited to his favourite branch of natural history affords an example that most of us might follow with advantage.

Mr. Boswarva was until recently a constant attendant at the lectures of the Society, and occasionally took part in its discussions. He appeared to be in excellent health and spirits up to Tuesday, Nov. 30th, when some friends spent the evening with him. Soon after retiring to rest he was taken ill and died, at the ripe age of about 80 years.

In a Society like ours, where the numbers are limited and most of us familiarly known to each other, the loss of one who has been for many years so constantly amongst us must necessarily be a source of deep sorrow.

AN INSTANCE OF THE MOUNTAIN ASH (*Pyrus Aucuparia, Gaertn.*) PRODUCING TWO SETS OF LEAVES AND BLOSSOMS IN ONE YEAR.

As the drought of last summer was remarkable, we need not be surprised at seeing unusual effects, as regards vegetation, among its results. To it, I believe, is owing the fact that a large Mountain Ash (*P. Aucuparia*) growing in the piece of ground within Portland Square, Plymouth, is now (Nov. 20) fully decked with young leaves and several dozen cymes of blossoms—the second lot

of both yielded by the tree within nine months. At quite the other end of this plot, a large Laburnum seems to be following the example of the Pyrus, for it is now arraying itself in a mantle of green. It is not unusual for some species of spring-flowering deciduous shrubs to push out a few poorly-developed leaves, or even a bunch or two of flowers, in autumn (though among the number I have never noticed the Mountain Ash), especially after a dry summer; but for a species to bear a full set of either at this season is a sufficiently unusual circumstance to warrant special mention. I believe both the shrubs to be in an unhealthy state, and think it likely that the extraordinary effort that produced these second leaves, and in the case of the Mountain Ash flowers also, will be most prejudicial to them. Doubtless the drought of last summer acted on them, from their being unhealthy, to a much greater extent than it did on their stronger neighbours, which have already shed all their leafy honours; and hence, when rain followed the drought, a reaction took place within their prematurely-denuded branches, the result of which is the present unseasonable verdure and bloom.

T. R. Archer Briggs.

November 20th, 1869.

BESSEMER PROCESS OF MANUFACTURING STEEL.

ABSTRACT OF MR. J. CARKEET'S PAPER.

The popular idea of the Bessemer process is simply the production of cast steel by blowing atmospheric air into fluid cast iron. This definition is, however, far too limited, and by no means comprehends the whole scope and principle of that invention. In order, therefore, to ascertain its true extent, and to understand how widely it differs in other respects from all previously known processes, it will be necessary to carry our thoughts back to a period prior to Mr. Bessemer's invention, and to keep in view one important fact; viz., that in all known modes of producing steel throughout the world, prior to Bessemer's invention, there was a necessity for employing a powerful furnace for the purpose of increasing and continuing the heat of the metal by the combustion of coal, coke, or charcoal, from the commencement to the termination of the process.

The following short abstract from the paper read before the British Association will show how completely Mr. Bessemer was aware of the true principle involved in his process, even at that early period of the invention. Speaking of the results of the various furnaces he had used for his early experiments, he says:—"These results all tended to confirm an entirely new view of the subject, which at that time forced itself on my attention; viz., that I could produce a much more intense heat, without any furnace or fuel, than could be obtained by either of the modifications I had used; and, consequently, that I should not only avoid the injurious action of mineral fuel on the iron under operation, but that I should at the same time avoid the expense of the fuel."

Mr. Bessemer does not confine himself in his patents to the use of atmospheric air, but shows that oxygen gas may be used in lieu thereof, or a mixture of oxygen with other gaseous fluids; or he employs any gaseous fluid or matter, containing or capable of evolving oxygen, for the purposes of his invention; but he prefers atmospheric air on account of its cheapness and efficiency. Nor need we wonder at this preference, when we remember that about one-fifth of the whole atmosphere is pure oxygen gas, which abounds everywhere on the earth's surface, and is the common property of all mankind in quantities unlimited and free of all taxation, and can be obtained at the required pressure with the necessary apparatus at much less expense and inconvenience than that of separating oxygen from nitrates or other costly materials, which must first be purchased, carted, and stored at a much higher cost than the mere forcing of atmospheric air.

Only the best Hematite irons, as a rule, such as West Cumberland, Whitehaven, Barrow, and others, can be used for this process, as only carbon and silicon get burnt out by the passage of air through the molten metal, and when these are out the oxygen attacks the iron itself in preference to either the sulphur or phosphorus, and thus in analysis we find that the percentage of sulphur and phosphorus is slightly higher—very slightly—in the steel than in the pig iron before the blast has been passed through it.

The principle, therefore, on which the invention is based, as has been already stated, is the passing upwards of atmospheric air or oxygen gas through the fluid mass above that alone makes it successful. It is not simply an improvement or alteration in the details of a previously known and established mode of making

cast steel; on the contrary, the Bessemer process stands alone on a basis of its own, conspicuous alike for its extreme simplicity, its rapidity of action, and for the immense quantities it is capable of dealing with at a single charge.

A Paper will be read on December 16th, on

MESMERISM AND ITS ALLIED CONDITIONS.

By Dr. C. Albert Hingston.

PROGRAMME.

Somnambulism—Its relationship to dreams—Causes of its occurrence—Cases illustrating the phenomena produced by it—Explanation of their nature—Double consciousness a form of somnambulism—Illustrative cases—Relationship of somnambulism to mesmerism—Record of cases traced back through some centuries—Cause of its study during the early part of this century—The methods employed for its production—The character of those susceptible to its action—Phenomena occurring under its influence—Attention, faith, imitation, imagination, and hysteria, considered in connection with mesmerism—Reichenbach's Odyle theory considered—The true nature of mesmerism, and the dangers involved in its frequent application.

MESMERISM AND ITS ALLIED CONDITIONS.

ABSTRACT OF DR. C. ALBERT HINGSTON'S PAPER.

This lecture was a continuation of that delivered last year on "Sleep and Dreams." After directing attention to the various phenomena occurring during sleep, the lecturer described somnambulism as a kind of incomplete sleep; consciousness and memory being asleep, whilst the power of muscular movements, and one or more of the senses, were not only awake, but developed to a degree which appears almost miraculous to the somnambulist when conscious. When somnambulism is associated with or actuated by dreams, the dream is remembered, but the actions excited by it are forgotten, or remembered merely, not as real actions, but as part of the dream.

When the somnambulistic condition is prolonged beyond those

hours usually allotted to sleep, and when there is a direct transition from the one condition to the other without an intermediate sleep, two separate existences appear to alternate, and this is spoken of as double consciousness. The term is, however, misapplied, inasmuch as only one of these existences is a natural one, the other being due to a morbid condition capable of removal.

The passage from the consideration of natural somnambulism to artificial somnambulism or mesmerism was shown to be a natural one, seeing that the chief distinction between the two lies in the mode of their production. Mesmerism had been known during many centuries, but was first scientifically studied during the latter part of the last century, and the early part of this. Any means by which the attention could he strongly attracted was proved to be capable of producing the mesmeric condition, various manipulations, known as passes, being those most commonly and most easily applied. Those who possess high nervous susceptibilities were shown to be most readily mesmerized, whilst it was impossible to reduce many of strong will and character to that condition. The various phenomena produced by mesmerism were divided into three stages; first, the soothing stage, in which gentle sleep is produced; secondly, the noisy or talkative stage; thirdly, that of complete insensibility. The close accordance between these results and those produced by chloroform was noticed. The second or talkative stage presented certain peculiarities worthy of consideration; namely, the extraordinary exaltation of some of the senses, and particularly the muscular sense. This latter was so highly exalted in many cases, that mere arrangement of the muscles would excite corresponding emotions. The emotion of pride, for instance, by straightening the muscles of the back and raising the head; the emotion of humility, by curving the body forwards. During the third stage the insensibility was so profound as to permit severe surgical operations to be performed without any evidence of pain being produced.

The effect of directing the attention to any portion of the body, or to any particular organ, was then discussed, and it was found that not only was it capable of producing peculiar sensations of temperature and tingling, but, if long continued, actual structural changes. The numerous instances in every-day life of involuntary imitation were referred to, and the extreme difficulty in controlling or preventing them even by an exercise of the will. The principle

of suggestion was found to be a powerful agent in those without fixed or settled habits, or strong will in determining their actions, or even their thoughts. In considering Professor Reichenbach's Odyle Theory, it was shown that not only were his so-called facts founded on most insufficient data, but that they were actually disproved by Mr. Braid's investigations. The lecturer concluded by stating his belief that the mesmeric phenomena were produced by attention, this attention being of various kinds. It may either be the involuntary attention directed to any organ or series of organs, or it may be of an intellectual variety, having to do either with objects of sense, such as distant sounds, or obscure images requiring a concentration of the faculties for their perception, or with its own thoughts, giving rise to reverie, abstraction, and imagination. Attention may also be of an emotional character, such as that produced by extreme anxiety or by great terror. Mesmerism is then a condition of mind, only differing from that produced by attention, by its being prolonged far beyond the momentary action of the former.

THE ANNUAL CONVERSAZIONE.

The Annual Conversazione will be held on Thursday, January 13th, at half-past seven. The engagements of the evening will include music, vocal and instrumental, microscopic and other objects, choice chemicals, &c.

It is intended to secure a collection of portraits of local celebrities for the walls; and, with the permission of the municipal authorities, the plans for the new Guildhall for which the first premium was awarded—an honour in which the Institution, through one of its members, claims a share—will also be exhibited.

Coffee will be served at eight o'clock.

CAPTURE OF A KITE.

Mr. Edward Hearle Rodd, of Penzance, writes, Dec. 4th, 1869: "It may be interesting to your Society to record the capture, at Trebartha this week, of an adult example of the common Kite, a species I have failed to obtain during the last half a century from any part of the West of England. There will be a notice of this fact in the *Field* in the present or next week's copy."

DARTMOOR CELT.

During the past summer, whilst at Hill Bridge, on the upper part of the Tavy, Mr. Thomas Dawe, the farmer at whose house I was lodging, brought me an interesting specimen of a flint hatchet. He stated that he had found it in his turf ties, near the source of the Walkham, when cutting turf some four years ago. The head of the Walkham being a part of the moor I was unacquainted with, I resolved on accompanying him on his next visit for a load of turf, in order that I might see for myself the ground and the position in which the implement was discovered.

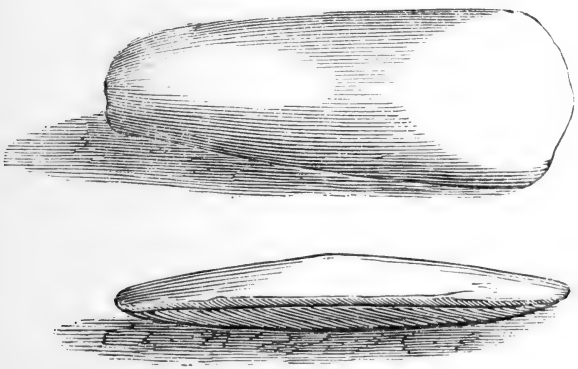
The distance of the Walkham Head from Hill Bridge is four and a half miles, the road ascending nearly the whole way. We passed the solitary hamlet of Waspworthy, leaving Browson Tor on our left, and skirted the edge of the deep valley, in which is Bog-a-tor farm. From this point you have a magnificent panorama. On the North Stannon Down bounds the horizon; beyond, and across the river, the grand range of Hare Tor and Tavy Cleave, Great Lynx Tor, and the Lydford Tors, stretch far up to the north-west of Devon—almost to the Bristol Channel. Turning due west is seen Black Down with its white cottages and mining houses. A little lower are the woods and rocky valley of Horndon, with its village crowning the hill. In the valley, here and there among the foliage, small streams of water, glistening in the sun, tell where the river wanders. All this backed up by Brent Tor, Hingston, and Kit-Hill, with the further ranges of the Cornish hills, fading away in beautiful and numberless gradations of blue distance; and over all a sky of great rolling masses of clouds, whose giant shadows chase each other over hill, tor, and plain.

But we now have to turn our backs on all this beauty, as we pass through the gate, where roads cease: we entered on the moor, where the ruts are scooped out by lomg use, and filled up with stones but once a year. In these our wheels sank down to the axles, making it quite easy to step from the waggon on to the bank. We were travelling due east, with Lints Tor on our right. Another mile of this rugged way brought us to the table land, where rise the two rivers, on the north the Tavy, on the south the Walkham.

The turf ties of the upper Walkham are of some extent, and reach as far as the eye can see, in black, purple, and brown masses, in a southerly direction.

The ground in which the implement was found has an area of about six acres, and is of a somewhat semi-circular shape, not unlike an amphitheatre, being cut from the surface in a series of steps to the depth of about ten or twelve feet.

The turf is in layers alternating with a rich black mould, much of which is brought down by the floods that dye our rivers with every shade of brown and amber. The implement, which is of polished flint, was discovered embedded in the solid peat, at the depth of six feet from the surface. I asked every kind of question that occurred to me at the time, to ascertain if it had been placed there, etc., and was assured it was simply impossible, my guide giving it me as his belief that it must have been there from the most ancient times, "nearly as old as the world;" that he cut it out himself, and had retained possession of it from that time until I saw it, thus confirming my own opinion that it belonged to some very remote period of man's history.



The sketches, representing the side and edge of the implement, are half the size of the original.

PHILIP MITCHELL.

A flint weapon of similar form and size was found some months since beneath the peat near Prince Town. Of this, with others of different shapes from the same locality, we hope shortly to give a fuller description.

C. S. B.

LUNAR RAINBOWS.

Although I have witnessed many of these, not one, I believe, has ever been observed when the moon was less than 4 or 5, or more than 25 days old, her light at these ages being probably insufficient for their production. For this reason, and because she is so often and so long above the horizon during daylight, her rainbow must be much less frequent than that of the sun.

Seldom or never has a brighter lunar rainbow been observed than that which was seen at Plymouth and Devonport, about eight o'clock on the night of Sunday, the 19th of December last, exhibiting the prismatic colours most distinctly and clearly. The bright moon, not a day after the full, was then shining on an unusually dark cloud during a very showery night of heavy hail and rain.

As a great many persons must have seen it whilst returning from their places of worship, and as some of them may have observed whether it *was* or *was not* accompanied with a *secondary* bow, however faint, the notice of such an observation would be a *desideratum*.

Rd. Edmonds.

MEMORANDUM.

Early in December, 1869, some hazel nuts in excellent preservation were found about 18 feet below the surface in Tregilso Stream Works, in Saint Hilary. The formation of the ground in the stream works is described by workmen employed in it as

Surface mould.
Clay.
"Rab," "Shingle," "Run," or Waterworn stone.
"Turfy," qy. Peat.
Stream tin stuff.

The nuts were found in the "turfy" formation. This stream work lies in the valley between Hayle estuary and Marazion marsh.

The workman who found the nuts and gave the above information states, that some few years ago he worked in a stream work

near Wheal Darlington in the same valley as the above, and about a mile west of it (the pit with the remains of an engine on it south of the railway, about half-a-mile east of Marazion station), the formation there was

Marsh surface.
"Turfy," qy. "Peat" soil.
Sand mixed with small white shells in great numbers, but mostly much injured.
"Turfy," qy. "Peat" soil.
Tin stream.

In the lower turfy or peat soil were found nuts and quantities of some hard wood.

THOMAS CORNISH.

Penzance, 21st December, 1869.

A Paper will be read on the 20th January on the

ART AND SCIENCE CLAIMS OF PHOTOGRAPHY.

BY MR. T. W. COFFIN.

PROGRAMME.

THE discovery and application of Photography—Present cause of depression—Science—Science of Photography—Photographs in Natural Colours—Permanence—Experiments of Professor Mach—The Art Claims of Photography—Qualities to be looked for in an Artist and a Work of Art—What is meant by Art—Art Study—Art Critics—Technics—Æsthetics—Admiration—Photography as applied to Portraiture—Hardness not Sharpness—Wordsworth—Sir Joshua Reynolds—Ruskin—Criticism—Detail—Perspective—Combination Printing—Pictorial Composition—Conclusion.

The lecture will be illustrated by a large number of landscape and composition photographs, kindly selected and lent by Mr. H. P. Robinson, of Tunbridge Wells, and include the well-known pictures, "Sleep," "Returning Home," "Waiting for the Boat," "Rusthall Common," &c., &c.

THE

ART AND SCIENCE CLAIMS OF PHOTOGRAPHY.

ABSTRACT OF A PAPER BY MR. T. W. COFFIN.

The lecturer commenced by observing that photography claims an equal recognition, as steam and electricity, as one of the features which draw the line of demarcation between the nineteenth century and the grand epochs of the civilization of antiquity; whilst its art progress had been fully commensurate, if it had not surpassed the expectations formed in advance.

Photography, as we now practise it, is exclusively an English invention. By a strange coincidence, experiments were carried on simultaneously in France and England, with the same end, but by essentially different means. Mr. Fox Talbot read a paper on the subject before the Royal Society on 31st January, 1839, six months earlier than the publication of the Daguerreotype process.

The present depression felt by those who practise the art is, in a manner, caused by the fact that photographers as a body have not set up their standard of excellence sufficiently high. This may arise from two causes; first, from the fact that "a miscellaneous audience is best conciliated by that sort of talent which reflects the average mind;" and in the second place, in most cases the professional photographer has taken up photography as a profession, and so long as it pays he is content. The remedy, to a certain extent, is in the hands of the public, who, by demanding more art in the picture and more style in the composition, could materially assist those who were striving to uphold for photography the high position to which it is eminently entitled.

Compared to painting, its range is necessarily limited, and no extravagant claims are advanced; but if it were purely a mechanical operation, then mechanics could work at it with success, and not fail so lamentably as they do. Anyone can, by practice and attention, produce perfect chemical results; but it requires a real love of true art, and a just appreciation of the beautiful, to obtain a picture.

Science is simply knowledge, but is generally understood to mean systematized knowledge,—facts verified and arranged, their relations ascertained, their laws deduced, their principles and im-

port understood. Photography has illustrated the general history of science in an especial manner. The early explorers had no other source of reliance but the results of tentative experiment. When a few facts were established, chemistry was enabled to offer a valuable helping hand, and photography has well repaid the loan by bringing to light chemical laws before only dimly dreamed of. The science of photography treats of that property that light possesses of changing the colour of objects, so that it may be used for pictorial purposes.

The progress that had been made towards producing photographs in natural colours was then noticed, and attention drawn to the researches and experiments of M. Becquerel, M. Poitevin, and Mr. W. Simpson, in all of which one fact was worthy of notice,—that violet sub-chloride of silver was recognised as the common starting-point.

The experiments of M. Ducos du Hauron and M. Chas. Cros were then referred to. These gentlemen, instead of endeavouring to reproduce on one and the same surface all the natural colours indistinctly, sought to analyse and separate them, so as to obtain three impressions corresponding to the three primitive colours—red, yellow, and blue; and these three monochrome results, presenting all the gradations of tint which photography re-produces so accurately, being combined by some system of synthesis, are blended together, and yield all the other colours, inasmuch as the three together contain all the elements of the spectrum.

With regard to the question of permanence, which happily had been solved by science, durability unquestionably was an important merit; but it was to be prized upon grounds entirely distinct from an abstract admiration of art. The more durable a work of art was, the more durable it was as a possession; but considered simply as a work of art, it was neither better nor worse than that which possessed the quality in a minor degree.

The photo-relief printing processes of Mr. Woobury and M. Obernetter were then described, together with that of Herr Albert, the most perfect lately presented to the public (an admirable illustration of the process being handed round for inspection).

The scientific claims of photography were then closed with a notice of the researches of Professor Mach of Gratz, who by its means was enabled to make his experiments on the effect upon the retina of masses of light distributed over certain spaces, the

results of which were valuable to physiological optics, and in the construction of explanatory geometrical figures.

In discussing the art portion of the subject, it was found necessary to define to some extent what was understood by the term art. In a great artist imagination, taste, and technical knowledge must combine; and Mr. Ruskin observes that "means are nothing; the thing expressed, by whatever means, is everything." Painting, then, is a language, with all its technicalities and difficulties, invaluable as a vehicle of thought, but by itself nothing. Dryden observes that "the most important thing in art is to know what is most beautiful." All ideas of beauty are borrowed from nature. Nature is not only intellectual, but is endowed with a soul, and she appeals to our sympathies, because we also are creatures of emotion and impulse. The mind reads nature through kindred sympathy of spirit; and although it has within its finite sphere an originating power, it cannot create out of nothing, wholly independent of existing elements; it must gather the primal elements from actual experience, and construct from the known, not create from the unknown.

The main fallacy into which art critics fall is in the assumption that, because the photographic camera has no soul, the photographer's work must therefore lack the impress of soul. The error is obvious—"they mistake the tool for the workman." The art faculty is in the producer, not in the materials or the method of working them. This is the whole position for which we contend. It depends upon the man whether the results of his labour shall be a work of art or not. Photography, without doubt, was one of the fine arts, but it cannot compete æsthetically with painting. No one has ever claimed for it the capability of competing with high or ideal art. But is there no fine art but ideal art? If so, what are the works of Landseer, Frith, Creswick, and others whose especial charm is *truth* in the delineation of nature. In glancing at photography as applied to portraiture, one of the common forms of depreciation was that of complaining that photography had no power to idealize. The notion that the artist should invest his sitters with a grace or a nobleness not their own seems never to have been doubted.

In Paris, in 1867, in this branch of photography we were utterly beaten; and to what conclusion were we forced by this salutary lesson?—that in those countries where art had been most fostered were the best photographs produced.

Attention was now drawn to the passage from Wordsworth—

> "Ah then, if mine had been the painter's hand,
> To express what then I saw, and add the gleam,
> The light that never was on sea or land,
> The consecration, and the poet's dream."

Now, if this "light that *never* was on sea or land" is anything more than poetical license, it is the expression of a dissatisfaction with the delineations of nature as she is, and is, as Ruskin calls it, a craving for the "audacious liberty of that faculty of degrading God's works which man calls his imagination;" and is an illustration of the position we find continually enforced, that painting receives its perfection from an ideal beauty superior to what is to be found in individual nature. This is maintaining in idea that the artist is greater than the Divine Maker of nature. It is difficult to perceive that any valid objection really exists against combination printing; or to understand why adding a sky to a landscape from a second negative should be designated a trick. Further, because photography is less plastic than painting, and attempts at pictorial composition therefore all the more difficult, why we should be told that "combining two or more negatives is not a legitimate application of photography."

On the subject of skies critics seem to overlook one point—that however truthfully a sky may be photographed in conjunction with a landscape, it rarely happens that it is the best for pictorial effect. It becomes then *necessary*, in order to give any value to the picture, that a carefully selected sky from a second negative be used. Again, there are a vast number of cases in which a slight alteration of the original, for instance, the elimination of some artificial object in the foreground which destroys keeping. The introduction of such figures as may serve to carry on the idea of the picture, &c., &c., may be just the one touch which throws life and vigour into the whole composition.

The lecturer contended that whilst the painter is allowed to draw on his imagination, and put in groups of pleasing figures where no figures were, and add to the scenery he paints thoughts sought for in nature, and secured in his sketch book as studies culled here and there,—sunny skies, cattle, trees, rocks, and all that nature and art judiciously selected can furnish to enrich his canvass and enhance his reputation—the photographer, with the conception pre-arranged in his mind [a sketch is made for every composition

picture] ought, with equal fairness, to be judged by results, not condemned for combining several negatives, but his works tested to see if by "these means he has laid open noble truths, or aroused noble emotions."

On the 27th January a Paper will be laid before the Society on the

DEGENERATION OF OUR DEEP SEA FISHERIES.

By Mr. J. N. Hearder, F.C.S.

PROGRAMME.

The deterioration of our deep sea fisheries a matter demanding prompt and serious investigation—Comparison between past and present productiveness—Fish formerly very plentiful, now exceedingly scarce—Whilst our fishing appliances are improved, and our trawlers increased in number, the total produce of fish is steadily diminishing, the hook and line fishing in particular—The three following questions arise in the enquiry: First, Can any cause or causes be assigned for this mischief? Second, Why has it been allowed to get so far ahead? Third, What can be done to check the devastation?—Discussion of the first question: Two essential requisites are necessary to ensure abundant produce; namely, maintenance and protection of both feeding and breeding ground—Circumstances which interfere with these conditions—Shrimp dredging and its mischievous consequences—Devastating effects of trawling and ground seining—Wholesale destruction of food-producing pasturage, ova and fry, by these reckless modes of fishing—Answers to arguments adduced in extenuation of trawling. Second question: General apathy on matters in which we are not individually concerned—Economic interests and railway returns alike affected by the success or failure of sea fishing. Third question: Mode of prevention ready at hand, and perfectly practicable—Employment of the coastguards to watch trawling operations, which should be restricted to certain localities in succession, whilst others are allowed to rest and recover—No trawling should be allowed within two or three miles of any headlands, nor within the bays included between them—Extra expense, if any, to be met by a tax on trawling, which would be more than covered by the increased produce—General summary—Conclusion.

DEGENERATION OF OUR DEEP SEA FISHERIES.

ABSTRACT OF MR. HEARDER'S PAPER.

The progressive degeneration of the produce of our deep sea fisheries is equivalent to the abstraction or loss of an immense amount of national wealth in the form of food, and demands investigation and legislative interference.

In respect of one single species of fish—viz., the hake—it is reported that in 1832 as many as 100,000 were caught in one week; whilst it is questionable now if that number is taken in a whole season, notwithstanding the increase in number, and improvement in construction of our trawlers.

A single drift boat, which accompanies the pilchard seines, brought in 84 dozen hake, all taken with hook and line, as the produce of one night, and this was only one out of fifty boats thus engaged.

These hakes could be bought for 2d. or 3d. each; now they fetch from 1s. 6d. to 2s. 6d. each. Other fish have degenerated in like proportion, and fishing is only maintained by the exorbitant prices of small quantities of best fish.

Formerly small fish were thrown overboard; now bushels of small fry, of four or five inches long, are retained for sale; whilst cart-loads of still smaller fry, collected along the coast, are destined for manure.

In 1814 there were about fourteen trawlers in the Port of Plymouth; now there are sixty, each of which is equal to three of the old ones, and yet fewer fish are caught now than at the former period, whilst the long line fishing is almost abolished.

Question first—Whence arises this mischief? Several causes conspire to produce it, and self-interest stands much in the way of getting at the truth. Some feel that they have nothing to gain by disclosing the truth, and are therefore apathetic. Others feel that they have everything to lose, and therefore conceal it. Hence it is difficult to get at the precise amount of mischief done by certain fishing practices.

The wholesale capture of shrimps, involving the destruction of fish fry by shrimp dredging, is a most fertile source of mischief. Thousands of tons of fry of our most delicate fish are

thus destroyed annually in these shrimp nets. Shrimps are the food of cod and other fish. Remove this source of food, and the fish desert the localities where they were accustomed to find it.

The maintenance and protection of both breeding and feeding ground are the essential requisites for abundance of produce in fish and re-production of stock. The bottom of the sea is an immense pasturage, affording every class of vegetable life suitable, not only for food for certain classes of marine creatures, but shelter for the crustaceans, which live chiefly at the bottom. Here all the lower orders of zoophytes, which serve as food for the higher orders of fish, thrive in rich abundance, until the ruthless, ravaging trawl scrapes them all clean out of existence, and lays waste the ground, which is quickly deserted for want of the food which it formerly supplied. Rocky spots here and there, which defy the inroads of the trawl, remain to show, by the fish which still haunt them, what might be again the abundance if proper management were adopted.

Fish are known to spawn usually in shallow waters; and here also weeds grow most luxuriantly, affording both shelter and food for the young fry. The trawl sweeps over these spots, and countless millions of the ova of fish, which would be brood for the forthcoming season, are thus annually destroyed.

The ground seines, which scrape our bays and estuaries with impunity, some having meshes small enough to catch prawns, do an equal amount of damage. Cart-loads of the fry of soles, plaice, whiting, haddock, codlings, &c., are turned out from them fit only for manure.

The drift nets, which are spread at night to intercept our migratory fish, such as mackerel, pilchards, herrings, &c., are at the mercy of these ruthless ocean rangers. Under cover of the night, the trawler does not hesitate to sweep over these nets, and tear them to pieces, thereby sacrificing at one fell swoop the contents, worth perhaps hundreds of pounds, and the owners have no redress. One night not long since 200 drift boats withdrew their immense string of floating nets, to prevent having them torn to pieces by the trawlers, one of which had already destroyed one lot of nets. Of course the produce of that night was entirely missed, and the loss sustained by the poor fishermen very heavy.

Not only does the trawl thus directly interfere with this very important fishing operation, which is one of the most lucrative

while it lasts, but the mischief which it does indirectly is even more formidable.

While some of the crustaceans live at the bottom, and are food for ground fish, others, such as the sessile-eyed, and some of the stalk-eyed crustaceans, come to the surface during a certain stage of their development, and, if spared, return again to the bottom to complete their growth. Whilst at the surface, however, they constitute the food of the migratory fish which periodically visit our coasts in search of them; and the more abundant this class of food, the greater are the numbers in which their pursuers assemble to feast on them. The produce, then, of our mackerel, pilchard, and herring fisheries, is at the mercy of the trawl; for if these creatures are destroyed at the bottom of the sea before they are hatched, they are prevented from appearing at the surface in quantities sufficient to attract large shoals of the migratory fish, which consequently desert our waters for more prolific localities.

The following table, kindly furnished to the lecturer by Mr. Frank Buckland, and selected expressly for the present paper from an immense number of similar results collected by him with great care and assiduity, will serve to show the enormous loss occasioned by the destruction of ova as they lie deposited in the sand.

RESULTS OF MR. FRANK BUCKLAND'S OBSERVATIONS ON THE NUMBER OF EGGS IN VARIOUS FISH.

Name of Fish.	Weight of Fish.	Weight of Roe.	No. of Eggs.
Salmon	12 lbs.	....	10,000
Trout	1 lb.	....	1,008
Carp	14½ lbs.	.	633,350
Perch	3 lbs. 2 oz.	8½ oz.	155,620
,,	⅛ lb.	....	20,592
Jack	28 lbs.	....	292,320
,,	4½ lbs.	....	42,840
Roach	¾ lb.	...	480,480
Conger eel	28 lbs.	23 oz.	15,191,040
Cod	....	7 lbs.	6,867,840
Cod	20 lbs.	....	4,872,000
Smelt	2 oz.	....	36,652
Lump-fish	2 lbs.	....	116,640
Brill	4 lbs.	....	239,775
Sole	1 lb.	....	134,466
Herring	½ lb.	....	19,840
Mackerel	1 lb.	....	86,120
Turbot	8 lbs.	....	385,200
,,	23 lbs.	5 lbs. 9 oz.	14,311,200
Lamprey	2⅛ lbs.	....	136,800
Plaice	4 lbs. 15 oz.	....	144,600

A second question—Why has this evil been tolerated so long? is easily disposed of; the answer to it may be found in the disinclination which men have individually to interfere in matters which do not directly affect their own pockets. If the poor rates are increased by the demands for relief of destitute fishermen, the tax is paid with a grumble, and that is all. There is no co-operation to investigate and remove the cause of the destruction. If railway companies find their returns for fish traffic falling off, they utter lamentations, and hope for better things. If the fish-market is scantily supplied, and the buyer has to pay shillings where the same number of pence formerly sufficed to make the requisite purchase, one only hears the remark, What an extravagant price we are obliged to pay for fish!

With regard to the third question—What can be done to remove the evil? the lecturer considers the remedy at hand. He would restrict trawling operations to daylight. He would have no trawling or ground net fishing in any of our bays or estuaries, nor within three miles of any line stretching from headland to headland.

By these means almost all the breeding ground and the nurseries for the young fry would be preserved for stock producing purposes, and for the benefit of the hook and line and floating net fishermen, whose operations are perfectly harmless.

With regard to the open sea fishing, he would have the ground divided into districts, which should be fished in succession; one district being allowed to rest and recover, whilst the others were free for fishing. Trawlers should be watched by cruisers or by the coast-guard service, and if any expense should be thus incurred, it should be met by a tax upon the trawler, by whom it would not be at all felt, as his increased produce would more than cover it.

In taking a review of the facts which he had the honour of laying before the Society, though conscious of his inability to treat the subject as its importance deserves, he had endeavoured to establish the following facts:—

1st. That our sea fishery is undoubtedly degenerating, and that many causes conspire to bring about this effect, all more or less attributable to the practice of unrestrained and reckless fishing, regardless of economic provisions for the reproduction of stock.

2nd. That if some steps be not taken to check the evil, it will go on in an increasingly rapid ratio, until our once productive sea borders are reduced to sandy deserts.

3rd. That the present practices of netting for one class of fish involve the destruction of the embryo and fry of others, which constitute an immense source of wealth to the nation.

4th. That the system of trawling as at present practised is not only extremely destructive to the wealth of the community, but prejudicial to the best interests of the fisherman, since the trawls not only catch the fish, but destroy 10,000 times as much brood for the coming season, by raking up and laying waste the pasturages and nurseries in which food is produced and protected.

5th. That since the bottom of the sea may be looked upon as the primary source from which the wealth of our sea fisheries is derived, its careful protection is of the utmost importance, and opens up a field for marine husbandry as important as the husbandry of our food-producing soils on shore.

6th. That for the attainment of such a desirable end restrictive legislation is needed—not restrictive as to the amount, but as to the mode of fishing.

7th. That the means of carrying this legislation into operation are already at our command in the existing coast-guard service, whose labours would not be materially increased.

8th. That any extra expense that might be incurred could be met by a small tax in the form of a license for all trawlers, which would be more than covered by their increased prosperity.

9th. That this subject is of peculiar importance to the communities of all fishing ports, who would do well to memorialize Government to take these matters into immediate consideration, and bring the same amount of energy to bear upon them as they already have upon the salmon and oyster fisheries.

10th. This can be easily accomplished by the appointment of a fishery inspector, whose business should be to visit the various fishing stations, to receive reports from local sub-inspectors, and go out in trawling vessels and take notes of their operations, as well as examine the contents of their nets. The Government would do well to provide a trawler, manned by a trawling crew thoroughly up to the work, and commanded by a local sub-inspector, who should be well acquainted with marine zoology, and should go out in the vessel and superintend the trawling. He should also keep an accurate record of the results of his examinations of the contents of the nets, which he should furnish to the inspector at his periodical visit. If the fish produce of

the trawl were distributed amongst the crew, there is very little doubt that it would ensure success, and put an end to all speculation as to the real mischief done by the trawl.

11th. A close time for sea fisheries, as well as for river fisheries, would be extremely desirable, and the most suitable time for this would perhaps be the months of February, March, and April; but this would require further consideration, and would greatly depend upon the results of the examinations of the trawling produce, when conducted under competent supervision.

The lecturer expressed his disappointment that the Plymouth Chamber of Commerce do not feel the importance of this subject sufficiently to give it any attention, since their necessary connection with all marine matters which influence the prosperity of the port would have rendered them a most eligible body to assist in the investigation. If they will not lead, however, they will perhaps find that they will have to follow in the wake, for the subject must proceed.

A Paper will be read on February 3rd, on

CORNISH NAMES.

By Rev. J. Bannister, ll.d.

PROGRAMME.

Cornwall a peculiar county—The Cornish a peculiar people—Cornwall the first, the last, and the best, or at least next to the best, county in England, though once not in England at all—The Cornish once Celts, now Saxons—become so by a change of language—Three great families of languages.—The old Cornish, Aryan, and Celtic—once the vernacular of all the south of England—Died out about 100 years ago—Literary remains few—Much of the old tongue preserved in names—*Tre*, *Pol*, and *Pen*—Names with these prefixes do not outnumber all others—they are, however, "the most Cornish"—The prefix the generic term, and has a plain signification—suffix mostly adjectival—Thousands of names easily interpreted—more of uncertain signification—disguised by false spelling—No very old records written by natives in the vernacular—Manumissions of Celtic serfs by Saxon lords—Domesday—Conjectural renderings—Analogy of other names—Physical characteristics of a place noted—Help required.

CORNISH NAMES.

ABSTRACT OF REV. DR. BANNISTER'S PAPER.

Cornwall is a peculiar county: from its geographical position, it may be called "the first and the last" in England, and "one and all" good Cornishmen will maintain that it is also "the best;" and even the inhabitants of Devonshire, "the garden of England," claiming, with excusable and natural partiality, this latter title for their own beautiful county, cannot but allow that it is *next* to the best, though so late as the time of Queen Elizabeth it was spoken of by Stowe, the annalist, as not in England at all, but "a fourth part of Britaine," the other three being England, Scotland, and Wales; and time was when Devonshire was part of Cornwall, with Exeter, it is thought, for its capital, which city was till the tenth century inhabited conjointly by Cornish and Saxons. The Cornish were driven across the Tamar by Athelstane, and it was declared death for one to be found east of its banks—a fact that militates strongly against Professor Huxley's idea that the peaceable and law-loving Devonshire men have as much Celtic blood in them as the violent and lawless Tipperary boys. According to Professor Max Muller, the Cornish, too, are peculiar as a people. They were once Celts, but by the extinction of their old vernacular, without any change of blood, they have become Teutons.

The old language of Cornwall, which did not altogether cease to be spoken till the end of last century, used to be thought Semitic, and allied to the Hebrew, having been introduced by the Phœnicians. Some also have questioned whether the aboriginal inhabitants were not akin to the people now inhabiting the Basque provinces, Lapland and Finland, whose ton ue belongs to the Turanian class of languages. But though the literary remains of the old vernacular are very scanty, yet, embracing as they do a vocabulary of the language as it was spoken before the conquest, and another (and also a grammar of it) as it was used about a century before its final extinction as a spoken language, philologists are able to assert with confidence that it belonged to the Aryan family, was Celtic, and very much resembled the languages of

Wales and Brittany; the three—Cornish, Welsh, and Armoric—forming, in fact, the Cymric branch; while the Irish, Scotch, and Manx, formed the Gaelic branch of the Celtic tongue. Many genuine Cornish words very much resemble words with the same meaning in the three last languages, and very many more are the same, or all but the same, as those in Welsh and Armoric; and the same may be said with regard to proper names, especially names of places; so that when, in consequence of the scantiness of Cornish literary remains, we are in doubt as to the meaning of a component part of a name, we are justified in going to the other members of the same family for help.

That many names in common use here and everywhere are significant, nobody can deny, though no one, in using them as names, now may think of them as having any meaning in themselves. Names of persons and families were originally either mere sobriquets or nicknames, or descriptive of some peculiarity of person, or circumstance in life, or trade, or occupation, or office, or rank; or they were derived from the father's name, or from some place where the first person who bore it was born, or some remarkable object near which he lived, or the estate which he owned. Hence we get such names as White, Long, Fox, Wolf, Smith, Knight, Hill, Thomas, Williams, Newton; and these and such like common English surnames are very common throughout Cornwall, mixed up with their Celtic equivalents—viz., Wynn = White, more commonly, Angwin the (*an*) white, showing that the name was first used as a soubriquet to distinguish the person bearing it from some one else having the same forename, or else as a nickname, the man being very dark. So also we have very common Annear (? = *an hîr*, the long); Angove, the (*an*) smith (*gof*); Lewarn = *luern*, fox; Blight (? = *bleit*, a wolf); Marrack = *marheg*, a knight; Opie = Offie, *i.e.*, Theophilus, or Hoby, *i.e.*, Robert; Raw or Rowe = Ralph; Bray = *bre*, a hill; Trenoweth, *i.q.*, Newton; Chynoweth = new (*nowedh*) house (*chy*).

There is an old couplet found in Carew's Survey, 55—

> "By *Tre*, *Pol*, and *Pen*,
> You shall know the Cornishmen."

And as Camden (Remaines 114) gives this—

> "By *Tre*, *Ros*, *Pol*, *Lan*, *Caer*, and *Pen*,
> You may know the most Cornishmen,"

it has been thought that the names of families most common in Cornwall are those beginning with these Celtic prefixes. It is not so, however; they are far outnumbered by other names equally Celtic with them, common English names, such as I have given above, and patronymics. These last are very common. Nor is this surprising, when Tonkin tells us that he had heard of cases last century where the sons bore their father's Christian name as their surname, and gave their own Christian names as surnames to their children; while others were distinguished by the name of their estate or residence. "I remember," he says, "one of the Tregeas of St. Agnes having three sons; himself was called Leonard Rawe; his eldest son was William Leonard; the second, John a'n Bans, from the place he lived in; and the third, Leonard Tregea."

The meaning of the couplets given by Carew and Camden is, that a great number of Cornish names are of local origin derived from names of places, and a great proportion of these begin with these common prefixes. According to Carew, *Tre*, *Pol*, and *Pen*, mean respectively "a towne, a top, and a head;" while Camden more correctly says of *Tre*, *Ros*, *Pol*, *Lan*, *Caer*, and *Pen*,—they "signifie a towne, a heath, a poole, a church, a castle or citie, and a foreland or promontory." Some of these, however, admit of other meanings. *Tre* = *tref*, a dwelling, or a collection of dwellings, and so comes to mean a town, as town formerly was *tun*, an inclosure, and so might be a farm; and in Cornwall now a farm-yard with its buildings is called "a town place;" and a very small village, a few houses near the parish church, is Church-town;* thus we have Gwennap Church-town, Redruth Church-town—this last a mile from the town of Redruth. Again, *Lan* is not always a church; it is found prefixed to names of places where there is no reason to suppose there ever was a church; it originally meant an enclosure; and in Wales to this day, its Welsh equivalent *Llan*, while it is commonly prefixed to the name of a saint, and so forms the name of the church or parish, is also used in its original signification; thus they have *perlan*, a pear enclosure, *i.e.*, orchard; *idlan*, a corn enclosure, or stack-yard.

Most names of places in Cornwall are compounds, those of Teutonic origin having the generic or common term last; thus

* *Ciric tun* = church town, was used by the Anglo-saxons for the church-yard, or, as it is called in Cornwall, church-hay, formerly *eglos hay*.

we have Stanton (Stone-town), Milton (either Mill, Middle, or Michael's-town), Padstow (St. Petroc's-place), Millbrook, Alverton (the *tun* or enclosure of Alnuard, tenant at the time of Domesday), Wadebridge (where formerly there was a ford), Burnt-house (a very common name for villages where formerly there were tin smelting-houses), Highway, Northill, Southill; while those of Celtic origin, as a rule, have the generic term first, followed by the specific, or qualifying, or adjectival term, intended, as is the Teutonic prefix, to distinguish one town, brook, bridge, valley, headland, estate, field, church, &c. from others by some descriptive term, pointing out some noticeable peculiarity, such as size, situation, colour, age; or its productions; or having a personal name attached,—that of a person who has been connected with it, as its builder, owner, occupier, &c. Thus we have Trewartha, higher (*wartha*) town; Trewolla, lower (*wollach*) town; Trenhale, the dwelling by the (*a'n*) moor (*hal*); Tresare, the carpenter's (*saer*) dwelling; Trengove, the smith's (*an gof*) town; Choon and Chywoon, house (*chy*) on the down (*gwon*); Chynals, house on the cliff (*an als*); Chyandowe, house by the water (*an dour*); Chegwidden, white (*gwydn*) house; Tywardreath, house (*ti*) on (*war*) the sand (*traith*); Bodwin, white (*gwyn*) house (*bod*); Boswallock, lower (*gwalloch*) house (*bos*); Bohurra, higher (*warra*) house; Busvargus, the kite's (*bargus*) house; Ponsnooth, new (*nowedh*) bridge (*pons*); Ponsandane, the man (*an den*) *i. e.*, foot bridge; Melangoose, wood (*cus*) mill (*melin*); Vellanoweth, new mill; Pensignance, head of the dry (*sech*) valley (*nans*); Penventon, spring (*fenten*) head; Penpons, bridge head or end; Penhale, head of the moor (*hal*); Penhallow, moors (*hallow*) head; Peninnis, head of the island (*enys*); Pengelly, head of the grove (*celli*); Pengover, head of the brook (*gover*); Borlase, green (*glas*) summit (*bor*); Vounder Vor, sea (*mor*) lane (*bounder*); Crowz an wragh, witch's (*gwrach*—Welsh) cross (*crows*); Crowsanvean, the (*an*) little (*bihan*) cross; Kellycoff, the smith's (*gof*) grove (*celli*); Kelligog, cuckoo's (*gog*) grove; Nanceavallen, apple-tree (*avallen*) valley; Nansagollen, hazle-tree (*collen*) valley; Hallaze, green (*glas*) moor (*hal*); Hallenbeagle, the (*an*) shepherd's (*bigal*) moor; Egloshayle, church (*eglos*) on the river (*hayl*), or of St. Heli; Egloskerry, the church of St. Keri; Heglosenuder (Domesday), the church of St. Enoder; Goonlaze, green (*glas*) down (*gwon*); Woon Bellas, pillas or huskless-oat down; Woondrea, home (*tre*)

down; Goonvrea, hill (*bre*) down; Browngelly, grove (*celli*) hill (*bron*); Burnawithan, the hill with a tree (*gwedhen*); Carn Near, the long (*an hir*) carn; Carnbargus, kite's (*bargus*) carn; Polguin, white (*gwyn*) pool (*pol*); Polscatha, boats (*scathow*) pool; Poladrick, Hydroc's pool; Lanhydrock, Ydroc's church, or farm, or enclosure; Lanner, long (*hir*) enclosure; Lannarth, high (*arth*) enclosure.

Names thus formed are found everywhere in the county, and thousands more than these, with equally plain and simple significations, requiring very little change to be made in the spelling, in tracing them to their roots, except such as is always made in the Celtic language in forming compound words. Perhaps the names about which one can speak most positively as to the meaning are those of fields, of which thousands are to be found in the Tithe Apportionments of the several parishes, either pure, just as they were given by those speaking the old Cornish, or in various stages of corruption, resulting from their having been handed down orally, without their signification being known, and often so turned into some English word with a meaning, or from the difficulty the surveyors found in catching the exact sounds, and then accurately expressing them. The most common word for a close or field is *Park*. *Gweal* is also frequent, and *Eru* and *Hay* also are found. Names beginning with the two former have frequently *an*, the article before the qualifying word, and this is often corrupted into *en*, or *in*, or *and;* and Parkan is often contracted to Pen. A few examples may be given. Park an Skeber, barn (*sceber*) close; Parkenvor, field by the road (*fordh*); Park Vean, or Bean, little (*bihan*) close; Park Vore, great (*mawr*) close; Park Wartha, or Warra, higher close; Park Wollas, lower (*wollach*) close; Park Crase, middle (*cres*) close; Park Venton, spring (*fenten*) close; Gweal Scawen, elder-tree (*scawen*) field; Gwealon, ash (*on*) field; Gwealnayne, the (*an*) lamb (*ean*) field; Gweal Lanchy, field by the (*a'n*) house (*chy*); Gweal an Vez, the outward field; Gweal Darras, field before the door (*daras*); Gweal Dren, thorn (*draen*) field; Gweal Dues, sheep (*devas*) field; Gweal Yate, gate (*yet*) field; Gweal Paul, pit (*pol*) or Paul's field; Ero Fenton, spring (*fenten*) field; Erra Penhale, moor (*hal*) head (*pen*) field; Erra Gear, camp (*caer*) field. A few of the grossest corruptions of these may be interesting. I find fields named Dry Sock, Dry Sack, and Dry Suck; these are plain corruptions of Dreisic, brambly (*dreisic*) [close]. Whale Drain is = Gweal Drean, thorn field; Clamp Park

(in the eastern part of the county Park is almost always put last) is foot-bridge (*clam*) close; Park and Hall = Park an hal, the moor close, or else Park an Tol, hole (*tol*) field; Park and Nothing = Park an eithen, furze close. In some cases the surveyor, having heard so many strange-sounding outlandish words without a meaning, seems to have mistaken English words badly pronounced for Celtic ones, and thus we get such names as Sopid (? = sawpit) meadow; Half figure (? = half acre).

Such corruptions, made in our own days, enable us to see what corruptions would be made in olden times, by strangers who had to write down names they knew nothing about, and which perhaps never before had been written or spelled. With the exception of occasional references to the county in Welsh and Anglo-Saxon writers, the oldest source of personal names I have met is the Record of Manumissions of Cornish serfs by Saxon lords in the Bodmin Gospels, now in the British Museum; and that of local names is the Domesday Survey; the former written by Anglo-Saxon, and the latter by Norman, scribes. We have after this a series of charters, deeds, and other documents, in which we find the same names spelled in no end of ways, varying even in the same document, showing that the scribes had no idea of the true orthography or of the meaning of the words. As a consequence the translating of the names of many of our towns, villages, manors, &c., is very uncertain: we cannot do, as may be done with Anglo-Saxon, Welsh, and Irish names, refer to records, histories, poems, &c., written more than a thousand years ago by natives in their vernacular, preserving the true orthography of the names, and so enabling the student to fix with a great deal of certainty the derivation and original meaning. All that we can do is to take the names as they stand, or with such conjectural amendments as the various spelling of the name, analogy of other names, and knowledge of the locality—its history, traditions, &c. enable us to make, and so fix the probable meaning the names bore to Cornishmen when they spoke the Cornish language.

In the glossary of Cornish names, now publishing in parts, I have been charged with giving too many meanings of the same name. But I have done this in order that others may from these various meanings be able to discover the true one, always making it a point to give the Cornish or other words whence I suppose the name to have been derived. Where any recognized authority has

given a meaning, I give this on his authority, without vouching for its correctness. Some very absurd meanings have been given by very learned men. Thus Lostwithiel is made by Carew to mean "a lion's (*guitfil*) tail (*lost*)," as absurd as the vulgar meaning assigned "Lost i' the hill." The probable meaning seems to be, "The Irishman's (*gwydhel*) encampment." We know the Irish did make inroads into Britain, as well as send missionaries here. The not distant parish of Withiel may be from an Irish saint; or this name and the latter part of Lostwithiel may be the same as the Welsh *gwyddwal*,—a place full of bushes, briars, &c. Carybullock Park was a deer park of the duke's, and, says Carew, "it hath lost its qualitie through exchanging *deere* for *bullocke*." Tonkin makes this "Prince's (*bulach*) town (*caer*);" it may come from the Welsh *bwlch*, a pass. Of Pennance, a very common name, meaning simply "vale (*nans*) head (*pen*)," Drew says, "a name supposed to have been imposed when the place was given to the church as commutation for sins committed." Trescobeas is rendered by Hals "treble or threefold kisses" (*baie*, to kiss); but Tresco is elder (*scaw*) town (*tre*), and *beas* may = *vez*, outside. Tresamble in "Gwennap, a poem," by Francis, a native of the parish, is rendered, "The house (*tre*) on the burdensome (*sam*) big-belly (*bol*) hill;" but Sambol is a family name (? = St. Paul), so it may be Sambol's dwelling. And very many names of places are in this latter way to be explained. Many of the suffixes are composed of names that may be recognized as those once common in Wales, names of British saints and princes recorded in Welsh genealogies, and Cornish serfs in the Bodmin Manumissions, and tenants, both Celtic and Teuton, named in Domesday; so that it is useless to attempt to force other signification upon them, though many, doubtless, that originally came from this source have been intentionally or unintentionally altered, to make them bear an apparently fitting meaning.

With regard to Cornish saints bearing names as strange and outlandish as Cornish places, and altogether ignored by the Roman calendar, it must be remembered that Christianity was established here before the mission of St. Augustine from Rome; that, according to the Welsh Triads, Cornwall was an archiepiscopal see before the foundation of Canterbury; and that many eminent men who fled from constantly encroaching pagan Saxons would find a refuge in Cornwall, and give themselves up here to a religious life, as

they did in Wales, building hermitages and founding churches; and though these have been swept away by the hand of time, and other structures have taken their place, dedicated to "orthodox" saints, yet the names of parishes still preserve the names of these original founders.

In conclusion, I beg to solicit co-operation from all interested in this kind of study. All Cornishmen may help by supplying omitted names and correcting *mis-fits; i. e.*, where from want of local information I have given a meaning to a name which, though apparently justified by the sources to which it is referred, is not justified by the peculiarities of the place; while the general philologist may render important assistance by detecting in some of the names, as to the meaning of which I have ventured to make "a guess," traces of some other languages which may have found their way into this extreme corner of Britain. I have given a good many pure Saxon names, and have been blamed for doing so in a professedly "Cornish Glossary;" but many such names are found in all parts of Cornwall, especially in the east; and it is possible that a Turanian scholar may find, more particularly in the lists of unexplained names given with each part of the Glossary, proofs of a Turanian element.

A Paper will be read on the 10th February, on

RECENT APPLICATIONS OF THE SPECTRUM ANALYSIS.

By Mr. R. Bishop.

PROGRAMME.

Sketch of the history of discovery of the properties of the solar spectrum—Spectra of various bodies: solid, liquid, and gaseous—Construction of the spectroscope, and method of using it—Application to chemical research—The dark lines of the solar spectrum explained—Discovery of their nature by Kirchoff, and their application to solar and stellar chemistry—Evidence of motion in the "fixed" stars afforded by the spectroscope—Spectra of comets and nebulæ—Conclusion.

A Paper will be read on the 17th February on

OUR BRAINS.

By Mr. W. Square, Junr.

PROGRAMME.

Lecture naturally divided into two sections, abstract and physical—Nervous system not all contained in the skull—Roughly divided into two parts, white and grey matter—White fibres described—Grey matter described—Anatomy—Spinal cord—Medulla oblongata—Sensory ganglia—Reflex action—The cerebellum—Functions of the cranio-spinal axis—The cerebrum—Anatomy—The convolutions—Termination of fibres—Connexion with the external world—Comparative anatomy—Instinct and reason—The skull—Psychology—Large brain an evidence of intellectual power—Genius generally a small brain, but active—Causes of development—The nerve cells reservoirs of thought—Memory—Reason not confined to man, nor instinct to animals—Phrenology—Science vulgarized—Dr. Gall's discovery—Arguments *pro* and *con*—The organ of acquisitiveness—The influence of experience and education—The future of the physiologist—Conclusion.

RECENT APPLICATIONS OF THE SPECTRUM ANALYSIS.

ABSTRACT OF MR. R. BISHOP'S PAPER.

The lecturer commenced his Paper with a sketch of the history of discovery of the properties of the solar spectrum. The dark lines of the spectrum first seen and described by Dr. Wollaston in 1802. The celebrated German optician, Fraunhofer, in 1814, published his map of the solar spectrum containing 576 lines. He ascertained that all solar light, whether direct or reflected, as the light of the moon and planets, contained the same lines, while the light of the fixed stars varied in this particular.

The spectra of various kinds of bodies were then noticed; important difference of character in the spectra of solid, liquid, and gaseous bodies.

General notion of the construction of the spectroscope, and the mode of using it. Application to various purposes, as the Bessemer process of manufacturing steel, and its use in combination with the microscope in detecting the presence of exceedingly minute quantities of many bodies.

Kirchoff's researches into the nature of the dark lines of the solar spectrum were explained, and the application of the spectroscope to various interesting and important astronomical subjects was considered.

The lecturer noticed the independent discovery by Lockyer and Janssen, of the possibility of determining, by the aid of the spectroscope, the presence of those remarkable red prominences in the sun, which had till recently been visible only during total eclipses, and concluded with a reference to the observations made on the fixed stars, nebulæ, and comets.

OUR BRAINS.

ABSTRACT OF MR. W. SQUARE'S PAPER.

This paper may be considered as naturally divided into two parts —abstract and physical, immaterial and material; the first is conveyed in the phrase, "So-and-so has brains;" the second in the sense of brain-matter, the actual contents of the skull. In order to come to any understanding at all of the abstract, the material must first be explained, and afterwards, as far as possible, its connection with the abstract.

In the term "brains" we must not merely include the contents of the cranium, but all the nervous system. Roughly speaking, we may divide the whole into two parts—white and grey matter; the white for conduction, the grey for reception and perception of impressions, and for origination of ideas and nervous force.

The lecturer described the nervous system as analogous to the electric telegraph—the nerves being the wires, the centres the battery. The centres described were the spinal cord, the medulla, and pons varolii; the special centres, the cerebellum; and lastly the cerebrum. Their anatomy in the human subject, and afterwards their comparative anatomy, and the way in which, by the development and addition of the various organs, the attributes of the individual whole are increased, culminating in man, were then

illustrated. As a matter of course, in animals the faculties for search of prey, for acuteness to recognize quickly the approach of enemies, and to guide them surely and swiftly out of danger, are of the highest importance. The centres presiding over these faculties constitute the great mass of the brain. In a diagram of the brain of a cod-fish was shown their predominance over the cerebrum, the organ of the reasoning faculty. In men of inferior type the skull in shape approaches more nearly to the skull of lower animals than in highly intellectual races. It is not, however, that the cranio-spinal axis is developed only to a small degree in man, but that the vast predominance of the cerebrum throws it into the shade. The cerebellum used to be looked upon as the seat of the passions—anger, love, hate, &c.; but physiological research has proved this wrong. This centre presides over the co-ordination of muscular action, or, in other words, the production of actions in accordance with one another, and the requirements of the motion to be made.

The difference between the human brain and that of the highest brute is seen at a glance. In man we have developed to its greatest extent the cerebrum. In man the cerebrum overlaps all the rest, and forms the great bulk of the contents of the skull. It consists of two lateral halves, known as the hemispheres, and a connecting band, the corpus callosum. The grey matter lies on the surface, forming a coating over the white. The surface is not uniform, as in many lower animals—the rabbit for instance, but everywhere covered with convolutions. The depth and number of these determines the amount of grey matter. The convolutions are most marked in the prime of life, and in persons of great intellectual energy. In old persons and children they are comparatively flat. They are not constant, but offer every variety of configuration.

That the brain is the organ of the mind, the lecturer thought no one for a moment would question. If it were not so, what would be the use of this large organ, so largely connected with the rest of the body? In animals, as the various attributes that are commonly supposed to belong to the mind increase, the brain increases. If the nerve supplying any particular part be divided, the connection between the mind and that part ceases. Therefore he held the brain to be the organ of the mind. Reason and faculties, such as feeling and the various emotions, are the attributes of that invisible essence the mind. A large brain, like a large man, is capable of

being largely increased. A small man can never beat a large one, their powers being relatively equal. A large brain indicates a large mind that has great *force* of character. A large brain may be associated, however, with an indolent mind. Such a brain would have more white and less grey matter than the average. It would indicate an individual who had capabilities for great things, but who from want of opportunities, laziness, or want of application, has not used his power or developed his grey matter. Such a brain is generally combined with the lymphatic temperament. The mind, in its relation to the brain, is like a player upon an instrument. If the instrument be bad, the tunes are harsh and discordant; and equally so if the player be not skilful; while, if both be good, we listen with pleasure to the full-toned harmony of a well-ordered whole.

Within the lifetime of all present the great gulf that stood between the various great divisions of nature has been bridged over, and they have been shown to fade imperceptibly one into the other. By the microscope bodies have been discovered which puzzle the best observers to say whether they are plants or animals; and in the laboratory the chemist can manufacture out of inorganic substances products of the animal world. The physiologist, then, has to determine how the brain acts, the relation of the nerve-cells to one another in their chemistry; their nervous electrical and psychological status; to attempt, and I hope with success, to bridge over the great gulf that at present stands between those two widely separated, yet closely connected, elements—Mind and Matter.

A Paper will be read on the 24th February on

PHILOSOPHY VERSUS MATERIALISM.

By Rev. J. M. Charlton, M.A.

PROGRAMME.

Two modes of contemplating the manifestations of conscious life; namely, through the bodily organism, and by means of self-consciousness—The fallacies resulting from exclusive attention to either of these two kinds of manifestation—The tendency of certain scientific men to materialism—Preliminary propositions:

(1) It is utterly impossible to identify the objects of sense-perception with those of self-consciousness—(2) Life, as far as we are concerned with it in this lecture, must include consciousness—(3) Philosophy must, in its essential principles, be deduced from the primary data and laws of consciousness—Particular examination of Mr. Huxley's theory of Protoplasm, and its natural properties—The fallacy of his reasonings founded on the alleged analogy between water, as consisting of a chemical union of oxygen and hydrogen, and life as supposed to result from the constituents of Protoplasm—Materialism of his whole theory.

PHILOSOPHY VERSUS MATERIALISM.

ABSTRACT OF MR. CHARLTON'S PAPER.

THIS Lecture might have better borne the title of "Philosophy *versus* Huxleyism," as the objections urged against the principles of Materialism are founded chiefly upon an article by Professor Huxley in the *Fortnightly Review*.

The lecturer commenced by referring to two different ways of contemplating the operations of mind—namely, through the bodily organism, and by means of self-consciousness—and endeavoured to show that *exclusive* attention given to either of these modes of investigation leads necessarily to one-sided and partial conclusions. Observing that the tendency of scientific inquiry at the present time is greatly in the direction of Materialism, the lecturer laid down three preliminary propositions:—

1. That it is impossible to identify the objects of sense-perception with those of self-consciousness. On this ground he argued the impossibility of obtaining any knowledge of the real nature of mind from mere chemical or physiological analysis, and the absurdity involved in making the attempt.

2. That for the purposes of this lecture, life is considered only as far as it may be understood to include some degree of consciousness; or, in other words, if in the proper sense of the word life may exist in some cases apart from all consciousness, the lecturer is not concerned with it.

3. Philosophy must in its essential principles be deduced from the primary data and laws of consciousness.

The lecturer then proceeded to consider Mr. Huxley's main position; namely, that as the properties of water must be considered as resulting from those of its chemical constituents, so the phenomena of life and consciousness, exhibited in connection with Protoplasm, must be regarded as the physical results of the chemical properties of Protoplasm. In reply to the reasoning on which this theory is founded, the lecturer argued:—

1. That we know not what constituents *living* Protoplasm may include; for we are able to analyse Protoplasm *only* when it is *dead*.

2. That there is no analogy between *living substance* and any *dead chemical compound*.

3. That, between the properties of water and those of its chemical constituents, there is a correspondence in nature; whereas there is an *absolute incongruity* between the phenomena of consciousness and the physical properties of the chemical constituents of Protoplasm.

The lecturer then particularly examined Mr. Huxley's mode of extricating himself from the "slough of materialism," and showed its insufficiency, and proceeded to point out some other fallacies in his argument.

A Paper will be read on the 3rd March on

WILLIAM COWPER, POET AND LETTER-WRITER.

By Mr. E. Steane Jackson, M.A., F.G.S.

PROGRAMME.

Cowper's surname and christain name—Certain incidents in his life which shaped his career, and modified his temperament—His position as an original English poet—Characteristics of his style: his pathos, satire, humour, and originality—His claims as a scholar—Vincent Bourne—Passages from his Homer diligently compared with former translations—His excellence as letter-writer.

WILLIAM COWPER: POET AND LETTER WRITER.

ABSTRACT OF MR. JACKSON'S PAPER.

The question of the pronunciation of the name Cowper was discussed. The conclusion was, that a man has a right to pronounce his name as he likes. It was suggested that the Christian name may have some influence in moulding the disposition of the bearer of it. William Cowper was by nature timid, constitutionally morbid, and in the fear of a public appearance before the House of Lords attempted self-destruction. The same feeling drove him into seclusion and a recluse life, and directed his thoughts to a contemplative rather than to an active life.

The lecturer insisted on the distinction drawn by Aristotle between the contemplative and active life, which in modern terms is the same as between subjective and objective. Cowper appeared at an opportune time, when no great writer filled the public mind. His merit is not to be judged by the manner in which his first volume was received. His second attempt a year or two later was fully appreciated.

His style was free from the conceits of his predecessors, easy, plain, and simple, but showing much elegance. He wrote the most pathetic poem in the English language. His satire was pointed and sharp, but not spiteful or ill-natured; meant to correct, not to wound; lashing vices and not men. He had an original vein of humour, which displayed itself most when he was in spirit most depressed and melancholy. So extremes meet. His originality may be tested by the "immortality of quotation." Following Vincent Bourne's example, he successfully tried Latin versification. He translated Homer into a metre, which had not been attempted before his time. The translation was close and faithful, but not elegant. Chapman and Pope were his predecessors; both had their peculiarities, but neither represented Homer correctly. His private epistolary correspondence contained all the excellence of such composition, and was not penned, as Cicero's and Walpole's, with the view of after publication.

A Paper will be read on the 10th March on

ADDITIONAL EVIDENCE RESPECTING MARIE STUART.

By Rev. J. Erskine Risk, m.a.

PROGRAMME.

A previous lecture on Marie Stuart having stated the evidence against her as confirmed from the Spanish records at Simancas, the present lecture is intended to state and balance the evidence for her.—The additional evidence on the subject since the publication of Froude's ninth volume is as follows: 1. The Book of Articles of Accusation presented at the Conference at Westminster in 1568—2. The Journal of Proceedings at Westminster on the day when the Silver Casket of Letters was produced—3. The Inventory of Queen Marie's Jewels before the birth of her son in 1566—4. Ascertainment by Professor Schiern, of Copenhagen, of date of capture of "French Paris"—In connexion with this fresh evidence are discussed, first, the authenticity of the Casket Letters to Bothwell; and secondly, the evidence of witnesses.—Summary, and balance of testimony on the whole evidence—Conclusion.

ADDITIONAL EVIDENCE RESPECTING MARIE STUART.

ABSTRACT OF PAPER BY REV. J. ERSKINE RISK, M.A.

After the enumeration of the additional evidence specified in the programme, Mr. Hosack's argument respecting the Casket Letters to Bothwell is first examined.

I. The date of No. 1 is objected to by that industrious writer on the ground of alleged contradiction to dates of the Regent Murray's Journal. Mr. Hosack also maintains the reference to "the bringing on of the man"—assumed to be Darnley—"to Craigmillar" is incorrect, because at the time Bothwell was preparing Kirk o' Field for Darnley's reception. The objection answered by the supposition that Bothwell may have provided another lodging for the king in the event of his refusal to go to Craigmillar, only desiring the queen in the first instance to bring Darnley on to Craigmillar without specifying his further views.

As regards the second letter, the close agreement between the account it gives of the queen's interview with the king, and Crawfurd's deposition on the same subject, is used by Hosack as evidence against its genuineness. This, however, so far from carrying such a conclusion, is maintained to be a more likely proof of genuineness. The queen would, most likely, give a minute account of everything as it took place to Bothwell, to enable him to carry on the plot, and Crawfurd, Darnley's servant, would have everything connected with his master's last moments indelibly stamped on his memory. Supposed cause of the ridiculous mistakes in some of the French and Latin copies of the letters. Sergeant Barham, at the trial of the Duke of Norfolk, alludes to the Queen of Scots occupying herself in re-translating into French, English, or Scotch, copies of her letters, surreptitiously obtained for her by Maitland, of Ledington. Barham speaks of "this subtlety of practice, from some variance, coming to light."

As to the third, fourth, and fifth letters, Hosack maintains their genuineness, but that they were written to Darnley. The internal evidence is not quite consistent with this theory. In proof of letter "four" being Marie's, and to Darnley, Hosack alludes to the passage where, according to Hosack's rendering, she calls herself "the second love of Jason, if her correspondent should still think more of other ladies than herself." This Hosack supposes to be a classical error not likely to be made by Buchanan, and therefore to be a woman's oversight. But the French shows the writer did not call herself *the* second love of Jason, but *a* second love. This would only imply that she was a second Medea, or a second person in a similar position to that of Medea, and not that Jason had a second love, whose fate hers might resemble. Hosack's admission respecting the occurrence of a suspicious passage in fifth letter, where the writer says "she will get rid of some obstacle if she does not receive his (her correspondent's) instructions." Hosack's proposal to strike out the passage as "unintelligible" is not satisfactory.

As to the sixth, seventh, and eighth letters, Mr. Hosack quietly ignores Froude's discovery of the original French of two letters. The Book of Articles is referred to as evidence of the specific charges laid against Marie Stuart, and much of it is found to coincide with Buchanan's "Detectio." The evidence from the "minutes" supposed by Laing to be "lost," but now printed as

the journal of proceedings of the Westminster commissioners on the day of production of the Casket Letters. Notice in minutes of production of Casket and Letters by Murray and colleagues after some hesitation respecting consequences, and reference particularly in these minutes to letters one and two.

II. Notice of objections to testimony of French Paris. Paris *not* produced at Westminster; *not* relied upon by Buchanan in his "Detectio." Professor Schiern, from records of Danish government, believes him to have been delivered up to Capt. Clark, Murray's agent, on the 30th October, 1568, in time to have been at the Westminster conference, which did not close till the middle of December, 1568. But Murray may have relied more, in the first instance, upon Nelson and Crawfurd's evidence as being servants of Lord Darnley; and he expresses his confidence to Queen Elizabeth, that Paris's testimony, late as it was produced, could not be impeached.

Hosack next attempts to invalidate Nelson's evidence on the ground of inconsistency with the recently-discovered inventory of the furniture of Kirk o' Field. The inventory states the king's chamber was furnished with "a violet velvet bed, ornamented with gold and silver lace." Nelson states the queen had substituted "an old travelling bed" for "a bed of black figured velvet." But where is the inconsistency? Might not a violet-coloured velvet bed be easily mistaken for black? Hosack's reference to Earl Morton's execution on the evidence of Bothwell's testament, apparently in proof of the authority of that will, is inconclusive. Hosack at length admits that for two years the queen and Bothwell were the only persons charged with Darnley's murder, but maintains that afterwards the circle was made to widen, so as to embrace nearly all the nobility. But after all the chief weight of the evidence rests on the queen's own conduct—more even than on letters or oral testimony. Hosack makes no reference to the discovery claimed by Froude of the *French* originals of the two notes of the queen respecting the abduction. The protestation of the Earls of Huntley and Argyll at least proves that the queen understood she should be "made quyte" of Darnley without any trouble to herself, though she bargains for "no blot to her honour and conscience." Can we believe that the subtle, pleasure-seeking daughter of Catherine de Medici is the timid and innocent being whom Hosack has tried to paint? And can we hold her low

spirits after her marriage with Bothwell to be, as that writer represents, a proof of "her rooted aversion" to him, and not rather the natural reaction after the fulfilment, at so vast a cost, of wishes so long entertained—the shadow, cast before, of the scaffold and the block? These are the sole alternatives in the problem before us, and it is for us now to decide whether Hosack has really established anything in arrest of the judgment come to by Froude.

Instead of a paper on PARTY, *a paper will be read on 17th March on*

AN EARLY ENGLISH ROMANCE OF SIR FERUMBRAS (ASHM. MS. 33), AND THE CHARLEMAGNE ROMANCES GENERALLY.

BY MR. J. SHELLY.

PROGRAMME.

THE Charlemagne of Romance.—The treatment of Charlemagne by the earlier and later Romances compared.—His twelve peers.—The extent of the popularity of the Romances.—Account of the English Romances edited and unedited.—The Romance of Sir Ferumbras. —The French Fierabras.—The story.—The two English versions compared with one another and with the French.—Some curious particulars respecting the Ashmole MS.

ON AN EARLY ENGLISH VERSION OF SIR FERUMBRAS (ASHM. MS. 33) & THE CHARLEMAGNE ROMANCES GENERALLY.

ABSTRACT OF MR. JOHN SHELLY'S PAPER.

THE following list comprises, I believe, all the known English Romances relating to Charlemagne.

1. *Roland.* All that remains of this is a fragment (Lansd. MS. 388, leaf 381 to 395) of a poem, probably written in the 13th century. It is not strictly alliterative, but abounds with alliteration. An analysis and some extracts furnished by Mr. Thos. Wright are printed at the end of M. Michel's edition of *La Chanson de Roland.* The whole of the fragment will probably be published by the Early English Text Society. It relates the treachery of Gwynylon (the French *Ganelon* or *Guenelon*), and the

beginning of the fight at Roncevaux. In describing Gwynylon's treachery the poet has derived one remarkable circumstance, not from the French *Roland*, but from the Chronicle of the pseudo-Turpin. M. Paris is mistaken, however, in supposing that he does not include Turpin in the number of the combatants at Roncevaux (*Hist. Poét. de Charlemagne*, p. 155, note). He says expressly (leaf 384):—

> vnto Roulond then went the princ*is* xij
> Olyu*er* and Rog*er* and Aubry hym-selue
> Richard and Rayn*er* that redy was eu*er*
> tirry and turpyn all redy wer.

The following description of the "strange weather" that happened in France while the battle was going on may serve as a specimen of the style of the poem, which is remarkably vigorous:

> — while our folk fought to-gedur
> ther fell in ffraunce A straun*g* wedur
> A gret derk myst in the myd-day-tym
> thik and clowdy and euyll wedur thene
> and thiknes of sterris and thond*er* light
> the erthe dynnyd doillfully to wet
> ffoulis fled for fere it was gret wond*er*
> bowes of trees *th*en brestyn asond*er*
> best ran to bank*is* And cried full sore
> they durst not abid in the mor
> ther was no man but he hid his hed
> And thought not but to dy in *th*at sted
> the wekid wedur lastid full long
> from the mornying to the euynsong
> then Rose a clowd euyn in the west
> as red as blod w*ith*-outon rest
> It shewid doun on the erthe & *ther* did shyn
> So many doughty men as died *th*at tym.

2. *Otuwel.* This is also incomplete. Ellis has given an analysis of it—*Specimens of Early Engl. Metr. Romances* (ed. 1811), vol. ii., p. 324—and the poem has since been printed from the Auchinleck MS. for the Abbotsford Club (Edin. 1836). Its date is supposed to be not later than 1330. Ellis has completed the story, as he says, from another MS., then in the possession of Mr. Fillingham, in which, however, M. Gaston Paris has recognized a portion of a cyclic poem, to which he gives the title of *Charlemagne and Roland*, and which I will next describe. Our Otuwel is the French *Otinel*, printed in *Les Anciens Poetes de la France*, tom. i. Otuwel or Otinel, the hero of the poem, comes as the ambassador

of the Saracen king Garsie (Garsile), to summon Charles to pay homage to his master, and to abjure the Christian faith; but by a miracle he is himself converted, and "forsakes all his gods." He is then betrothed to Belecent, the daughter of Charles, and marches with Charles and his "duzze peres" (douze pairs) to fight against Garsie in Lombardy. Garsie is taken prisoner, and led to Charles by Otuwel, who is rewarded—according to the French Romances, for here our fragment ends—with the hand of Belecent and the crown of Lombardy.

3. *Charlemagne and Roland.* This is the title which, according to M. Paris (*Hist. Poét. de Charlem.*, liv. 1, ch. viii.), ought to be given to a poem which we possess only in scattered fragments. The poem belongs probably to the beginning of the 14th century. M. Paris divides it into four parts. 1st. Charlemagne's journey to the Holy Land according to the Latin legend. 2nd. The beginning of the war in Spain after the first chapters of Turpin's Chronicle. 3rd. Otuwel, but a different version from that described above. 4th. The end of Turpin's history. The first and second parts consist of the poem in the Auchinleck MS., printed for the Abbotsford Club under the title of *Roland and Vernagu*, and analysed by Ellis as *Roland and Ferragus* (vol. ii., 302). The story of the first part, as related in this poem, should rather be described as Charles's visit to the emperor "Constansious," and that of the second part, which begins on page 15 of the Abbotsford edition, as the combat of Roland and Vernagu. The concluding lines of this second part connect it with the third.

> To Otuel also yern
> That was a sarrazin stern
> Ful sone this word sprong.

This third and the fourth part are comprised in Mr. Fillingham's MS., which we know only from Ellis's analysis. It contains, according to Ellis, about 11,000 lines, and relates not only the story of Otuwel (the third part of the poem), but also the conquest of Spain, the deceit of Ganelon, the fight at Roncevaux, the defeat of the Saracens by Charles, and the punishment of Ganelon, which form the fourth part. The poem concludes as follows:—

> Here endeth Otuel, Roland, and Olyuere,
> And of the twelve dussypere.

It is worth while remarking how entirely the meaning of the title given to the peers has been lost by the English poets. Here we

read of "the *twelve dussy*pere" (les douze pairs), and in other places we find each single knight called "a dozeper," while in the Ashm. MS. of Sir Ferumbras, owing perhaps to the writer having a lisp, the word becomes "do*ththe*per."

4. *Ferumbras.* We have two versions of this Romance; one of them the Farmer MS. analyzed by Ellis (vol. ii. p. 369), and now in the library of Sir Thomas Phillipps; the other a fragment (Ashm. MS. 33) of great length, which will shortly be printed by the Early English Text Society. They both belong probably to the end of the fourteenth century. The original of the Romance is the French Fierabras (*Les Anciens Poetes*, tom. iv.) I give parallel extracts from the French and the two English versions. There is a Provençal as well as a French version of the Romance, and I would suggest the enquiry whether the poem analyzed by Ellis does not follow this Provençal version, or rather perhaps the lost French original of which the French editors have shown the Provençal version to be a translation. They agree at any rate in brevity, though they both give a long introduction, which the existing French version omits. The Ashm. MS. is imperfect at the beginning and at the end; but it appears generally to follow very nearly the story of the existing French version, though it is much more diffuse, the remaining fragment containing about 10,450 lines, while the entire French poem contains only 6219. Both the English versions agree, however, in some little particulars which the French omits; *e.g.*, the mention of Richard blessing himself in the extracts I give. Our fragment begins, like the French poem, with the relation of a long combat between Oliver and Ferumbras (Fierabras, *ferox brachium*), the son of the admiral (amirans, *Arab.* amir) Balan, who in the Farmer MS. is strangely called Laban. Ferumbras is vanquished, and embraces the Christian faith; but Oliver is surprised by the Saracens, and made prisoner, with four other peers. The rest of the peers are sent by Charles to demand the surrender of their companions, but are thrown into the same dungeon. They are, however, protected by Florippe, the daughter of Balan, and after many battles are at length delivered by Charlemagne. Balan refuses baptism, but Florippe is baptized, and here the Ashm. MS. ends, being imperfect; but the other versions relate the marriage of Florippe to Guy of Bourgoyne; and the division of the kingdom of Spain between him and Ferumbras.

With the Ashm. MS. is preserved its ancient vellum cover, made

out of portions of two Latin documents, one relating to the Vicarage of Columpton, and the other to the chapel of Holne and parish of "Bukfastleghe." This cover, however, is chiefly remarkable because it contains what is evidently part of the first draft of the poem, written in the same hand as the MS. itself. The following extracts from both will show how the poet corrected his verses:—

DRAFT.

So sturne strokes *th*ay ara*g*te
ey*th*er til o*th*er *th*e whyle
T*h*at al *th*e er*th*e about qua*g*te
men mi*g*t hure a myle
*Th*ey wer so fers on hur*e* mod
And eger on hure fi*g*te
*Th*at ey*th*er of he*m* *th*o*g*te god
to slen o*th*er if he mi*g*t.

MS.

So sterne strokes *th*ay arau*g*te
eyther til o*th*er with strengh*th*e
*Th*at al *th*e erthe *ther* ofte qua*g*te
a myle *and* more on lengh*th*e
*Th*ey weren so eger bo*th*e of mod
And eke so fers to fi*g*te
*Th*at ey*th*er of he*m* *th*an *th*o*g*te god
to sle o*th*er if he mi*g*te

The poem is written in the Southern dialect, but it contains a remarkably large admixture of Northern forms, words occurring sometimes in two forms in lines close together, if not in the same line. Thus we find *ich* and *I*, *a* and *he*, *heo* and *sche*, *hy* and *thay* (the latter most frequently), and *thilke* and *this*, *to* and *til*, *prykyng* and *prykande*, *vaste* and *faste*, and so forth, the former being the Southern, the latter the Northern form. The Southern infinitive in *y* (still used occasionally in Devonshire) continually occurs: *e. g.*, *maky*, *asky*, *graunty*, *robby*, *wivy* (to wed), &c. On the whole one would be inclined to suppose that the poem was written in the South (perhaps in the diocese of Exeter) by a southern man, who had, however, lived in the North sufficiently long to become familiar with northern forms. But a more careful examination (in preparation for the E. E. T. Society's edition) will very likely lead to our being better informed concerning the character and history of this most interesting MS.

N.B.—In all the quotations the italic *th* and *g* represent Anglo-Saxon letters; the other italics are extended contractions.

PARALLEL EXTRACTS FROM THE FRENCH FIERABRAS AND THE ENGLISH SIR FERUMBRAS.

From *Fierabras, Chanson de Geste*, edited from MSS. of the xiv. and xv. centuries by MM. A. Krœber and G. Servois (Paris, 1860). The extract begins with line 4354, p. 132 of this edition.

Richars resgarde l'yaue, qui moult fait à douter;
Si est grande et hideuse que il n'i osse entrer.
Plus tost cuert que sajete, quant on le lait aler;
Ne barge ne galie n'i puent abiter;
La rive en est moult haute, bien fait à redouter.
Richars de Normendie se prinst à resgarder,
Escortrement commence Jhesu à reclamer:
"Glorieus sire pere, qui te laisas pener
"En la crois benéoite pour ton pule sauver,
"Garisiés hui mon cors de mort et d'afoler,
"Que je puisse Karlon mon message conter."
Or oiés quel vertu Diex i vaut demonstrer
Por le roi Karlemaine, qui tant fait à douter.
Ançois que on éust une liuée alé,
Véissiés si Flagot engroisier et enfler,
Que par desous la rive commence à seronder.
Atant es vous . 1 . cerf, que Diex i fist aler,
Et fu blans comme nois, biaus fu à resgarder.

From the *Romance of Sir Ferumbras*, analyzed by Ellis, who has modernized the spelling.

When Richard saw there was no gate
But by Flagote the flood,
His message would he not let;
His horse was both big and good.
He kneeled, beseeching God, of His grace,
To save him fro mischief:
A white hind he saw anon in that place,
That swam over to the cliff.
He blessed him in Goddis name,
And followed the same way,
The gentil hind that was so tame,
That on that other side gan play.

From the *Romance of Sir Ferumbras* (Ashm. MS. 33). The following passage begins on fol. 52:—

¶ Now y-come ys he to *the* ryuere
By syde a treo *and* a stod him *there*
*Tha*t water to by-holde
And saw *the* ryuer was dup *and* brod
And ran away as he were wod
Ys herte gan waxe colde
¶ Richard tok herte *and thenche* gan
*Tha*t nedelich a most entrye *than*
In *and* passe *tha*t ryuere
Ou*ther* he moste turn a*gee*
And fi*gte* agayn al *tha*t maygne
*Tha*t after hi*m* come there
To ihesu *tha*nne he bad a bone
Lord *tha*t madest su*m*ne mone
Lond *and* water cler
Kep me *thys* day fr*am* my fone
And if y *thys* ryuer potte m̄e one
That y ne a-drenche her

Devant le ber Richart se prent à demostrer,
Devant lui est tantost eus en Flagot entrés.
Li dus voit Sarrazins après lui aroutés;
S'il ot paour de mort ne fait à demander.
Après le blance bisse comme[n] cha à errer,
Tout ainsi com ele vait, lait le ceval aler;
Et li ciers vait devant, qui bien s'i sot garder,
D'autre part à la rive se prent à ariver.

And such grace *th*ow me sende
*Th*at y may safe to Charlis wende
And telle hy*m* my porpos
So *th*at he may come wy*th* socour
[Fol. 52*b*.]
And delyuery ys barons of hono*ur*
*Th*at ligge*th* among *th*y fos
¶ Nad he no*g*t *th*at word ful speke
Er *that th*ar cam an hert for*th* reke
As wyt ase melkys fom
Ry*g*t euene by-fore duk Rychard
*Th*e hert hym wente to watre-ward
And fayre by-fore hym swom
Wa*n*ne *th*e duk *th*at wonder y-se*g*
*And th*e sarsyns *th*at *th*o wer come wel ne*g*
W*ith* bost *and* noyse gret
W*ith* is ri*g*t honde *th*an blessede he hym
And *thog th*e ryuere were styf *and* grym
Wy*th* bo*th*e hors in a schet
Ys stede was an hors of prys
And bar *th*e kni*g*t at al dyuys
Swy*m*mynge w*ith* ys felawe
*Th*e hert *th*at was so fair of si*g*t
Ouer *th*e Ryuer swam ful ri*g*t
And Ry*chard* do*th* after-drawe

A Paper will be read on the 24th March on

NATIONAL EDUCATION.

By Mr. W. Adams.

PROGRAMME.

Importance of the subject at the present time—Evils apparent in society—Education as a remedy—Mode of carrying it out—Sphere and duty of the State—Law and freedom—Proposals of Education League, of Education Union, and of the Government—Prospect of results and opportunities.

NATIONAL EDUCATION.

ABSTRACT OF MR. W. ADAMS'S PAPER.

The lecturer first directed attention to the importance of the subject, and the desirability of people generally inquiring into and forming intelligent opinions respecting it. He also mentioned that its consideration was especially appropriate for the members of the Institution, and pointed out that it was not a party matter.

He next spoke of the reasons which attracted public attention to it. The state of society is unhealthy, the condition of large towns shocking, and the position of farm labourers very unsatisfactory. These evils cause an alarming increase of pauperism, and unless some remedy is brought into operation they are likely to spread, and press more and more heavily on the energy of the people. In these matters, although the wealthiest nation in the world, we do not compare favourably with some others, the fact being that an increase of wealth is in the long run of no benefit to a nation, unless accompanied by an advance of character. This we Englishmen forget, and wealth being the great object of desire for itself, it is common not to be content with sufficient to meet our needs, but to try to get as much as can be laid hold of in any way conventionally considered not disreputable. This upsets the regularity of true commerce and induces reckless speculation, which produces a general restlessness and fluctuation in

enterprise, and consequently in demand for labour. The uncertainty of employment makes large numbers of the lower classes unthrifty. While employment is plentiful and wages are high they are wasteful, and do not think of the possibility of a time coming when things will be different; or if such a thought occurs to them at all, they heed it not. They have no position in society which they care to maintain, and they know that, if things come to the worst, society will not let them starve. The tendency of this is to increase the pressure of circumstances on those who preserve their self-respect, and draw the weaker down into the rising flood of indifference.

Emigration has been proposed as a remedy; but its relief could only be for a time, and is even then unsatisfactory. Any remedy to be effectual must be directed to the promotion of more order in society. Many of the old regulations, which tended to maintain the permanence of the relations of its members, and prevent occasional strains from shaking them loose, have passed away, and we have not replaced them by measures appropriate to our circumstances.

When our attention is directed to the increase of the stability of society, by finding some means of giving its members more character, the first thing which strikes us is the position of the children, and the fact that a great many, while their minds are being formed, are deprived of the conditions necessary for a healthy development, and it seems obvious that the first thing to be done is to take steps to afford them such conditions. More than a million—that is, more than one-seventh—of the children of Great Britain, if not more, are destitute of education; and according to the report on the state of education in Birmingham, Manchester, Leeds, and Liverpool, by Messrs. Fitch and Fearon, recently presented to Parliament, it appears, as the *Times* says, "to be no exaggeration to say that half of the children of those four large towns are not educated at all."

Is it not, then, the duty of the State to secure the education of these neglected children? No persons have a right to take upon themselves the duty of parentage without first seeing that they will be able to give their children a fair start in life; but there is no fault more commonly committed than the disregard of this, and consequently we have, as previously shown, a large number of parents who are unable or unwilling to fulfil duties towards their

children about which there is no dispute. Is, then, the State action to supply the deficiency any infringement, or even any interference, with their rights? If they do their duty, they will not feel the compulsion. Law is the framework of the body politic. A written law becomes necessary, because without it there is no possibility of keeping men from infringing on each other's rights. It regulates the actions of people so as to perfect liberty, instead of restricting it; for freedom is not license or power to do as one likes, unmindful of others, but the power to follow out true aspirations, which of course, being harmonious, will not clash.

It is sometimes urged, however, that the proposal is un-English. This is a mistake. The Court of Chancery possesses jurisdiction to secure the education of any children neglected by their parents; but the exercise of this jurisdiction is necessarily limited to cases in which the Court can control the use of money for the benefit of the children; because, as Lord Eldon said, the Court cannot "take upon itself the maintenance of all the children in the kingdom."

So much as to the right of the State. Is it not, however, the duty of the State to interfere? A great number of children have no chance to learn how to live useful lives, but are surrounded from infancy by vicious and criminal influences. How can the State then, when it reaps the fruits of their bad training and its own neglect, punish them with any show of justice? Again, a great many parents would be willing to send their children to school, but their neighbours send theirs to work, and in this way labour is cheapened, and the earnings of the children of the well-meaning parents become necessary to them. Ought not the State to protect and encourage these people in the execution of their wishes? There is a third consideration. The neglect of these presses very heavily on the persons who suffer from their depredations, and have to bear the burden of their poverty. Have they no right to expect the State to try to stay the evil?

It being then the duty of the State to secure to all children the means of primary education, we come to the consideration how far it has a right and ability to draw out or develope the character of the children. It is the duty of the State to exert a citizen influence on the children; that is, to awaken and cherish in them all those desires which good citizens ought to have, both towards the State and towards each other; and for this purpose it should secure for

them teachers of high character. People generally believe that to sustain a man's character he must have a religious belief, and the question therefore comes before us, whether the State has any right or duty to secure to the children education in theology, and whether, if it exerts any compulsion for this purpose, it will be effectual. This consideration does not involve any question of controversial theology. Indeed, it immediately concerns the position of members of this Institution. The exclusion of theology from public schools is said to make them irreligious. We exclude it. Are we therefore irreligious? Members do not change their characters when they come to our meetings. They are just as much or as little irreligious as at any other time. All men admit religion and theology to be distinct. Men of all creeds would acknowledge it to be out of place to bring theology forward in ordinary intercourse with others, and would think it altogether wrong for a man to put aside his religion at any time. It is said that if a teacher does not teach theology, he will not be able to correct moral faults; but is this so in every-day life? Any person would be able to express indignation at an immorality without making reference to theology. We might also, by making theology a necessary part of the school teaching, lose the services of many conscientious teachers, who feel quite competent to teach secular matters, but do not consider themselves fit to teach the theology they believe, or do not wish to teach it under the appearance of compulsion, and therefore give up the profession.

So much as to the possibility of stopping with secular knowledge in public schools. Now as to its desirability. Men of all creeds agree that they have a message to men about spiritual matters which must be accepted voluntarily, if at all. The very appearance of pressure ought therefore to be avoided. All agree, again, that the message is the greatest blessing men have received. All appearance, then, of using devices or bribes to procure its acceptance ought also to be scrupulously avoided. If the attendance of children at schools where theology is taught is compelled, and their parents are not able to object to their learning it without putting themselves in an invidious position, must it not necessarily be taught under an appearance of compulsion, to say the least. It is useless to talk of the great advantage that might accrue, if the thing is wrong. Gentlemen should remember the saying of Archdeacon Hare, "He who does evil that good may come, pays a toll

to the devil to let him into heaven." Another reason for excluding theological teaching from the public schools is, that religion is needed in every-day life, and therefore children should be brought to recognize that although theology is taught at separate times, and it is undesirable to force it on the attention of those around us, yet its effect should be present at all times. It is also well to make them understand that in life they will meet with people of different creeds to whom they must show, and from whom they must expect, the conduct of good citizens; and that their religious knowledge is given to enable them to act better and with kindlier sympathy to all, and not to restrict their regard to a few, and this cannot be better done than by causing them from the first to mingle at school on a common citizen basis. There is also the danger that, if theology is allowed to be taught in public schools, the teachers will either do it in a routine way, or "spread and sprinkle it over the surface of things to prevent truth from being dangerous," and neither course is edifying.

The lecturer, in conclusion, briefly considered the proposals of the National Education League, the National Education Union, and the Government Bill, and spoke of the prospects and opportunities afforded by the establishment of a system in accordance with the views maintained in the lecture.

A paper will be read on the 31st March on

PAUPERISM.

Mr. A. P. Prowse.

PROGRAMME.

Earliest laws relating to the poor—English legislation from an early period to 43rd Elizabeth, 1601, and to Poor Law Amendment Act of 1834–5—Comparative statement of pauperism in England and the Western Counties for the last ten years—Out-door relief in Plymouth in January, 1869, and January, 1870. Inquiry—Is the principle or the administration of the present Poor Law a failure?—Impossibility of overtaking pauperism without providing better houses, more food, education, and industrial training for the poor.

PAUPERISM.

ABSTRACT OF MR. A. P. PROWSE'S PAPER.

The lecturer commenced by referring to the great importance of the subject. It had, perhaps more than any other, forced itself at different times on the consideration of the Legislature of the country, and was at the present time engaging the attention of the most eminent men. He gave a brief sketch of the laws relating to the poor from the earliest times, and of this country from A.D. 924 to the Poor Law Amendment Act of 1834–5. That act was founded upon a principle laid down by commissioners who had been specially appointed to inquire into the subject; that principle being that every man had a right to relief. The adoption of this principle left no room for the exercise of discretion in the administration of relief. The lecturer condemned this principle.

The workhouse "test" was examined, and was pronounced to be harsh towards the poor, and ineffective for the object the Legislature intended.

The Poor Law system had signally failed in saving the rates or diminishing pauperism, which had increased in a greater ratio than the population.

The method of administering relief by boards of guardians through their relieving officers was unequal, inadequate, and unsatisfactory, with no single recommendation for its continuance.

Some statistics were then given to support the views which had been advanced, and the lecturer concluded by endorsing suggestions by Dr. Stallard and other authorities in reference to the appointment of a competent person, with special qualifications and authority, subject to the Central Board in London, to grant or refuse relief, and regulate expenditure within a given district.

The functionary to place himself in communication with local committees and their officers, who should, chiefly through voluntary agency, visit every house, know and relieve every case of destitu-

tion, attend to the sick, encourage the depressed and deserving, and become acquainted with the idle and vicious.

It would not be unreasonable to expect that such a plan would soon reduce pauperism, by leading to the improvement of the dwellings and homes of the poor, to their being better fed, and by the timely education and industrial training of the children, to the general elevation of a people who are increasing at an accelerated speed, but for whose services the demand far outruns the supply.

STATEMENT SHOWING THE NECESSITY OF EQUALIZATION OF RATES.

1868.

UNION OR PARISH.	Rateable Value.	Rate in £.	Total Relief to Poor.	At 2s. 4d.	Increase to Pay.	Decrease to Pay.
	£		£	£	£	£
PLYMOUTH	156637	3/-	23347	18274		5073
PLYMPTON	117512	1/6	8741	13709	4968	
STOKE DAMEREL	72680	3/1	13890	8479		5411
ST. GERMANS	71375	1/8	5951	8327	2376	
EAST STONEHOUSE ..	32931	2/7	4297	3842		455
TAVISTOCK	126568	1/9	11219	14766	3547	
	£577703		£67445	£67397	£10891	£10939

ANALYSIS OF THE POPULATION IN THE FOLLOWING COUNTIES—PER CENTAGE.

	Professional.	Domestic.	Commercial.	Agricultural.	Industrial.	Non-productive or Indefinite.	Total.
Gloucestershire	3·7	38·2	4·4	15·0	31·0	7·7	100
Somersetshire	3·5	35·0	2·5	21·7	30·7	6·6	100
Dorsetshire	4·3	35·6	3·0	23·9	27·4	5·8	100
Devonshire	7·3	36·5	3·4	19·4	27·4	6·0	100
Cornwall	2·9	39·7	3·6	18·8	31·1	3·9	100
Average ..	4·34	37·40	3.38	19·76	22·52	6·0	

1869.

RETURN OF THE NUMBER OF OUT-DOOR PAUPERS RELIEVED IN PLYMOUTH ON 1st JANUARY, 1869.

	Number.		Per Centage on Total.	
MEN.—Destitution caused by—				
Sickness	209	647	32·	17·
Want of Work	158		24·	
Casuals	223		35·	
Lunatics	57		9·	
			100·	
FEMALES & CHILDREN—				
Wives of preceding 271				
Children under 16 years of age 497				
	768		25·	
Wives of Prisoners 11				
Children dependent on them 23				
	34		1·	
Wives of Soldiers and Sailors 25				
Children dependent on them 66				
	91		3·	
Widows 392				
Children dependent on them 657				
	1049		34·	
		3099		83· Females, 45 Children, 38
Single Women without Children	59		2·	
Unmarried Mothers 26				
Children dependent on them 32				
	58		2·	
Other Females 860				
Other Children 107				
	967		31·	
Orphans	20		0·	
Lunatics—Females	53		2·	
Total		3746	100·	100·

1870.

RETURN OF THE NUMBER OF OUT-DOOR PAUPERS RELIEVED IN PLYMOUTH ON 1st JANUARY, 1870.

	Number.		Per Centage on Total.	
MEN.—Destitution caused by—				
Sickness	167	618	27·	16·
Want of Work	151		24·	
Casuals	250		41·	
Lunatics	50		8·	
			100.	
FEMALES & CHILDREN—				
Wives of preceding 273				
Children under 16 years of age 633				
	906		27·	
Wives of Prisoners 17				
Children dependent on them 42				
	59		2·	
Wives of Soldiers and Sailors 13				
Children dependent on them 29				
	42		1·	
Widows 393				
Children dependent on them 649				
	1042		32·	
Single Women without Children	60	3309	2·	84· (Females, 44 Children, 40)
Unmarried Mothers 15				
Children dependent on them 21				
	36		1·	
Other Females 918				
Other Children 157				
	1075		32·	
Orphans	32		1·	
Lunatics—Females 49				
„ Children 8				
	57		2·	
Total		3927	100·	100·

COMPARATIVE STATEMENT OF RELIEF TO THE POOR FOR THE YEARS 1859 AND 1868.

	ENGLAND AND WALES.				SOUTH WESTERN COUNTIES.				PLYMOUTH.			
	Years ended Lady-day.		Per Centage.		Years ended Lady-day.		Per Centage.		Years ended Lady-day.		Per Centage.	
	1859.	1868.	Increase.	Decrease.	1859.	1868.	Increase.	Decrease.	1859.	1868.	Increase.	Decrease.
Population	19,444,000	21,540,000	10·77									
Total number relieved..	865,446	992,640	14·69		107,466	114,999	7·		3,745	4,374	16·79	
Total Amount of Relief	£5,558,689	£7,498,061	34·88		£609,980 19	£725,830 12	18·98		£17,845 7	£23,346 17	30·82	
Per head.....	£6 8 5	£7 11 1	17·65		£5 13 6	£6 6 3	11·28		£4 15 3	£5 6 9	12·07	
In-door Maintenance— Number	121,232	150,040	23·78		11,027	13,205	19·75		467	605	29·55	
Per head.....	£7 17 5	£10 2 3	28·46		£6 4 5½	£7 10 0½	20·58		£6 10 4	£10 6 0	58·05	
Out-door Relief— Number	744,214	842,600	13·22		96,439	101,794	5·55		3,278	3,769	14.97	
Per head.....	£3 18 6	£4 6 0	9·55		£4 0 2	£4 7 7	9·25		£3 11 8	£3 10 5		1·74
Per Week	1s. 6d.	1s. 8d.	11·11		1s. 6d.	1s. 8d.	11·11		1s. 5d.	1s. 4d.		5·88