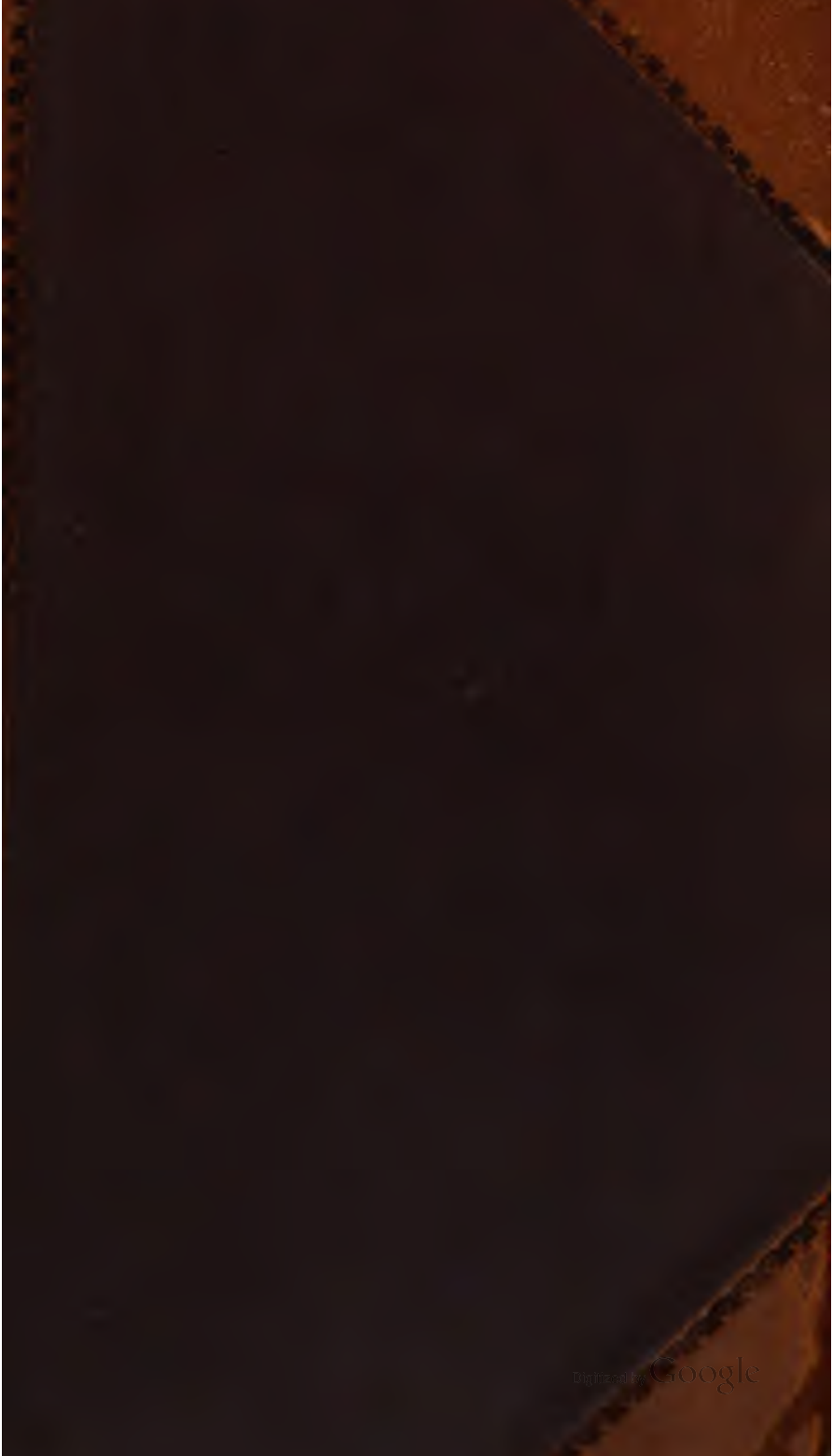
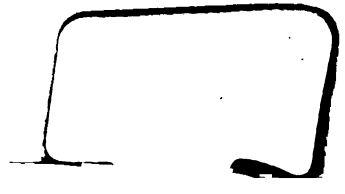




THE

JOURNAL

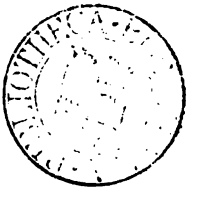
OF THE

ETHNOLOGICAL SOCIETY OF LONDON.

NEW SERIES.

VOL. II.

SESSION 1869-70.



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1870.

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CONTENTS.

LIST OF ILLUSTRATIONS &c.

WOODCUTS.

CORRIGENDA ET ADDENDA.

Page 195, footnote, *after the words* "It is believed," *insert* "by M. D'Orbigny."
„ 196, footnote, and p. 305, the word Suyo is so spelt according to the oldest authority, Cieza de Leon; the correct Quechua spelling is, however, Suyu, as given by Garcilasso.
„ 222, footnote, *for* "east of Aymaras" *read* "east of the Aymaras."
„ „ footnote, *for* Pisaqua *read* Pisagua.
„ 245, line 3, *for* good *read* great.
„ 271, line 8, *for* Tamargual *read* Tamarugal.
„ 276, line 16, *for* Torres de Rubio *read* Torres Rubio.
„ 286, line 3 from bottom, *for pejocra* read *pejocra*.
„ „ „ 2 „ „ „ *hualos* read *hualqui*.
„ 287, line 11, *for* dah! *read* ah!
„ 290, Kisimira should be translated "*a large wasp.*"
„ 293, Mollemolle should be translated "*wild currant.*"
„ 294, *for* Ocococo *read* Ocoooo.
„ 304, line 2 from bottom, for "*hunanaco* read *huanacu*.
„ 305, line 16, *for* Alcobaca *read* Alcobaça.
„ „ „ 17, *for* Torres del Rubio *read* Torres Rubio.
„ 326, „ 15 from bottom, *for* Straparold *read* Straparola.
„ 329, „ 13 „ top, *dele* remote.
„ 331, „ 6 „ bottom, *for* bard *read* herd.
„ 332, „ 12 „ bottom, *for* Dewan *read* Dewar.
„ 332, „ 11 „ bottom, *for* Mrs. *read* Mr.
„ 332, „ 10 „ bottom, *for* Glendavad *read* Glendaruel.
„ 333, „ 19 „ top, *for* Camden *read* Cawdor.
„ 333, „ 2 „ bottom, *for* Corval *read* Cowal.
„ 334, „ 9 „ top, *for* Corval *read* Cowal.
„ 335, „ 12 „ top, *for* Camden *read* Cawdor.
„ 335, „ 14 „ top, *for* brawn *read* broom.
„ 336, „ 9 „ top, *for* Davan *read* Dewar.
„ 336, „ 16 „ top, *for* declaration *read* decoration.
„ 337, „ 16 „ top, *for* favioche fiorm *read* fariochе fionn.
„ 337, „ 17 „ top, *for* Thabhavit *read* Thabhairt.
„ 337, „ 31 „ top, *for* Straparold *read* Straparola.
„ 339, „ 11 „ top, *for* an African language *read* African languages.

TO BINDER.

Chromo-lithographed Map of the World to form Frontispiece.
Plate II. to face p. 59.
Plate XIII. to face p. 118.
The other Plates may be bound as placed in the Numbers.
The slip of Errata opposite p. 325 to be cancelled.

PROCEEDINGS

AT THE

ANNUAL GENERAL MEETING

OF THE

ETHNOLOGICAL SOCIETY OF LONDON.

Preceded by a Special General Meeting.

MAY 24TH, 1870.

Professor T. H. HUXLEY, LL.D., F.R.S., President, in the Chair.

THE Honorary General Secretary read Articles 18, 19, and 20 of the Laws of the Society, in accordance with which the Special General Meeting had been convened.

It was then proposed by Mr. H. G. Bohn, seconded by Mr. F. Hindmarsh, and carried unanimously:—

That the last clause of Article 10 of the Laws of the Society, whereby "Fellows residing permanently at a distance of not less than twenty miles from London are entitled to the privilege of paying a subscription of only £1 1*s.* annually," be repealed, and that all Members elected after the date of the present Meeting shall pay an annual subscription of Two Guineas each.

The following Report of the Council was read by the Honorary General Secretary:—

ANNUAL REPORT, 1870.

THE Council is enabled to make a satisfactory report of the progress of the Society during the past year. The number of new

Members shows an increase upon previous years. The following names have been added to our list since the Anniversary Meeting of 1869:—

Sir Walter Elliot, K.C.S.I.
C. T. Gardner, Esq., F.R.G.S.
Joseph Prestwich, Esq., F.R.S.
James Bonwick, Esq., F.R.G.S.
J. Smith, Esq.
Sir William Vernon Guise, Bart., F.L.S., F.G.S.
The Rev. W. A. Jones, F.G.S.
The Rev. Richard Kirwan, M.A.
The Rev. Henry H. Winwood, M.A., F.G.S.
Robert D. Darbishire, Esq., B.A.
J. W. Jeffcott, Esq., M.H.K.
William Long, Esq., M.A.
M. Moggridge, Esq., F.G.S.
Dr. Gustav Oppert.
John Platts, Esq.
Major-Gen. Alex. Cunningham.
Jonas Hewitt, Esq.
The Rev. James Simpson.
George Campbell, Esq., D.C.L.
Dr. Nicholas, M.A., F.G.S.
The Earl of Dunraven and Mountearl, K.P., F.R.S.
David Duncan, Esq., M.A.
J. F. M'Lennan, Esq.
Henry Baylis, Esq.
John Edwards, Esq.
Lord Rosehill.
Walter Morrison, Esq., M.P.
J. W. Barnes, Esq.
R. L. Nash, Esq.
Sir Charles Wentworth Dilke, Bart., M.P.
The Rev. A. S. Farrar, D.D.
Morton Coates Fisher, Esq.
Francis Kerridge Munton, Esq.
F. Beresford Wright, Esq.
Edward Backhouse, Esq.
Capt. Walter Campbell, R.E.
R. S. Newall, Esq.
E. Bonavia, Esq., M.D.
P. O'Callaghan, Esq., LL.D., D.C.L., F.S.A.

The Council regret to have to announce the deaths of Mr. J. H. Backhouse and Mr. Thrupp, Members of the Society. Four resignations have also been received during the past year. Deducting deaths and resignations, this makes an increase of 33 Members during the past year. Dr. Carl Semper, of Würzburg, has been elected an Honorary Member; and Lieut. Oliver, R.A., a Corresponding Member.

The following is a list of the papers &c. which have been communicated to the Society during the past year:—

1869.

June 8. On the Permanence of Type in the Human Family. By Major-Gen. Sir William Denison, K.C.B.
On Cromlechs in Nagpore. By Major Pearce, R.A.
June 22. On the Cranium and its Deformities in Relation to Intellect and Beauty. By Dr. R. King, F.R.C.S.
Nov. 9. On the Proposed Exploration of Stonehenge by a Committee of the British Association. By Col. Lane Fox, Hon. Sec.
On the Chinese Race, their Language, Government, Social Institutions, and Religion. By C. T. Gardner, Esq., F.R.G.S.

Nov. 23. On Quartzite Implements from the Cape of Good Hope. By Sir George Grey, K.C.B.

On the Races and Languages of Dardistan. By Dr. Leitner, M.A.

Dec. 7. On a Stone Implement found beneath the Bed of a River in the Co. Wicklow. By F. Acheson, Esq.

On the Stature of the North-American Indians of the Chipewyan Tribe. By Major-General Lefroy, R.A.

Report on the Prehistoric Remains of the Channel Islands. By Lieut. Oliver, R.A.

Dec. 21. On the Meneam of Dr. Livingstone. By Hyde Clarke, Esq.

On an Ancient Calvaria from China. By Prof. Busk, F.R.S.

On the Koords and Armenians. By Major Millingen, F.R.G.S.

1870.

Jan. 11. On the Use of the Mere or Pattoo-pattoo of New Zealand. By Col. Lane Fox, Hon. Sec.

On the Kitai and Kara-Kitai. By Dr. Gustav Oppert.

On some Prehistoric Remains from New Zealand. By Dr. Julius Haast, F.R.S.

Jan. 25. On a Collection of Clay Models of Figures by a Native Zulu. By Dr. Hooker, C.B., F.R.S.

On some Stone Mullers of similar form from various Localities. By Col. Lane Fox, Hon. Sec.

On the Origin of the Tasmanians geologically considered. By James Bonwick, Esq., F.R.G.S.

On a Frontier Line of Ethnology and Geology. By H. H. Howorth, Esq.

On the Nicobar Islanders. By G. W. Atkinson, Esq.

Feb. 8. On the Discovery of Flint and Chert-flakes under a submerged Forest in West Somerset. By W. Boyd Dawkins, Esq., M.A., F.R.S.

On a Stone Hammer from the Ancient Copper-Mines of Ruy Gomes in Portugal. By F. W. Rudler, Esq., F.G.S., Assist. Sec.

On Prehistoric Remains in the Neighbourhood of the Crinan Canal, Argyllshire. By the Rev. R. J. Mapleton. With Introductory Note. By Dr. A. Campbell.

Feb. 22. On an Ancient Calvaria from China. By Prof. Busk, F.R.S.

On some Prehistoric Remains from recent deposits in Yorkshire. By C. Monkman, Esq.

On the Natives of Naga, Island of Luzon, Philippine Islands. By Dr. Jagor.

Mar. 7. On the Opening of Two Cairns, near Bangor, N. Wales. By Col. Lane Fox, Hon. Sec.

On the Earliest Phases of Civilization. By Hodder Westropp, Esq.

Mar. 22. On Current British Mythology and Oral Tradition. By J. F. Campbell, Esq., of Islay.

On a Cist with Inscribed Stones from the Neighbourhood of the Crinan Canal. By the Rev. R. J. Mapleton.

Exhibition of StoneImplements from England and France. By W. Topley, Esq., F.G.S.

April 12. On the Ancient Tribal System and Land-Tenure in Ireland. By Hodder Westropp, Esq.

On the Danish Element in the population of Cleveland in Yorkshire. By the Rev. J. C. Atkinson.

April 26. On the Philosophy of Religion among the Lower Races of Mankind. By E. B. Tylor, Esq.

On the Brain in the Study of Ethnology. By Dr. Donovan.

May 10. Address on the Ethnology of Britain. By Prof. Huxley, LL.D., F.R.S., President.

On the Influence of the Norman Conquest on the Ethnology of Britain. By Dr. T. Nicholas, M.A.

By a division of the subjects into sections as arranged in the report of last year, the following shows the number appertaining to each section, viz. :—

General Ethnology	7
Biology	4
Comparative Psychology	1
Sociology	12
Archæology	13
Philology	1

Reports on the megalithic monuments of the Channel Islands and of Argyllshire have been received; others are in course of preparation, and will be communicated to the Society during the present year.

In conformity with the arrangements made at the last Anniversary Meeting, extra sectional meetings have been appointed for the reading of papers relating to Prehistoric Archæology, on which subject a large number of valuable papers have been communicated to the Society during the past year.

Considerable success has attended the publication of the Quarterly Journal. All the copies of the first number which were printed (with the exception of a few copies which have been reserved for Members) have now been sold, as also the whole of the copies of the first volume of the new series in which this number was included. The Council propose, when the funds enable them to do so, to reprint the first number, and thus to continue the circulation of the volume. Meanwhile a

few copies of the first number have been retained for future Members, who will thus be enabled to complete their series. Little or nothing has been done as yet in the way of advertisements; but, judging from the sale already effected, there appears to be no reason for doubt that it will obtain a wide circulation when the character of the work becomes better known.

Following the precedent of last year, special meetings have been appointed for discussion of subjects calculated to interest the public. One of these, held in the Theatre of the Museum of Practical Geology, by permission of Sir R. I. Murchison, Bart., the Director-General of the Geological Survey of Great Britain and Ireland, has been largely attended; one other is to be held in the same place, and two in the Theatre of the Royal United Service Institution, by permission of the Council of the Institution. Cards of invitation to these meetings have been printed for the use of Members.

The accounts of the Society are presented as usual, and show a balance of £120 5*s*. 4*d*. in the hands of the bankers on the 16th inst.

The attention of the Members is earnestly directed to the advisability of increasing the number of new Members. The Council have already been enabled to make considerable addition to the number of maps, lithographs, and woodcuts in the new series of the Journal; but the majority of the papers offered to the Society are upon subjects requiring illustration, and they hope by enlarged funds to be able to meet this requirement on an extended scale in the future numbers of the Journal.

After this Report was read, the Honorary Treasurer submitted his account (p. xv).

It was then proposed by Mr. Hyde Clarke, seconded by Mr. J. W. Flower, and carried unanimously:—

That the Report of the Council and the Treasurer's Account be adopted.

The President observed that, in conformity with the Laws of the Ethnological Society, the property of the Society should be vested in three Trustees, of whom the Treasurer is one; but it appeared that on the decease of the original Trustees no successors had been appointed.

It was then proposed by Col. A. Lane Fox, seconded by Mr. J. Heywood, and carried unanimously:—

That Sir John Lubbock, Bart., and Mr. W. Spottiswoode, be elected Trustees of the Ethnological Society of London, to act with the Honorary Treasurer.

After the President had delivered the Anniversary Address,

(see p. xvi), it was resolved, on the motion of Dr. R. King, seconded by Col. A. Lane Fox, that the thanks of the Society be accorded to the President for his Address, and that it be printed.

The following resolution was then proposed by Mr. J. Heywood, seconded by Mr. H. G. Bohn, and carried unanimously—

That the Fellows present hereby express their concurrence in the sentiments of the President's Address, and their continued desire to promote an amalgamation between the Ethnological and Anthropological Societies.

Mr. J. Heywood and Mr. T. M'K. Hughes were appointed scrutineers of the ballot for Officers and Council for the following Session, and a vote of thanks was accorded to the six retiring Councillors.

The ballot having been open one hour, the report of the scrutineers was read, and the following gentlemen were declared duly elected as Officers and Council of the Ethnological Society of London for the Session 1870–71 :—

Officers.

President—Professor T. H. Huxley, LL.D., F.R.S.

Vice-Presidents—Archibald Campbell, Esq., M.D., F.L.S.; Sir John Lubbock, Bart., M.P., F.R.S.; Edward Burnett Tylor, Esq.; Thos. Wright, Esq., M.A., F.S.A.

Honorary Treasurer.—H. G. Bohn, Esq., F.R.G.S., F.R.S.L.

Honorary General Secretary.—Col. A. Lane Fox, F.G.S., F.S.A.

Honorary Foreign Secretary.—Hyde Clarke, Esq., &c.

Council.

William Blackmore, Esq.; Professor G. Busk, Esq., F.R.S.; George Campbell, Esq., D.C.L.; J. Barnard Davis, Esq., M.D., M.R.C.S., F.R.S.; W. Boyd Dawkins, Esq., M.A., F.R.S., F.G.S.; John Dickinson, Esq.; Robert Dunn, Esq., F.R.C.S.; J. W. Flower, Esq., F.G.S.; David Forbes, Esq., F.R.S., F.G.S., F.C.S.; A. W. Franks, Esq., M.A., D.S.A.; Rev. Canon Greenwell, M.A., F.S.A.; A. Hamilton, Esq.; F. Hindmarsh, Esq., F.R.G.S., F.G.S.; T. M'K. Hughes, Esq., M.A., F.G.S., F.S.A.; Richard King, Esq., M.D., F.R.C.S.; J. F. M'Lennan, Esq.; Sir Roderick Impey Murchison, Bart., K.C.B., F.R.S.; Rev. Dr. Nicholas, M.A., F.G.S.; S. E. B. Pusey, Esq., F.R.G.S.

Statement of Account of H. G. Bohn, Esq., Treasurer, with the Ethnological Society from May 31, 1869, to May 16, 1870.

	£	s.	d.
To Balance at Bankers, May 31st, 1869	52	5	2
„ Subscriptions received from Members during the Session of 1869–70, less Collector's Commission	283	2	11
„ Contribution towards Lithograph, by Sir G. Grey	3	0	0
„ Sale of Society's Transactions. Cash received from Mr. Murray:—			
£ s. d.			
July 7, 1869 ... 6 9 7			
March 9, 1870 ... 10 8 9			
	16	18	4
	£355	6	5

	£	s.	d.
By Rent (one year and a half)	60	0	0
„ Salary of Secretary and Assistant-Secretaries:—			
Mr. Wright ... £10 0 0			
Mr. Lamprey ... 25 0 0			
Mr. Rudler ... 7 10 0			
	42	10	0
„ Printing (Mr. Richards), on account	50	0	0
„ Lithographing:—			
Mr. Jobbins ... £3 9 9			
Mr. Stanford ... 4 5 0			
Mr. Hanhart ... 14 18 9			
Mr. Weller ... 3 7 6			
	26	1	0
„ Photographing (Mr. Pedroletti)	10	0	0
„ Stationery:—			
Messrs. Bruce & Ford ... £3 9 10			
Mr. Stanford ... 0 18 0			
	4	7	10
„ Attendance at Special Meetings at Museum of Practical Geology	3	14	0
„ Postage and Incidental Expenses	38	8	3
„ Balance at Bankers', May 16th, 1870	120	5	4
	£355	6	5

Examined.

FREDERICK HINDMARSH.
J. W. FLOWER. } *Auditors.*

ANNIVERSARY ADDRESS.

By Professor T. H. Huxley, LL.D., F.R.S., *President*.

When, on the lamented death of the late Mr. Crawfurd in the spring of 1868, the Chair of this Society became vacant, I attended the Meeting of the Council upon which it devolved to elect Mr. Crawfurd's successor, for the purpose of asking to be relieved of my duties as Councillor, on the ground that other occupations rendered it very difficult for me to discharge those duties in the manner in which I considered they ought to be discharged.

The Council, however, did me the honour to request me to accept the Presidency of the Society; and they urged their wishes with so much unanimity, that I did not feel at liberty to persist in declining it. But I ventured to make one condition, and this was that the Council should heartily agree to, and assist in, an endeavour to bring about an amalgamation between the Ethnological and the Anthropological Societies, and thereby put an end to a state of affairs which, in my judgment, was not creditable to the Members of either Society.

The Council readily agreed to this condition, and I was nominated President. The day after, while I was yet considering in what way best to commence the negotiations with the Anthropological Society, the late Dr. Hunt, at that time President of the Anthropological Society, called upon me; and (being evidently fully informed of what had taken place in our Council) expressed his readiness to cooperate in bringing about the union of the two Societies. In the course of our conversation, Dr. Hunt informed me that Dr. King proposed to take some steps in this direction at the Anniversary Meeting on the 26th of May. However, nothing was done, and Dr. Hunt commences the following letter, which I received from him three days afterwards, by an allusion to this circumstance:—

Ore House, near Hastings,
May 28, 1868.

My dear Sir,—Dr. R. King writes to inform me that, after consulting with his friends in the Ethnological Society, it was thought best not to make any proposal at the Meeting on Tuesday. It was thought best that such a resolution should come from the Council. On the whole there is no reason to regret this; but, after our conversation last week, I have thought it my duty to write to inform you why the subject was not brought before the Society, as I believed (when I had the pleasure of seeing you) would have been done.

Col. Lane Fox writes to me, to say that he has suggested to you the desirability of having a department for "Prehistoric archæology," as he translates "*Paléo-anthropologie*." With reference to this

suggestion, I may mention that last year I prepared a scheme for a union of the two Societies on such a basis.

This question is, however, worth discussing, and I think at some future time such a scheme might be worthy of full consideration.

On the whole, however, I do not think such a scheme is at present either practicable or desirable. I think it is a great pity to separate the different branches of the same science. The Geological Society is an instance of the good effect of the union of different branches of one large science.

I shall be in London on Tuesday next, and if you would ere then consult with your friends, I shall be ready to call on you at 12 o'clock on that day. If there is any chance of a union being effected, I can then bring the subject before our Council the same afternoon. I mention this because I go away for my vacation the end of June. I think that if a union can be effected, it should be decided on before the meeting of the Association at Norwich, in August. If this is to be done, the subject must be discussed at once. We usually print our cards for each year's meetings in July, and this is another reason why action should be taken in the matter at once, or the whole subject left over until the beginning of the next Session or next year. I have been trying to effect this union for the last five or six years, and as I firmly believe that the longer it is delayed the better will it be for my own wishes, I shall not raise any objections to a delay in this matter.

Both Societies will soon have to give up their rooms at 4 St. Martin's Place, and we each have to give six months' notice. We may have to leave at three months' notice; but we have to give six if we wish to leave.

I think, therefore, that, on the whole, it will be desirable if we can meet and see if we can agree on terms.

Our original rules were based on those of the Geological Society. We *changed* this for those of the Society of Antiquaries and Asiatic Society.

These details might be settled by a special committee.

It will, however, be advisable, if possible, that the general scheme should be settled before the subject is brought before the Councils. Each Society can then nominate a committee to officially negotiate terms of union on the basis proposed.

I shall be glad to have a line from you as soon as convenient, and I shall then know what my plans for Tuesday next will be.

Believe me,

Yours very faithfully,

Professor Huxley, F.R.S., JAMES HUNT.
President of the Ethnological Society.

My reply to Dr. Hunt's letter was as follows :—

Jermyn Street,
May 29, 1868.

MY DEAR SIR,—I quite agree with you that whatever is done in the way of fusing, or attempting to fuse, our two Societies into one should

be done quickly. There is not much time between now and Tuesday; but if you will, as you propose, do me the favour to call here at noon on that day, on the chance of my having been able to get things into some sort of shape, I shall be very happy to see you.

The Ethnological Council meet on the 9th of June, and it would be very convenient for me to be in a position to put before them some scheme of union which I could be sure would have the assent of your Society.

Your very faithfully,

Dr. Hunt, T. H. HUXLEY.

President of the Anthropological Society of London.

To this letter Dr. Hunt rejoined :—

Ore House, near Hastings,
May 30, 1868.

MY DEAR SIR,—In reply to your letter of yesterday's date, I have put on paper a few proposals which, if they receive your assent, I will undertake to submit to a meeting of the Council of the Anthropological Society on Tuesday.

In reference to proposal No. V., I had better explain that we cannot at present say how our finances will stand at the end of the year. Our defaulters' list amounts to far more than our debts, and we have a stock of translations. If these books are suddenly thrown on the market, we shall get little for them, and there may be a loss —hence the insertion of this proposal.

I am alone responsible for these proposals. In drawing them up I have only been guided by a desire to suggest what is practicable.

I shall myself enter into negotiations for the union solely anxious to make the best and most useful Society we can. I do not think that there are two interests in such a matter.

If you think it advisable to propose that the future Council shall consist of an equal number of each existing councils, or to suggest any other proposals based on scientific considerations, I shall be very glad to discuss the same.

Believe me,

Yours very faithfully,

Professor Huxley, F.R.S. JAMES HUNT.

Dr. Hunt's Proposals.

Preliminary Terms of Union, which have received the sanction of the Presidents of the Ethnological and Anthropological Societies, and submitted by them to their respective Councils.

I. That it is highly desirable, in the interest of science, that the Ethnological and Anthropological Societies should be united.

II. That, with a view to effect such union, a Committee of SIX (*three*) Members of each Council be nominated to

draw up terms of union and regulations, *and nominate Officers and Council.*

III. That on receipt of such terms of union and regulations, by the respective Presidents of the two Societies, a General Meeting of each Society shall be called within fourteen days to consider the same.

IV. That, with a view of facilitating the proposed amalgamation, and of removing obstacles from its accomplishment, the Committee be instructed to base the rules of the United Society, as far as possible, on those of the Ethnological Society; while the NAME OF THE United Society BE ASSIMILATED TO THAT OF (*adopt the name of*) the Anthropological Society, *unless a better can be found.*

V. That a sum, not exceeding one-third of the annual income derived from present Fellows of either Society, shall be put aside to defray any debts that may exist in such Society.

VI. THAT WHEN THE TERMS OF UNION AGREED ON BY THE JOINT COMMITTEE HAVE BEEN ACCEPTED BY A GENERAL MEETING OF EACH SOCIETY, A MEETING OF THE COUNCILS OF THE EXISTING SOCIETIES BE CALLED TO NOMINATE OFFICERS AND COUNCIL FOR THE UNITED SOCIETY, AND TO FIX A DAY FOR A GENERAL MEETING OF THE FELLOWS OF BOTH SOCIETIES.

VII. That SUCH (*a*) General Meeting (*of each Society*) shall CONSIDER AND DECIDE ON THE ORGANIZATION AND NAME OF THE UNITED SOCIETY (*be called for the purpose of accepting the terms of union agreed upon by the before-named Committee*).

VIII. THAT PROFESSOR HUXLEY BE PRESIDENT OF THE AMALGAMATED SOCIETY, AND DO PRESIDE AT SUCH MEETING, AND THE OFFICERS NOMINATED CONDUCT THE BUSINESS OF THE SAME.

IX. *That the Councils of the respective Societies undertake to use their best efforts to carry out the recommendations of the Committee.*

The document submitted to me by Dr. Hunt is here printed so as to show what alterations took place in it during a long conference which Dr. Hunt had with me in Jermyn Street. What remained unaltered is in ordinary type; what was struck out is in capitals; and such additions as were made by myself, and stand in my handwriting, are in italics.

It will be observed that at the end of the fourth proposition Dr. Hunt's words ran as follows:—

"While the name of the United Society be assimilated to that of the Anthropological Society."

It is clear that I might have accepted this proposition as it stood, without in any way committing myself to the acceptance of the name "Anthropological" for the united Societies. Strictly construed, in fact, the word "assimilated" excludes the notion of the acceptance of the very name itself.

But seeing the ambiguity of the phrase, I told Dr. Hunt, in the plainest and most distinct manner, that whatever my personal opinions might be, I was sure that any proposition, even to "assimilate" the name of the conjoined Societies to that of the Anthropological Society, would probably meet with a negative from the Ethnological Council; and that, in fact, I could not go to the Ethnological Council with a proposition so worded.

We nearly came to a dead lock upon this point; and the difficulty was only got over by Dr. Hunt's acceptance of my suggestion, to add the words "unless a better can be found."

I fully explained to Dr. Hunt why I chose this form of words. I imagined (and I must confess I still imagine) that reasonable men upon both sides would see that "the best name which could be found" would be one which would enable the Societies to unite; and that any name which should be an obstacle to that union would be *ipso facto* not "the best name which could be found."

Dr. Hunt was perfectly well aware that these words were added on no other ground than the strong objection entertained by Members of the Council of the Ethnological Society to the adoption of the name of the Anthropological Society.

A Meeting of the Council of the Ethnological Society was held on the 9th of June, having been summoned as soon as I knew that the propositions, as amended, had been agreed to by the Council of the Anthropological Society.

It will be observed that the propositions are silent respecting any confirmation of the acts of the delegates by the respective Councils. Both Dr. Hunt and I agreed that it would be better that the Councils should give their delegates full powers; but it was obviously impossible that either he, or I, should do more than attempt to bring this about.

In my case, the Council required the delegates to report and receive confirmation of their acts, while the Anthropological Council gave its delegates full powers.

Under these circumstances, I felt bound to put our position clearly before Dr. Hunt, before the meeting of the delegates took place. I did so in the following letter, dated the 10th (not 11th) June, 1868, in order that Dr. Hunt might judge for himself how

far the understanding between us had been kept; and that if he were dissatisfied, he might say so.

Jermyn Street,
June 10th, 1868.

My dear Sir,—I had no time to write to you yesterday after the meeting of the Council of the Ethnological Society, but I gave Mr. Collingwood a copy of the Resolution which the Council passed, the names of the Committee-men appointed, and the day and hour of meeting, viz., to-morrow (Thursday, 11th of June) at 4 P.M.

After a very long discussion the Council (which was a very full one) determined on accepting the principle of the terms which you and I had discussed. But the Committee appointed to confer with yours was requested to report to the Council before finally pledging the Council to any particular line of action.

I think the Council were mainly led to take this course (in the advisableness of which, after all that was stated, I fully agree) by certain facts which were brought forward tending to show that the Anthropological Society is in a very unsatisfactory financial condition; and unless your Committee come to the meeting fully prepared to satisfy ours upon this point, I am afraid the prospects of amalgamation are not very bright.

I am, yours very faithfully,
T. H. Huxley.

Dr. Hunt,
President of the Anthropological Society.

When the delegates met on the 11th of June, Dr. Hunt referred to the contents of my letter, but he did not make the change any ground of objection to the opening of the negotiations, which accordingly proceeded. By this course, Dr. Hunt barred himself from raising any objection on that score afterwards. There is no allusion in my letter to the question of name, the obvious reason being that the propositions which I had read to the Ethnological Council, and which had received their general approval, left the question of name entirely open.

But so far from there being "no anticipation of the slightest objection to the word Anthropology," as has been asserted, I appeal to every one of the delegates to say whether this was not felt to be the great and prominent difficulty,—a difficulty so great that it was referred to Dr. Hunt and myself to deal with at a separate interview on the following day. Dr. Hunt, in fact, spent somewhat more than two hours with me on the 12th of June, in discussing this knotty question; and, at length, he himself suggested "The Society for the Promotion of the Science of Man," as the title of the new Society. I accepted the name at once; and that there should be no mistake, wrote it down and asked Dr. Hunt to put his signature to the paper. The paper so signed lies before me.

I then, at Dr. Hunt's request, accompanied him to see Mr. Braybrook, who at once assented to the proposed name.

The Council of the Ethnological Society met on the 15th of June.

After the Meeting I wrote to Dr. Hunt as follows:—

26 Abbey Place, N.W.,
June 15th, 1868.

My dear Sir,—I am glad to be able to inform you that, at the meeting of the Council of the Ethnological Society to-day, Major-General Balfour, Mr. Hyde Clarke, and myself were furnished with full powers to arrange the terms of union of the Ethnological and Anthropological Societies, and to organize the resulting new Society under the title of "The Society for the Promotion of the Science of Man."

We have arranged with Mr. Braybrook to meet your Committee at five o'clock to-morrow afternoon, in order to arrive at a final settlement with respect to sundry points which still require discussion.

I am, yours very faithfully,
T. H. Huxley.

Dr. Hunt,
President of the Anthropological Society.

It will be obvious, from the tone of this letter, that I imagined the business was practically settled, the "sundry points which still require discussion" being matters of detail about which I was sure that our side would make no difficulty.

But when our meeting took place, the delegates of the Anthropological Society placed in our hands a resolution just passed by the Council, which rejected the one stipulation upon which the delegates of both sides had absolutely agreed.

The Council of the Anthropological Society had, undoubtedly, a legal right to act in this manner; but that it did thus, without any provocation on our part, break off a treaty which we considered to be virtually concluded, is clear; and that it disavowed the acts of its delegates is perfectly obvious from the fact that Dr. Hunt and Mr. Braybrook thought right to resign their offices.

Considering the circumstances under which the negotiations were broken off by the Council of the Anthropological Society, the Council of the Ethnological Society could hardly take the initiative in any further movement towards amalgamation, though they have always expressed the utmost readiness to re-open the negotiations. However, when Dr. Beddoe, the present President of the Anthropological Society was elected, I thought the opportunity a good one for bringing the state of affairs privately under his notice, and I therefore took the liberty of addressing the following letter to Dr. Beddoe:—

Jermyn Street,
May 18th, 1869.

Dear Sir,—I have not the good fortune to be personally known to you, but, as President of the Ethnological Society, I take the liberty of addressing you, as President of the Anthropological Society.

It must be obvious to every one that the existence of two Societies having identical objects is a waste of power; and when I became President of the Ethnological Society, it was on the clear understanding that the Council of that Society would heartily cooperate with me in endeavouring to bring about an amalgamation of the two Societies. The Council fully acted up to this understanding. As you are doubtless aware, delegates were appointed on the part of both Societies, and these delegates agreed upon terms of union. But the treaty was virtually repudiated by the Council of the Anthropological Society.

Without presuming to challenge the right of the Council of the Anthropological Society to take this step, I very much regretted it, for two reasons,—the first, that it put an end to an arrangement which, I think, would have worked very well; the second, that it precluded any further advances on the part of the Ethnological Society.

Thrown back upon its own resources, the Ethnological Society has passed through a session which, I think I may venture to say, shows that it is in full health and vigour, and quite capable of taking care of itself; but this gratifying fact, so far from leading me to wish to perpetuate the present state of affairs, rather causes me to lament more than ever the division of energies which would gain so much by combination, and strengthens my desire for a speedy union of the two Societies. I expressed these views in a brief address which I delivered at the Anniversary Meeting of the Ethnological Society on Tuesday last; and, as the Anniversary Meeting of the Anthropological Society is at hand, and will take place before my address can be published, I write to inform you that I have done so, and to express the hope that you will see fit to exercise your own influence in the same direction.

Honourable as I feel the position to be, the Presidency of a Society is one which makes such inroads upon the time of its holder that, as soon as union is effected, my great desire will be to withdraw from office, and to see the Chair of the new Society occupied by some one who can devote to its duties the time and the attention they deserve.

I hope, therefore, that it is quite clear that I have no personal interest to serve in advocating amalgamation.

I am, yours very faithfully,
T. H. Huxley.

Dr. Beddoe,
President of the Anthropological Society.

I received a courteous reply from Dr. Beddoe, expressive of general good-will; but I am not aware that any other result has

followed my communication. On our side we are ready and willing, as we always have been, to discuss terms of union.

So much for an earnest but fruitless endeavour to bring about an amalgamation directly with the Anthropological Society. But it may be worthy of consideration whether it is wise thus to limit our efforts. The Anthropological Society is only one of several Societies, the spheres of activity of which all more or less coincide with those of the Ethnological Society. For example, I need only name the Society of Antiquaries, the Archæological Institute, the Archæological Association, and the Geographical Society. The loss of time, money, and energy involved in the absence of any cooperation or harmonious action among these Societies in respect of the ground common to all of them is very lamentable, and I should be very glad to see something done to prevent the occurrence of this waste in future.

I am glad to be able to inform you that, in accordance with the practice which has now prevailed for some years, ample provision has been made for the full representation of Ethnological and Anthropological science at the meeting of the British Association for the Advancement of Science, at Liverpool, in September next; and I trust that the Department of Section D, which will meet under the Presidency of Mr. J. Evans, F.R.S., will be well supplied with papers.

Ethnological Society of London,

FOR THE

STUDY OF THE HUMAN RACE IN ALL ITS VARIETIES, AND IN ALL THE PHASES OF ITS HISTORY AND PROGRESS.

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1870.*Morrison, W., Esq., M.P. 21 *Bolton Street, Piccadilly.* W.
1861.†Mouat, F., Esq., M.D., H.M. Inspector-General of Prisons. *Bengal.* Care of Lepage & Co., 1 *Whitefriars Street, Fleet Street.*
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1860. Murchison, Sir Roderick Impey, Bart., K.C.B., D.C.L., Director-General of the Museum of Practical Geology, President of the Royal Geographical Society. 16 *Belgrave Square.* S.W.

1868. Napier, William, Esq. *Ardmore Lodge, Spring Grove, Isleworth.*
1848.*Nash, Davyd W., Esq. *Cheltenham.*
1870. Nash, Robert Lucas, Esq. *Craven Cottage, Finchley.* N.
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1870. Newall, R. S., Esq. *Ferndene, Gateshead.*
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1858. Nicholson, Sir Charles, Bart., F.R.S.L., F.R.G.S., &c. 26 *Devonshire Place, Marylebone.* W.

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1868. Ouvry, Frederic, Esq., Treasurer S.A. 12 *Queen Anne Street.*

Date of Election.

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1865. Pereira, Francisco E., Esq. *Singapore.*
1862. Perry, Gerald Raoul, Esq., H.M.B. Consul, *Stockholm.*
1864. Petherick, H. W., Esq. 2 *Denmark Villas, Waddon New Road, Croydon, Surrey.*
1862.†Phayre, Lieut.-Col. Sir Arthur, Governor of Pegu, *British Burmah; and E.I.U.S. Club,* 14 *St. James's Square.* S.W.
1869. Platts, John, Esq., Inspector of Schools, *Central India; and* 24 *Ifield Road, West Brompton.*
1868. Pope, George H., Esq. *New University Club, St. James's Street.*
1856.*Postlethwaite, J. J., Esq. 65 *Bessborough Street, Pimlico; and Northend Cottage, Hastings, Sussex.*
1869. Prestwich, Joseph, Esq., F.R.S. *Shoreham, Sevenoaks.*
1861. Price, Dr. David S. *Crystal Palace.* S.E.
1868. Price, Lorenzo T. C., Esq. 11 *Hockley Hill, Birmingham.*
1866. Pulford, Alfred, Esq. *Broomhill, Hampton Wick, Kingston-on-Thames.*
1865. Puller, A. Giles, Esq. *Youngsbury, Ware, Herts.*
1862. Pusey, S. E. B. Bouverie, Esq., F.R.G.S., F.A.S.L. 7 *Green Street, Grosvenor Square; and Pusey House, Farringdon, Berks.*

1867. Ramsay, John, Esq. 49 *Dunlop Street, Glasgow; and Islay, Argyllshire.*
1861. Ratcliff, Charles, Esq., F.R.S.L., F.R.G.S., F.L.S., F.S.A., F.G.S. *The Wyddrington, Edgbaston, Birmingham.*
1861. Reid, Lestock R., Esq. 122 *Westbourne Terrace; and Athenæum Club.*
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1867. Rogers, George, Esq., M.D. *Longwood House, Long Ashton, Bristol.*
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1865. Rónay, Dr. Hyacinthe. *Pesth.*
1870. Rosehill, Lord. *Easter Warriston House, Edinburgh.*
1861. Rowcroft, Lieutenant H. C., Bengal Engineers. Care of Messrs. S. King & Co., *Cornhill.* E.C.
1862. Ryan, Right Hon. Sir Edward. *Garden Lodge,* 5 *Addison Road, Kensington.*

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1866. Scott, Thomas, Esq. *Singapore.*
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1865. Sheffield, Right Hon. the Earl of. 20 *Portland Place; and Sheffield Park, Uckfield, Sussex.*

Date of Election.

1862.†Shortt, John, Esq., M.D., M.R.C.P.L., Surgeon of H.M. Madras Army, Superintendent General of Vaccination. *Madras Presidency.*

1862. Showers, Lieut.-Colonel Charles Lionel. *Agra, India.*

1869. Simpson, Rev. James. *Kirkby Stephen, Westmoreland.*

1861. Smart, Bath Charles, Esq., M.D., M.R.C.S. *Greek House, Waterloo Road, Manchester.*

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1869. Stewart, Captain Charles Edward, 5th Punjab Infantry. 14 *Sussex Gardens.* W.

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1860. Talbot de Malahide, The Right Hon. Lord, F.R.S., F.S.A. *Athenæum Club, Pall Mall; and Malahide Castle, near Dublin.*

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Date of Election.

1862. Warner, Edward, Esq., M.P. 49 *Grosvenor Place; and Higham Hall, Woodford, Essex.*
1867. Warren, Thomas T. P. Bruce, Esq. *Mitcham, Surrey.*
1846.*Whishaw, James, Esq., F.S.A. *Oriental Club, Hanover Square.*
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*** Fellows of the Society are particularly requested to communicate any change of residence to the Assistant-Secretary as early as possible.

THE JOURNAL

OF THE

ETHNOLOGICAL SOCIETY OF LONDON.

ORDINARY MEETING, Nov. 9th, 1869.

PROFESSOR HUXLEY, LL.D., F.R.S., *President, in the Chair.*

New Members.—Sir WILLIAM VERNON GUISE, Bart., F.G.S., F.L.S.; Rev. W. A. JONES, F.G.S.; Rev. RICHARD KIRWAN, M.A.; Rev. HENRY H. WINWOOD, M.A., F.G.S.; Dr. GUSTAV OPPERT; ROBERT D. DARBISHIRE, Esq., B.A., F.G.S.; J. M. JEFFCOTT, Esq., M.H.K.; WILLIAM LONG, Esq., M.A.; M. MOGGRIDGE, Esq., F.G.S.; and JOHN PLATTS, Esq.

Mr. S. THOMPSON exhibited a collection of photographs of Stonehenge and other megalithic structures.

Col. A. LANE FOX exhibited some worked flints, which he had recently found at Stonehenge; and, at the request of the President, made the following remarks on the proposed examination of this structure:—

I. *On the* PROPOSED EXPLORATION *of* STONEHENGE *by a* COMMITTEE *of the* BRITISH ASSOCIATION. By Col. A. LANE FOX, F.S.A.

IT may perhaps be desirable that I should take advantage of the opportunity afforded by the exhibition this evening of a series of admirably-executed photographs of Stonehenge, by Mr. S. Thompson, to state to the Society the steps which were taken this year by the British Association, at Exeter, to promote a systematic examination of this monument, with the view of determining, if possible, the long-standing question of its origin and uses. Perhaps no better illustration could be given of the unwarrantable deductions of past ages than by quoting the long list of opinions which have been hazarded upon this monument, side by side with the fact that, up to the present time, no proper exploration of the place has been attempted. Since the time of Henry of Huntingdon, who was the first author by whom Stonehenge is

mentioned, in the twelfth century, few antiquaries of note have written without giving the world the benefit of their speculations upon this structure. It has been attributed to every race that has contributed to the population of these isles, not even excepting the Romans. It has been described, in turns, as a place of worship, a court of justice, a place of burial, a sanctuary, a race-course, or a hanging-place; and learned reasons have been assigned for considering it an observatory; but I am not aware that any of these conjectures have better foundation for them than the old legend which ascribes the origin of the place to Merlin, who brought the stones from Ireland by supernatural agency, and set them up here. To the best of my knowledge, no attempt has been made to remove the turf and examine the soil within the enclosure for those relics of the constructors which afford the only reliable evidence of the origin and uses of such structures. All the tumuli in the neighbourhood have been opened; and a small tumulus within the area of the earthwork surrounding the standing stones has been examined; but as there is good reason for supposing this tumulus to be of older date than the earthwork, its contents throw no light upon the monument itself.

Apart from the question whether or not it is a place of burial, which would at once be set at rest by an examination of the ground within the enclosure, it is hardly possible to conceive that stones of such great magnitude should have been transported to this place, rough-hewn probably upon the spot, and that excavations should have been made for the reception of the massive uprights, without leaving in the soil trampled beneath the feet of the constructors some traces of the implements employed during the operations, which if brought to light would suffice at least to determine the period and degree of civilization of the people who erected it.

That such relics might be expected to turn up if the soil were properly examined, appears probable from the fact of my having found several worked flints in the rubbish around the Trilithons, during the short visit that I paid to the spot this year on my way to Exeter. Observing that two or three bare places had been scratched in the soil, apparently by animals, at the foot of the stones, I examined the loose earth carefully, and succeeded in finding the four flints which are exhibited to the meeting. Two of these, it will be seen, are perfect flakes, having bulbs of percussion, with ribs and facets at the back—points which it is hardly necessary to mention are now admitted by all prehistoric archæologists to be evidence of human agency. Besides the flakes, I observed numerous small splinters of flint, such as might well have resulted from the fracture of flint tools,

had such been used in the process of dressing the great blocks; but upon this point I should not wish to hazard a conjecture without examining a larger quantity of soil than presented itself upon the few bare spots from which the turf had been removed at the time of my visit.

It may be thought, perhaps, that the occurrence of flakes in the places indicated, proves nothing, because the soil may be everywhere teeming with worked flints owing to the abundance of tumuli in the neighbourhood. This, however, is not the case. As cultivation has now encroached upon the plain to within a short distance of Stonehenge, I was able to examine a field close by that had been ploughed, rolled, and subsequently washed by the rain, and which was therefore in the best possible condition for finding the flints, had there been any; but I failed to discover a single worked flint of any kind, except in one place where a small tumulus had been scored by the plough; here I picked up as many as twenty, some of which are exhibited. In all the tumuli in this neighbourhood, as in those of other parts of England, evidence of the practice of strewing worked flints upon the grave is observed; and the fact of finding flakes in any number in Stonehenge would serve to connect it in this practice with the tumuli. Now, the majority of the tumuli hereabout are found by their contents to belong to the bronze age; and Sir John Lubbock has inferred, from the presence of an unusual number of these tumuli within a radius of three miles of the place, that Stonehenge may also, with great probability, be attributed to this period: the flakes tend to confirm this supposition. Supposing, however, it were to be proved hereafter, as seems not impossible, that Stonehenge belongs to the bronze age, it would not necessarily follow that the stones were dressed with bronze tools. I am inclined to think, on the contrary, that stone or flint, used with sand and water, would be the more likely materials to be employed for the purpose. In any case, the wear and tear of the implements must have been considerable. Having mentioned my discovery to Mr. Stevens, of Salisbury, I learnt from him that the Wiltshire Archæological Society had applied some time ago to Sir Edmund Antrobus, the owner of the property, for permission to make the necessary excavations; but that gentleman had been unwilling to grant permission, on the ground that the examination of a monument of such great national interest ought not to be entrusted to a local society. It therefore appeared to me desirable that the subject should be brought before the British Association; and having consulted Sir John Lubbock and Mr. Evans, who concurred in my suggestion, it was decided that this should be done. The following gentlemen were therefore appointed by the Association as Mem-

bers of a Committee, with instruction to apply to Sir Edmund Antrobus for permission to make the necessary investigations, viz., Sir John Lubbock, Bart., F.R.S., John Evans, Esq., F.R.S., George Busk, Esq., F.R.S., E. T. Stevens, Esq., and myself. The Committee having subsequently met and considered the necessary measures to be taken, has applied in due form to Sir Edmund Antrobus. No decided answer has been received as yet; and it is presumed Sir Edmund is anxious to take the general sense of archæologists on the subject before granting permission. Under these circumstances, it appears to be desirable that I should bring the subject to the notice of this Society, which has at all times taken such deep interest in the megalithic monuments of this country, with the view of affording to the Members, should they feel disposed, an opportunity of cooperating in the recommendation of the British Association. There are only two heads under which, in my humble judgment, any valid objection could be raised to the proposal of the Committee:—first, from the apprehension that the excavation might endanger the stability of the monument; and, secondly, from doubts as to the competence of the Committee appointed for the purpose. With regard to the first objection, I think there is no reasonable ground for fear. The part to be examined would be the flat surface within the stone circles, which it would only be necessary to excavate as far as the natural surface of the chalk; nor would it be necessary to approach anywhere near the foundations of the Trilithons; no trace of the excavations would be observable when the soil and turf were replaced. It might also be desirable to examine the ditch of the earthwork surrounding the structure. As regards the competence of the Committee, I think that, as a very humble Member of it myself, and having no pretension to act in any other capacity than that of its Secretary, I may safely say, of those associated with me, that it would not be possible in all Europe to find four persons better qualified for the undertaking than those whose names I have mentioned. In Sir John Lubbock and Mr. Evans we have the two best authorities of our age upon prehistoric subjects; in Mr. Busk's hands any human or animal remains that may turn up will be treated with that great scientific knowledge which he alone is competent to devote to them, while Mr. Stevens's great archæological experience and local knowledge render his services indispensable in any properly-conducted examination of Stonehenge. I trust, therefore, that with a Committee so constituted, backed by the authority of what has been aptly termed our National Parliament of Science, and aided, as I hope we shall be, by the good wishes of this Society, the Society of Antiquaries, and other archæological Societies of London, Sir Edmund

Antrobus may be induced to accede to the request of the Association, and thereby to settle (if science and observation can settle) a question which for seven centuries has been regarded as one of the most interesting subjects of inquiry ever submitted to the judgment of archæologists.

The following paper was then read by the author:—

II. *On the* CHINESE RACE: *their* LANGUAGE, GOVERNMENT, SOCIAL INSTITUTIONS, *and* RELIGION. By C. T. GARDNER, Esq., F.R.G.S., of Her Britannic Majesty's Consular Service in China.

IN treating of the Chinese people, the points to which I am most particularly desirous to direct attention are:—their extreme antiquity and conservatism; the phenomenon they afford of a great modern nation possessing the characteristics of nations long since extinct; the tenacity with which they have retained the most ancient principles of primitive government, and the skill with which they have adapted them to the requirements that arise in ruling a vast empire; and, finally, the fact of their having discovered a method of rendering the most primitive form of writing capable of expressing the abstract truths of a profound philosophy and the fanciful flights of a fertile imagination. These points render China a most promising field for the researches of the ethnologist.

With regard to the written characters, Chinese legends state that the first attempt of man to express his wants by means of symbols instead of by words was by tying knots in string at different distances apart. It is said that about 2800 B.C., Fo-hi invented the following eight symbols:—☰ *heaven*, or *pervading principle*, ☷ *balance*, ☵ *water*, ☳ *earthquake*, ☴ *wood*, ☲ *sacrifice*, ☶ *boundary*, and ☱ ☷ the *earth*. At the same time, pictorial representations of these knotted strings were taken to represent the object thereby symbolized. Another Chinese legend tells us that the most ancient forms were 540 characters, formed by a combination of the knotted strings and the eight symbols, made in the form of birds' claws in various states of tension, and that these 540 characters were suggested to the inventor by the marks left by birds' feet on the sand. Leaving legends, we find that the Chinese themselves have from the most ancient times classified their characters under six heads, and that this classification, although made in times too remote to admit of any date being affixed, yet holds good in the present day. The six divisions are as follow:—ideographic, figurative-combined, indicative, reversed, borrowed or metaphoric, and phonetic cha-

racters. This grouping closely resembles the classification of hieroglyphics into ideographic, determinative, and phonetic. The ideographic group of hieroglyphics would correspond with the first five divisions of the Chinese, while the sixth Chinese division would comprise both the determinative and the phonetic.

So far, the identity of the principle of the Chinese character and of the hieroglyphics is evident; but a slight difference exists in the use of phonetics; and here, curiously enough, the Egyptian shows a greater resemblance to the alphabetic system than the Chinese, both in regularity of sound following its proper phonetic symbol, and in form of writing.

Mr. Hunter, in his learned work on the Aryan and non-Aryan languages of Asia, has shown a wonderful sonal similarity among the various languages of the east and west. I may, in passing, remark that had Mr. Hunter, in the part devoted to Chinese, distinguished where the variation of the Chinese dialects was one merely of pronunciation, and where it was one also of the *word* used, he would still further have enhanced the value of his work.

Still it is sufficiently evident that the sonal similarity of the Aryan and what have been generally called non-Aryan languages is deserving of attention. It is true that a theory has been advanced to explain this fact, to the effect that human language had its origin in the imitation of the cries of animals; and arguing thus, it is easy to imagine that all human beings, having heard lambs bleat, would all fix on the same sounds, *ma* for *mother*, and *pa* for *father*; but it may, we deem, be reasonably asked why all the human race should have selected the bleating of sheep to express affiliation, and not have taken as their model the lowing of kine, or the whistlings of birds. Be that as it may, I think it would be possible to point out that a similarity also exists in the form of writing*.

But the question, of course, arises whether these coincidences are purely accidental, or whether they are small links in a chain tending to show a connexion between the several races.

Originally each character in Chinese expressed an idea. These characters are either simple or compound; but, from the changes that have taken place in the Chinese mode of writing, it is difficult to assert with exactitude which are the simple characters and which the compound. Comparatively recent Chinese lexicographers discovered the fact that there were 214 signs which occurred in all the 40,000 characters of which the language is composed. Each of these 214 signs has a meaning of its own, as a separate character, and in general modifies the meaning (not the sound)

* [The author exhibited a number of diagrams intended to illustrate the relation that he sought to trace between certain characters in Chinese, Hebrew, Arabic, and Egyptian hieroglyphic writing.—SUB-ED.]

of the compound character of which it forms part. Thus, a single compound character will represent *lion* or *tiger*, *wolf* or *fox*; but in each there will be the simple character which stands for *dog*. Sometimes a character is formed by the composition of two radicals, each of which gives part of the meaning to the composite character; thus, the radical meaning *one*, added to the radical standing for *great*, signifies *heaven*; while the radical *heart*, added to the radical *white*, denotes *fear*. Besides the radicals, there are some seven hundred characters which may be termed *phonetics*; these added to the radical give, to a certain extent, the sound of the character of which they form part; thus, *ch'ing* (azure) added to the radical signifying *water*, means *clear* or *clean*; to the radical signifying *cart*, it denotes *light in weight*; to that signifying *heart*, it means *feeling* or *emotion*; to that denoting *sun*, it implies *bright*, while to that signifying *words*, it means *to beg*. In all these examples, the compound characters are pronounced by the same sound, though not in the same tone, as the original phonetic character, *ch'ing*, while the radicals to which it is joined are successively pronounced, *shui*, *ché*, *hsin*, *ji*, *yen*. The same phonetic joined to the radical *muh* (the eye), signifies *translucent* or *clearly*; to *mi* (rice), it signifies *semen*, and is pronounced *ching* without the aspirate. With this double system of a radical to express the genus, and the phonetic to express the sound, it will be easily perceived that the Chinese written language possesses a greater power even than the Greek or German for the coining of new words; and I suppose it was in reference to this that M. Rémusat expressed the opinion that, if ever a universal language were arrived at, it would be the Chinese.

There are, however, two things in the very nature of the Chinese language which, I think, are sufficient to prevent the consummation hinted at by M. Rémusat. The first is the complicated construction of the Chinese character. At a very early period the Chinese discovered the inconvenience of the purely pictorial method of writing, and substituted fixed signs to represent the thing desired to be expressed. So long ago was this done that no examples can now be obtained of writing in the ancient pictorial form. Still the Chinese character passed through many intermediate stages before it became fixed in its present form. In some of the more ancient of these intermediate stages we have only a few characters preserved to us. Each new form of writing has been an improvement on the one that preceded it.

In the present day there are two forms of writing—the printed, or official, and the current hand. The objection to the *printed* or *official* is the difficulty of writing it: each character, unlike the hieroglyphic, occupies the same space, and is variously formed

by from one stroke of the brush up to as many as sixty or more; hence the lines are of different sizes, so that a man, to write Chinese neatly, must have considerable powers as a draughtsman, and even then, in spite of the terseness of the Chinese written language, the most practised Chinese writer would take more than double the time to copy a Chinese document that an Englishman would occupy to copy the English translation. The objection to the *running hand* is twofold:—first, that we lose in it, to a great extent, the generic nature of the Chinese character; and, secondly, that, from its being a kind of short hand, it is very difficult to decipher, except in conveying the simplest possible ideas: hence it is used only in accounts, memoranda, and small notes, although, for purposes of ornament, prefaces to books are generally printed in the current hand.

Another reason that will prevent the Chinese ever becoming a universal tongue, is the impossibility of the spoken language being identical with the written. I have before remarked that, with the exception of a few expletives, each character represents an idea; but each character is only a monosyllable, and in Pekinese there are only 690 odd sounds to represent the whole of the written language. Even if we add together all the different monosyllabic sounds employed in the local dialects throughout the empire, we should not have, I believe, more than 1200. To obviate this difficulty, the Chinese, besides the sound, have invented a system of tones or fixed inflexions of the voice, in which each character must be pronounced. These tones differ in number and application: thus, in northern mandarin there are four; in the southern mandarin there are likewise four, though not precisely the same; in Cantonese there are eight; and, I believe, in some dialects there are as many as twelve or fourteen. The same character pronounced in different tones has different meanings: thus, *hao* (to love), formed of the two radicals *mother* and *child*, means *good* or *well* or *very* according as it is pronounced in different tones. Still in Pekinese there are in common use as many as 37 characters, all of different meanings, with the same sound *chi*, and pronounced with the same inflexion of voice; hence, did one speak as tersely as is intelligible in writing, one would not be understood. Again, the Chinese written language being incapable of inflexion, one has to judge, in books, by the context, in great measure, as to the case and number of the substantives, and as to the tense and mood of the verbs. In the spoken language this difficulty of the absence of declension is met by the construction of polysyllabic words formed by joining together two or more characters: thus, *t'ien* (heaven) is generally called in speaking *ch'ing t'ien* or *azure heaven*; *jih* (the sun), *jih tou* or *sun's head*; *mu* (mother), *mu ch'in* or *mother-relation*; a per-

trait, *hsing lo tu* or *a picture that puts in motion pleasant reminiscences*; "a photograph," *chao hsiang* or *ray-of-light likeness*. Another plan is that of adding a numeric expletive: thus, *san* being *three*, one says:—*san k'ow jen*, or "three mouth-men;" *san wei kwan*, or "three persons mandarins;" *san kai kwan*, or "three roof-offices;" *san kō hsing*, or "three grain-stars;" *san ko hsing*, "three names," &c. Puns and verbal equivoques are thus very easy; and many Europeans who cannot catch the distinction of tones, sometimes make very ludicrous mistakes.

I have already made some observations as to the different forms of the Chinese character; but besides these, the written language or literature contains six distinct styles:—

1. Ancient poetry.
2. Ancient classic.
3. Essay style.
4. Despatch style.
5. Descriptive.
6. Colloquial.

The first two styles are as distinct from the modern language as Latin is from Italian. In them are the writings of the ancient sages, which have to be learnt by candidates for examinations. These ancient books have been translated into the descriptive style; and learned native commentators often differ in their rendering of many of the difficult passages. The third style is used in Imperial edicts, memorials to the throne, and original essays composed on a given subject, or themes. The despatch style is used in letters and despatches; the descriptive in ordinary works; and the colloquial in romances, and in reports of evidence, where conversation is set down as it actually occurred. One ethic work, called the Sacred Edict, has been translated into colloquial.

The spoken language is divided into two great branches, *Mandarin* and *local dialects*. The Mandarin, again, may be divided into two branches, *Northern* and *Southern*; the Northern is the more fashionable, but less pure, being corrupted by Manchu lisps, accents, &c. The two dialects, however, are so similar, that a person acquainted with one can readily understand the other. Mandarin is understood and spoken more or less all over the empire by officials, respectable shopmen, merchants, &c., and is itself the local dialect as far south as Shantung, and of many individual towns in other provinces.

The local dialects are endless in number, and are some of them as different from Mandarin, and from each other, as are English, French, and Spanish—though, like these languages, they employ the same system of written characters. It is by no means an uncommon occurrence for Ningpo, Shangai, Amoy, Swatow, Hongkong, Hakka, and Cantonese men to be obliged to resort to what is called "pijin English" to render themselves intelligible one to another.

Sometimes the difference of dialect is merely one of pronun-

ciation; but sometimes it is also a difference of character employed. I have observed that where the Cantonese employ a different word from that used in the Mandarin, one generally finds that, on comparing the characters, the Cantonese is the more ancient word of the two: thus, many of the words in the ancient classics are in colloquial use in Cantonese, while very few are in vogue in Mandarin. I have heard that the Fokienese is still more ancient; but as I am totally unacquainted with that dialect, I cannot vouch for the fact.

Many are the difficulties which the student experiences in reading Chinese. Among these may be noted:—the absence of inflexion; the fact that many words are substantives, verbs, adjectives or adverbs, according to the context; the absence of punctuation, and the want of any distinction between a word commencing and a word ending a sentence, or between proper names and common nouns.

There is a great peculiarity about proper names in China, namely that characters forming part of them become forbidden (*ch'in tzu*, as they are called). No man may write, for example, any character that forms part of either his mother's or his father's name, but must use another character of the same sound and significance; and where such other character does not already exist, he must invent one. Any character forming part of an Emperor's name, is henceforth forbidden all over the Empire: thus *ning* (peaceful) was originally written differently from its present form, but being a character entering into an emperor's name it was necessarily changed. Any candidate at an examination writing a forbidden character would at once be plucked.

Each Emperor, besides his own name, has a title of his reign (*nien hao* as it is called), and a canonized name or posthumous title given him after his death (called *miao hao*, or "Temple name"). *Hien fung*, for instance, was not the late Emperor's real name, but only the title of his reign. When he was buried, he was canonized under the posthumous title of *Wen tsung hsien*, or "Illustrious for Literary Ancestors." The characters forming part of the title of reign and posthumous title are not forbidden.

With regard to the proper names of subjects, every Chinaman has:—a surname, which he derives from his father; a name given him eight days after his birth by his parents, and by which he is only addressed by his closest relatives; a nickname, sometimes of a complimentary character, and sometimes the reverse, by which he is addressed by his companions; and, lastly, his literary name, which he has assumed at the examinations. In speaking to a man, except one is very intimate with him or he is a servant, one addresses him by his patronymic, with the addition of *Sien-Sang* (Mr.) to a non-official, *Lao-yè* (Esq.),

Tai-yè (Your Honour), *Ta-lou-yè* (Your Worship), or *Ta-jen* (Your Excellence), according to rank. An assistant-magistrate is called *Lao-yè*; a magistrate, *Tai-yè*; a prefect, *Ta-lou-yè*, and a *Taot'ai* and his superiors, *Ta-jen*.

An intimate friend is always addressed by his literary name. In writing, the use of the patronymic is not so common, and is seldom used, except in addressing strangers and in official correspondence. A wife is generally called by her maiden surname when speaking of her or describing her in official documents; but in addressing her it is more complimentary to do so by her husband's patronymic; the name she receives from her parents is used in about the same way as a lady's Christian name in England. Chinese proper surnames are limited in number to one hundred. No persons of the same surname are allowed to marry. Tatars have other surnames besides those of the Chinese. Before their intercourse with the Chinese, their system of patronymics was similar to that of the Parsees and Indian Jews; that is to say, each Tatar took the first name of his father as his own surname. Now, however, the Tatars have adopted the Chinese custom in name as in every thing else.

In *Government*, while preserving the most primitive form—the patriarchal—the Chinese have so adapted it as to make it fit into the complications that must necessarily arise in the social relations of a highly civilized nation numbering 400 millions of people. Their theory of government may be thus briefly stated. The emperor, whose title is "Son of Heaven," owes obedience to God as his father, and stands *in loco parentis*, as regards authority, to the whole empire. A viceroy stands *in loco parentis* to two provinces; a governor-general, to one province; an intendant of circuit or Taot'ai, to about one quarter of a province; a prefect, over about a sixteenth part of a province; and the district-magistrate, over about an eightieth of a province. The district-magistrate occupies the positions both of judge of the lower, criminal, and civil courts, and of collector of the revenue of his district; this will include, in well-populated provinces, about 400 square miles, and in less-crowded provinces about 1000, and even 1500 square miles. He is assisted in his duties by a staff of assistant-magistrates and candidates for entering the government service. Each magistrate's district is subdivided into what the Chinese called *Ti* (literally *lands*), or what we may call *parishes*. These parishes are so regulated as to contain each from 150 to 200 families, and are of greater or less extent according to the density of the population. For each parish, one of the inhabitants is chosen by his fellows to be a sort of mediator between the official magistrate and the people. This person, called by the Chinese the "parish security," is generally

termed, in European works on China, a "mayor." His office is one of far more trouble than either emolument or honour. Being chosen by the people, these mayors are a great guarantee for liberty; and in case of riot often side with the people against the authorities. No district-magistrate would attempt to carry a measure in which he was opposed by all the mayors of the district. At the same time, the magistrate has the power severely to punish any mayor for a lache of duty, either by fine, imprisonment, or flogging. Generally speaking, these mayors are more the mouthpieces than the directors of public opinion; they are always natives of the place of their duties, while, from the magistrate upwards, no mandarin is allowed to hold office in his native province.

The Magistrate's duties are those of a registrar; he has to forward the government mails, put down disturbances, etc., and is considered in part a mediator between the people and the divinities. He is generally addressed by the title of *father* and *mother* of the district; nor, to the fervid minds of an eastern people, is this title meaningless.

The duty of the Prefect is more connected with public works and education, though he is often deputed by the Taot'ai to hear appeals from the judgment of the Chihien; but even in those matters most connected with his peculiar sphere he is by no means able to act on his own responsibility. In the educational department, such as for instance the prefectural and government examinations, he is assisted and controlled by a board of unofficial scholars, one of whom is generally appointed a local president for the publication of government works of instruction. In the public works' department, such as the mending of roads, building of bridges, &c., he is aided by a municipal council, formed of the presidents of the various leading guilds and chief landed gentry; and the prefect does little more than give his sanction or veto to their deliberations. The Taot'ai, though a civil officer, directs altogether in time of peace, and in great measure in times of war, the military and naval operations and the manner of fortification, &c. He is likewise general superior to the prefects and Chihiens in his circuit, and holds courts of appeal from the decisions of the latter, but in all important measures he generally consults the landed gentry, scholars, and principal merchants.

The Governor-General exercises a general supervision over his province, and, except that he has to obey the instructions of the ministry at Peking, is almost a sovereign. He has his court and secretaries of state and council for the province, corresponding with those of the sovereign for the empire. Attached to his court is a provincial judge, whose duty it is to hear

appeals from the court of the Taot'ai, &c. The Viceroy, besides being nominally the superior of one governor-general, often rules another province himself as governor-general. Attached to the court of the Emperor are certain officers called Censors, whose duty it is to report to the Emperor in cases of misconduct of any of the officials or courtiers.

Such is the government of sixteen of the provinces. The province of Pe-chi-li, being the seat of the Court, is governed in a slightly different manner, so as to bring it more directly under the central government. The province of Liaou-yang, which is beyond the Great Wall of China, but which was enclosed by a palisade soon after the Manchu conquest of China, having been the original seat of the Manchu Government, still retains to a great extent Tatar traditions in its government. In all the other provinces of China the military is subordinate to the civil officer; a general has often to receive instructions from a civilian nominally far his inferior in rank. Here, however, the civil authorities are under the military; here, too, the form of government preserves a record of the national jealousy that existed between the Chinese and Manchu races at their first fusion—a national jealousy which has now entirely disappeared. It is the rule that while all the military mandarins of the province must be of Tatar birth, there shall to each officer be attached a civilian adviser, who shall receive emoluments and rank almost equal to those of his military *confrère*, and that these civilians shall be exclusively Chinese by birth. It is a matter of remark that the province of Liaou-yang is by far the worst governed of the whole empire; and that of Pe-chi-li, though not nearly so bad, is, I believe, worse governed than any of the other provinces.

Having thus given a brief outline of the administrative government of the country, I proceed to describe its *fiscal system*. Taxes were originally raised in the old patriarchal way—the tiller of the ground giving a proportion of his crop to the government. This was soon commuted into a fixed quantity of rice per *mow* or sixth of an acre. At present, this land-tax, or, as it is called, Government Rice-rent, is payable on all land—sometimes in rice forwarded to Peking, and sometimes in money. This land-tax varies according to circumstances, from a few pence in hill-districts to £2 an acre in large towns.

In addition to land-tax, the public revenue receives aid from the government monopoly in salt, and from export and import taxes. When these latter are on trade carried in foreign bottoms, they are collected by the aid of European and American gentlemen in the Chinese service, on the same principles as in western nations; while those on trade carried in native

bottoms are collected by Chinese officials, in a manner more conducive to their own satisfaction than to the profit of the imperial treasury. These import and export duties only clear the goods at the port itself, further duties (called transit dues) having to be paid at barriers erected on the road between the port and the interior. Lastly, there are the war-taxes, collected in various manners, the product of which should in theory be applied to the military defences and expenditure of the province in which they are required. A fixed sum is estimated as being necessary; and, after consultation with the different presidents of the trading-guilds, landed gentry, &c., the authorities decide as to the sum each guild shall pay, leaving the guild the power to raise such sum in what manner it may see fit. The money is generally raised indirectly, by levying a small tax on each sale of goods. This, with the transit taxes, cripples trade very much, and almost annihilates speculation. It has a further injurious effect on the wealth of the country, by subverting the principle of division of labour. Thus a man has, as it were, a premium offered him for growing his own cotton, flax, wheat, sugar, &c. for his own use. Unsatisfactory as the Chinese fiscal system is in a commercial point of view, much may be urged in its favour in a sentimental light. The peasant who is able, with the aid of his family, to support himself independently of any circulating medium is naturally a much more intelligent being than the artisan whose sole qualification is perhaps the perfection with which he makes the thirty-second part of a pin!

Besides these Government taxes, Chinamen in towns have to pay local rates, assessed by local municipal councils, for repairing, lighting the streets, &c. These local rates are generally levied on the principle of a percentage on the rent of the habitation.

While political economists may deplore the backwardness of the Chinese fiscal system, I think jurists will be absolutely startled at hearing that a nation of nearly 400 millions has existed hitherto quite happily without any Civil Code whatever. I deem it very probable, however, from the attention the government is now bestowing on the civil laws of European nations, that this defect will soon be remedied. Meanwhile the want of a civil code is supplied in three manners: first, by imperial edicts; secondly, by custom and the sayings of the sages; and, thirdly, by the criminal law. With regard to imperial edicts, the Government at Peking publishes daily a *Gazette*, containing lists of promotions, appointments, memorials to the throne, national news, and imperial edicts or ukases. These gazettes often contain imperial decisions with regard to complicated civil cases, and form precedents highly useful though by no means servilely followed. Edicts, too, are sometimes repealed by edict, and are

sometimes allowed to become obsolete. Local custom obtains much more force in China than it does in our courts; the usual manner of conducting trade would be more taken into consideration than the letter of written documents, while ancient sayings and wise saws go far in modifying a legal decision.

Much is said concerning the barbarous nature of the Chinese Criminal Code, the torture of witnesses, and the like. Without reminding ourselves that it is not long since we did the same, I shall briefly touch upon the practice of putting witnesses to the question. With Asiatics verbal truth is hardly recognized as a virtue, while fidelity to one's friend, clan, or guild is regarded; consequently giving false evidence in court is so universal that it is impossible to attempt to punish for perjury except on the spot. Again, it is difficult to obtain witnesses, not because they fear the torture in court, but that they are afraid of the vengeance of somebody who may fancy himself injured by their testimony. Moreover no amount of evidence is sufficient to convict a man unless he himself confesses his guilt. Hence, when a case is clearly made out, torture is resorted to in order to make him confess and thus fulfil the requirements of the law.

Though, nominally, in China there are no such things as Court-fees or hired advocates, yet the necessary bribes and presents make a Chinese law-suit as expensive a luxury as it is in England; and this, combined with the absence of civil laws, renders the judgment in any given case almost as uncertain as the multiplicity of our civil laws makes it in our own country.

To obtain an appointment under Government, it is necessary that the candidate should have passed with success several competitive examinations. There are four principal degrees, *Han-lin, Chin-sze, Chu-jen,* and *Hsiu-ts'ai.* A fixed number of these degrees are allotted to the Chinese, and are called *civil* degrees, and a fixed number to the Tatars, and called *military* degrees. The lowest degree is competed for at the prefectural town, the next at the provincial capital, and the two highest at Peking. A fixed number of the lowest degrees are allowed to each province. Every precaution is taken to ensure fair examination. After obtaining a literary degree, the candidate has to exert his influence in order to obtain a nomination to purchase a civil official post. Of course, the higher his literary attainments, the less interest he requires to obtain this nomination. Having secured this, he has no difficulty in borrowing the necessary money from his friends—either relatives who are glad to pay for the honour of having their kinsman in a government post, or speculative money-lenders who expect an exorbitant interest. The amount of the government purchase is enormous; and when in-

creased by the sums which it is customary for the new officer to give to his immediate superiors, the total is something astounding. Men of great family influence, very distinguished scholars, and those who have performed highly meritorious actions, often receive appointments without purchase.

Military appointments are given without purchase and irrespective of literary attainments, and are obtained either by interest or by merit. Men whose fathers are professional thieves, beggars, slaves, actors, executioners, brothel-keepers, or barbers are theoretically not eligible for government employment. The inhibition relates only to the first generation. This, so far as I know, is, with a single exception, the only symptom of caste in the empire*.

Mutual dependence of man on man is, in China, carried so far that even thieves and beggars have their trade-unions, with boards of management to whom they give an implicit obedience. This system of almost communism, combined with the generosity of Chinamen towards their relatives, renders, in times of prosperity, pauperism an unknown thing, and crime (especially of the violent kind) exceedingly rare. In times of adversity, however, it is very different. Each trade-union can naturally aid only the members of its own body. Famine and drought sometimes leave certain villages without any resource but that of plunder; and those who have been plundered have no other means of indemnifying themselves for the loss they have sustained than by exercising a similar violence on others; hence the disordered state of the empire, since the Government has not always the monetary resources to relieve the distress as it arises, nor the military means to suppress the consequence of that distress. In this respect, our foreign trade has not been an unmixed blessing. Thousands of Chinamen were thrown out of employment by the introduction of foreign vessels. One may reckon that for every 100 tons of foreign shipping employed on the China coast, 30 Chinese were deprived of their means of living, and that half of them so deprived became robbers or insurgents. The introduction of railways into China would

* The exception to which I allude, is formed by a class of people called the *To-pi*, or "lazy people." These people are not, as is generally believed, of Chinese race. Some legends state that they are of Mongol extraction. They exist in the province of Chê-kiang, and may only be barbers, servants, actors, &c. They are obliged even to button their dresses in a different way from those who have the birthright of freedom. They are forbidden to marry with respectable people; and any one taking a wife from them is for ever polluted, and becomes as one of them. Still this disqualification of the To-pi holds good only in the Chê-kiang province; for when they have crossed into other provinces they can merge into respectable citizens.

create far greater distress; and I conscientiously believe that the Chinese government is not as yet capable of coping with the complications and difficulties which *too sudden* an introduction of railways would occasion. Emigration to the rice-fields of South America, and to the unoccupied lands in Africa and Australia, together with a good military organization, will, I believe, eventually solve the question. The fear of such sudden distress makes the Government averse to encouraging any scheme which involves taking a body of men away from the influence of their family, and placing them in any position where a temporary distress might render them desperate; hence the discouragement which the Government always shows to working mines, and to other enterprises which would vastly increase the national wealth. Hence, too, the Government shows great readiness to appease popular fury by the sacrifice of an officer who has given umbrage to the people.

We have thus seen that the sphere of the executive is much limited by municipal councils, guilds, and trade-unions, and that the officers of the Government are often prevented from giving effect to arbitrary and unjust measures by the dread of popular resentment. Great as these checks are on the autocracy of the authorities, a still greater exists in the closeness of family ties, the enormous power of the head of the household, the willingness with which his dictates are obeyed by his relatives and dependents, and the readiness with which members of the same family assist each other. The clannish feeling is so strong that a wealthy man, instead of hoarding his money, or spending it in pleasure, takes a pride in maintaining, in various degrees of dependence and subserviency, a number of followers. Every shop supports a far greater number of a family than in England we should imagine possible; and from the highest guild down to the lowest trade-union, family interest is required to get a man admission as a member. The head of the family is not necessarily what we should call the representative of the house genealogically; he is often a cadet who has retrieved the house's fortune, and to whom his elder has voluntarily yielded the precedence. Cadets, too, often leave their own family, and form a branch family that may in power eclipse the family from which it has sprung; but however rich and powerful such cadet may be, and to however low a state the elder may have fallen (provided there has been no crime or disgrace connected with the affair), the cadet will always verbally treat his elder as a superior. In China there exists a system which, I believe, is peculiar to that country—a system of keeping a *Chia-pu*, or Family Register, in which are entered the names of every member, and a short account of their lives. Some of these registers

extend to a thousand volumes; but they are guarded with such secrecy that few Europeans, even those well acquainted with the Chinese character, know of their existence. In published translations of Chinese novels, the word *Chia-pu* has been misunderstood. I was very anxious to send an account of these Chia-pu to the Paris Exhibition of 1867, and to place in the Chinese model house an imitation Chia-pu; but no inducement that I offered could prevail on any Chinaman to let me have a sight of one.

If a member of a family has disgraced himself, a family conclave is held; and if after repeated warnings there seems no hope of amendment, his name is solemnly erased from the family register, and the motives of his punishment duly recorded. From this time forth, he is an outcast, can get no respectable employment, and has either to emigrate, live a life of crime or mendicancy, become a Buddhist priest, or be converted to Christianity. If his after-life retrieves his character, he is often readmitted into the family.

Connected with family influence is the position of women. It is a common mistake regarding this subject to suppose that women are considered in China mere animals. Nothing, in fact, can be further from the truth. Marriage is fenced about by ceremonies and observances more stringent and minute than it is in European countries; and though a man is allowed nominally to have as many concubines as he pleases, he is allowed only one wife, properly speaking. To this wife he is generally married at the age of sixteen; and the alliance is usually concluded by the parents of the young people through the means of a professional matrimonial agent. Theoretically a man has full power over his wife; practically she has a father and big brothers who will not allow her to be ill used. By law, daughters of men who have attained the lowest literary grade can only be first wives; but this law is often evaded. The first betrothal consists of the reception by the family of the bride of a present from the family of the bridegroom; but on the ceremony of marriage a large trousseau and dowry are generally given to the bride. The husband does not usually interfere with this dowry: moreover, at the wife's death, her wishes as regards the bestowal of her dowry generally receive attention. It is disgraceful for a wife to marry a second time; a concubine, on the other hand, is generally a purchased slave, and she incurs no disgrace in uniting herself to another master, either after the death of her first master or after her divorce from him. The punishment of a wife for adultery is far more severe than that of a concubine for the same crime. Again, husband and wife mutually worship each other's ancestors.

Another curious fact with regard to women in China is that the law compels a father or slave-owner to provide a husband or husband master for his daughter or female slave before she arrives at the age of twenty-one years, unless the girl goes before a magistrate and declares that she prefers a life of celibacy. Girls frequently do this, being moved thereto either by religious motives of Buddhist asceticism, or by believing that in thus doing what they call *Haoh-shih* (or work of supererogation), they may bring down the blessing of Heaven on their friends, or, finally, in order that they may live with their parents and be a succour to them in their old age. Hence, if we except Buddhist nuns, old maids are unknown in the country.

The concubines, as before stated, are generally purchased slaves; but slavery is not confined to them. The condition of a slave is modified, first by the fact of the absence of caste in China, secondly by the slave and master belonging to the same race, and thirdly by the natural good temper of the Chinese people. The household drudges of a great family are generally slaves, and in most cases identify themselves with the interests of their master's family, living with them on terms of great intimacy. Field-labourers are sometimes slaves. Occasionally a childless man purchases a boy to adopt as his son in order to have some one who will sacrifice to his spirit after death. Slaves are generally treated kindly; and the institution of slavery acts as a great preventive of infanticide. Connected with slavery, I may be allowed to mention a curious episode which came under my own observation. In the course of my official work it became my duty to prosecute an Englishman for extorting money by means of threats of violence from a poor Chinese family. As collateral evidence I brought before the Court a pawn-ticket of the same date as the alleged offence, worded in Chinese as follows:

Counterfoil in hands of Pawnbroker.

FOO-SHENG PAWNSHOP.

June 14th, 1868.

Article Pawned	Young girl, 5 years old.
Amount advanced	7 dollars.
Conditions	Money to be repaid within three months, or property to vest in pawnbroker. Child's maintenance to be paid by borrowers of the money.

The mother of the family had pawned her own child to obtain the money needful to satisfy the extortion of the Englishman.

The Chinese are in general a kindly-disposed people, as is

proved by the great number of their Benevolent Institutions. Among the chief of these is the Government plan of disseminating a long moral work called the Sacred Edict, which is an ethical discourse on the five cardinal duties between children and parents, husband and wife, senior and junior relatives, friend and friend, people and government. By law, this Sacred Edict has to be read once a year to all the subjects of the empire. Again, Chinese gentry often subscribe towards printing and disseminating, as advertisements, exhortations to the people to lead a moral and virtuous life. Buddhists have a regular Tract Society, for inculcating their tenets.

At Peking some of the empty granaries are put at the disposal of beggars and the extreme poor as gratuitous lodgings. In times of famine, the Chinese Government distributes rice gratuitously. Soup-kitchens are established, and benevolent merchants and gentry associate to sell food to the poor at cost price. In times of plague, Government and private individuals give free theatrical representations and displays of fireworks to the people, in order to distract their minds. At Pakwan and many other places there are free schools. At Hangchow, there is a hospital for the blind and infirm, with their families, containing 2000 inmates, with a staff of forty medical men who give gratuitous advice and medicine. Free lodging is given; but the patients are provided with light work in order to pay for their own food. Societies for the prevention of infanticide are common all over the empire. These societies both issue good books and establish foundling hospitals, where the children of the poor are received. Another institution common to the empire, with local committees and managing boards, is that for the burial of the uncoffined dead.

It is notable that there exists a society for collecting waste paper on which there are any written characters. The Chinese in their reverence for literature have a superstitious respect for any thing containing writing. Hence, in every town which I have visited, there are little boxes, above which is written a request to the passer-by, asking him to deposit in it any waste paper that he may be possessed of, bearing written characters, in order to avoid the literature being trampled in the dust. The Chinese avoid using printed paper as wrappers. Again, during the late war the Government being greatly straitened for money on account both of the Tai-ping war and of our expedition, were urged to the resource of greatly depreciating the coinage, and issued a quantity of iron cash, which, however, the people refused to receive, and threw away in quantities. As on each coin four characters were engraved, a benevolent association started into existence and paid for their collection, in

order to prevent their being trodden in the mud, and thus got together many cartloads of them, which they afterwards melted into a monument to commemorate the event.

The Chinese *Religion* shows signs of antiquity similar to those already seen in its language, government, and institutions. The worship of ancestors, and the deification of national heroes constitute the religion of all classes. With regard to ancestral worship, there are evidences to prove that at one time there was human sacrifice to the manes of the departed. From early times, figures made of wicker and covered with painted paper were substituted, and are still in use over the empire, being burnt at funeral obsequies, with similar images representing horses, mules, carriages, &c. These are supposed to afford attendants to the deceased, suited to his rank in the next world; and gilt and silvered paper made up in the form of specie (i. e. shoes of sycee) being burnt in a similar manner, are supposed to give him the means of keeping up state, bribing the infernal judges, and so forth. Among the more intelligent natives of the present day these usages are practised only because dictated by all-powerful custom; while the ignorant still believe in their efficacy. Again, the Chinese believe that all disease is caused by maleficent spirits of departed men, who, having no posterity to offer sacrifices, and yet possessing the same need of food as when sojourners on earth, are compelled, vampyre-like, to prey upon the health of the living. Hence the Chinese have instituted a yearly service called the *Foo-ying-k'ow*, or "appeasing the burning mouths."

Confucianism, commonly called a religion, is in reality merely a system of ethics. The grand master, chief of conservatives, would not interfere with the religion sanctioned by custom; and as his mind was too intelligent to believe in its fables, he carefully abstained from discussing them in his precepts, though invariably adopting the customary rites in his practice.

Buddhism, which has a greater power to adapt itself to circumstances than even Roman Catholicism, has, instead of trying to make a *tabula rasa* of former creeds, simply reared a superstructure, and only endeavoured to engraft its legends, morals, and philosophy on the ancient stock; hence, in a measure, its great success. Its hard dogmas are not preached to any but the adepts. To the ignorant, a material heaven and hell is spoken of, the latter with all the apparatus of torture used in the Chinese prisons. Nor in this matter are mere words employed: in many of the Buddhist temples are rooms with painted figures representing the punishment of the wicked in the next world. Pictures of these are sold, and, coming to England under the name of "Chinese punishments," have tended,

more than any thing else, to disseminate the idea that the Chinese are a cruel people.

Mahomedanism and Christianity, by demanding a renunciation of superstitious practices dear to the Chinese, have had as yet only a limited influence. But it may be observed that, underlying all belief in a multiplicity of gods and deified heroes, there has ever been a notion, more or less vague, of a Supreme Being (*T'ien*), who, when made a subject of thought, has been sometimes confounded with nature, but sometimes also regarded as a personal being—a hearer and answerer of prayer.

So much for the past and present of the Chinese people. It is not difficult to prophesy their future. Inch by inch they are disputing possession of new worlds with the Anglo-saxon race. Their industry, economy, and, above all, their clannishness make them formidable competitors with us in the labour-market. Probably this competition will end in a compromise. John Chinaman will occupy to himself the torrid regions, but will be found utterly unsuited to work in cold climates—not from lack of industry, but from lack of energy. The frigid zones will, I think, be monopolized by the Saxon race, who have plenty of energy, perseverance, and endurance, but not so much patience as is possessed by the Chinese.

APPENDIX.

I. On Chinese Mythological and Legendary History.

Native legends state that in the beginning of the world China was governed for several millions of years by a great number of princes. The first was Pan-ku, or Huen-tun, the Chinese first man. Then came the Tien-Hwang, or Celestial King, with thirteen successors, each of whom reigned 18,000 years. These were followed by the Ti-Hwang, or Earthly King, with eleven successors, each of whom reigned 18,000 years. Next came Jen-Hwang, or Human King, with nine successors, reigning, some say, 1,100,760 years, whilst others say 90,000. After the Jen-Hwang and his successors came the Emperor Yu-chao (the name signifying "he that hath a nest"). In his time men were in a stage of savagery, eating fruits and raw animal food. Yu-chao taught them to make huts of the branches of trees and of leaves. The next Emperor, Sui-jên (or "fire-by-friction man"), observed in hut-building that wood was combustible, and taught men to cook their food, instead of eating it raw; he also taught them a system of writing by tying knots in string at different distances. The lengths of the reign of Yu-chao and Sui-jên are, as may be expected, a disputed point. Next came Fo-hi, who is said to have invented the

Pa-kwa (or eight symbols) previously given (p. 5), to have discovered the existence and use of metals and also of musical instruments, to have instituted marriage, to have divided the Chinese into one hundred family-names, to have forbidden marriages between persons of the same family-name (a law which still exists), and to have invented a system of chronology of cycles of sixty years—a system even now existing among the Chinese: a key to this system, made by myself, and a comparative table with the Christian era, compiled by Mr. Mayers, will be found in Appendix II. But the most wonderful work attributed to Fo-hi was the design for a written language—namely, that all writing should be composed of a picture of Sui-jên's knotted string and his own eight symbols, and that they should be formed according to six rules coinciding with the six divisions into which, as I have stated, the Chinese divided their written characters.

With Fo-hi commences exactitude of dates; thus Fo-hi is said to have reigned from 2953 to 2838 B.C., or 115 years, commencing from 4822 years ago. Fo-hi also instituted religious ceremonies, such as sacrifices, and extended the Chinese dominion from Shansi to Honan and Shantung. After Fo-hi came Yenti or Shen-nung; he set apart peculiar places for sacrifice, removed the capital to Shantung, instituted the use of wheat, rice, peas, &c., and discovered what plants were poisonous and their antidotes. In his reign first arose rebellions and wars, and he accordingly demanded military service from his subjects. He is said to have reigned from 2838 to 2698 B.C., or 140 years, and was finally deposed by Hsien-yuan, also called Hwang-ti and Yew-hsiung, whose acts were as follow:—the invention, by a subject, of 540 characters made in the form of bird's claws, and of other characters called the "tadpole-head characters;" the institution of punishment by public decapitation; the invention of brick-making; the building temples and palaces; the use of bows, arrows, military standards, &c.; the invention of a new musical instrument; and the discovery of copper. In his reign, silk-weaving and textile fabrics were introduced, as also the use of carts and carriages on rollers. He established a tribunal of historians—some to write down facts, and others to report speeches. He divided the then existing empire into *chow* of 360,000 families; each chow comprised 10 *sze* of 36,000 families each, each sze 10 *tu* of 3600 families, each *tu* 10 *y* of 360 families, each y 5 *li* of 72 families, each li 3 *pong* of 24 families, and each pong 3 *lin* of 8 families. His astronomers discovered the fact that 19 solar years contained 235 lunar months. In his time state-robes were first used. After a reign of 100 years (2698 B.C. to 2598 B.C.), he was succeeded by his son

Shao-hao, who is said to have instituted the present prevailing custom that civil mandarins should wear on their dress the figure of a bird, and military mandarins that of a beast: the practice of sorcery and magic commenced in this reign. Shao-hao reigned 84 years (2598 B.C. to 2514 B.C.), and was succeeded by Chwan-hū, a grandson of Hwang-ti, who reigned 78 years, from 2514 to 2437 B.C. The only thing important to note in this reign is that it is said that the existing custom that makes the Emperor the intermedium between heaven and the people was now first introduced. To him succeeded Ti-ku, or Kao-sin, grandson of Shao-hao, and great-grandson of Hwang-ti. It was he who first established public colleges: he reigned 70 years, from 2437 to 2367 B.C. Poems said to have been written in his reign are preserved in Chinese classics. After Kao-sin succeeded Ti-chih, who reigned 9 years, 2367 to 2358, after whom came Yao*, who was a son of Kao-sin: born ten months after the death of the father, by an immaculate conception, he was exposed on the mountain by his mother, who feared a charge of incontinence; but he was spared, nay, succoured, by the wild animals of the forest.

Chinese history up to this time I imagine to be mythologic, an attempt as it were to account for the existence of the human race generally—though of course occasional traits of national ideosyncrasy show themselves, and national pride has fixed upon known localities as the theatre of the different events said to have occurred. It is for others, better acquainted than I am with the early myths of mankind, to state whether any analogy can be found between these myths and those of other nations.

We now come to the Chinese legendary history:—Yao from 2357 to 2255, Shun from 2255 to 2205, and Yu from 2205 to 2197—a period in all of 160 years. To other previous emperors, Chinese history had ascribed the invention of nearly all the great material appliances and customs in use up to the time of Confucius. While, therefore, history preceding the time of Yao describes the deeds of rulers, after Yao to Yu we have instead of deeds their moral discourses. There is a notable exception to this rule in the fact that to Yao, Shun, and Yu (especially the latter) is ascribed the clearing of the primæval forest of Shan-hsi, Shen-hsi, and Honan to as far south as Shao-hsing in the province of Chê-kiang. Now,

* Other chronologists give:—

Fo-hi	B.C. 2852–2737	Kao-sin	B.C. 2435–2365
Shên-nung	B.C. 2737–2697	Ti-chih	B.C. 2365–2357
Hsien-yuan	B.C. 2697–2597	Yao	B.C. 2357–2255
Shao-hao	B.C. 2597–2513	Shun	B.C. 2255–2205
Chwan-hū	B.C. 2513–2435		

though we may not credit all that Chinese historians have said of Yu, and though works which must necessarily have occupied many centuries are by the Chinese said to have been executed in the reigns of Yao, Shun, and Yu, yet the existence of Yu is an undoubted fact. An inscription containing his very words, and probably also the *fac simile* of the characters in which those words were written, is still existing; but it is a noteworthy fact that the mountains therein mentioned as the scene of his labours are all in Shan-hsi, a province in the north-west of China, bordering upon Artous Mongolia, anciently called Serica. These four mountains are situated between 40° and 32° N. lat., and 108° and 114° E. long. We may therefore reasonably conclude that the colonization of the southern provinces and the clearing of the primæval forests were effected after the time of Yu. Two things are worth mentioning—one being that before the time of Yu the monarchy was elective. Yu, however, was the founder of the first Chinese dynasty; and nineteen of his descendants sat on the throne. Again, after the time of Yu we have no account of kings living and reigning beyond the number of years that modern experience shows to be probable. Close upon Yu's time, too, was the first eclipse recorded by the Chinese, viz. that which took place B.C. 2127.

From these records I think we may not unreasonably make the following hypotheses:—First, at some time before 2300 B.C. colonists with some civilization, such as the art of writing in a rudimentary form, existed or came to the north-west of China; and, secondly, these colonists were not in a sufficiently civilized state to preserve any records or even legends available for historic uses earlier than the time of Yu, say 2250 B.C., at which date they must have been a long time in the country, as no legends are in existence showing how they first arrived. If we allow that the human race is of a common origin, it is an interesting problem to determine when the Chinese first separated from the common stock, and whether the Tolboth Beni Noah throws any light on the subject. While we take lat. 40° and long. 108° as the principal point of ingress of the Chinese race into their present country, we must remember that it is probably not the only point of ingress, but it is in all likelihood the most ancient, and the only one where we can fix an approximate date, viz. from B.C. 2800 to B.C. 2300.

II. On Chinese Time.

(Yih Chow.)
A cycle of sixty years.

Ten Heavenly Characters.

甲 乙 丙 丁 戊 己 庚 辛 壬 癸
a* b c d e f g h i j

Twelve Earthly Characters.

子 丑 寅 卯 辰 巳 午 未 申 酉 戌 亥
k l m n o p q r s t u v

Year of Cycle.	Year of Cycle.	Year of Cycle.	Year of Cycle.	Year of Cycle.	Year of Cycle.	Year of Cycle.
1 a k	11 a u	21 a s	31 a q	41 a o	51 a m	1 a k
2 b l	12 b v	22 b t	32 b r	42 b p	52 b n	
3 c m	13 c k	23 c u	33 c s	43 c q	53 c o	
4 d n	14 d l	24 d v	34 d t	44 d r	54 d p	
5 e o	15 e m	25 e k	35 e u	45 e s	55 e q	
6 f p	16 f n	26 f l	36 f v	46 f t	56 f r	
7 g q	17 g o	27 g m	37 g k	47 g u	57 g s	
8 h r	18 h p	28 h n	38 h l	48 h v	58 h t	
9 i s	19 i q	29 i o	39 i m	49 i k	59 i u	
10 j t	20 j r	30 j p	40 j n	50 j l	60 j v	

Supposing the system of cycles to have existed in 4004 B.C. (which it did not†), that year would have been the fourteenth of the cycle; thence it is easy to find out any date, as the first year of the cycle would fall as follows:—

Female.	Male and Female.	Male and Female in conjunction.	No Gender.	Male.
B.C. 4017	3957	3897	3837	3777
3717	3657	3597	3537	3477
3417	3357	3297	3237	3177
3117	3057	2997	2937	2877
2817	2757	2697	2637	2577
2517	2457	2397	2337	2277
2217	2157	2097	2037*	1977
1917	1857	1797	1737	1677
1617	1557	1497	1437	1377
1317	1257	1197	1137*	1077
1017	957	897	837	777
717	657	597	537	477
417	357	297	237	177
117	57	A.D. 4		

* The letters are given only to denote the order.

† Either 2037 B.C. or 1737 B.C. was probably the commencement of the Cycle.

The year 1 A.D. is the fifty-eighth year of cycle; the first year falls as follows:—

Male and female in conjunction.	No Gender.	Male.	Female.	Male and Female.	
A.D. 4	64	124	184	244	By denoting gender of cycle of 60 years the Chinese educe a cycle of 300 years.
304	364	424	484	544	
604	664	724	784	844	
904	964	1024	1084	1144	
1204	1264	1324	1384	1444	
1504	1564	1624	1684	1744	
1804	1864	1924	1984	2044	

The present year, 1870, is consequently the seventh year of cycle without gender. It is interesting to observe that in the cycle in Tibet, 1870 is the fifth, not the seventh year of cycle; that is, a discrepancy of two years has crept in between the Chinese and Tibetan cycles.

Key to Animal identified with years of Cycle, or Cycle of twelve years.

1	13	25	37	49	year of cycle,	a	mouse.
2	14	26	38	50	„	„	ox.
3	15	27	39	51	„	„	tiger.
4	16	28	40	52	„	„	hare.
5	17	29	41	53	„	„	dragon.
6	18	30	42	54	„	„	serpent.
7	19	31	43	55	„	„	horse.
8	20	32	44	56	„	„	sheep.
9	21	33	45	57	„	„	ape.
10	22	34	46	58	„	„	bird.
11	23	35	47	59	„	„	dog.
12	24	36	48	60	„	„	hog.

Having thus mentioned the formation of cycles, I proceed to the formation of the year. This consists, in China, of twelve lunar months of alternately, or nearly alternately, twenty-nine and thirty days; hence new moon always falls on the 1st of the month, and full moon on the 15th or 16th. To approximate lunar to solar time, seven intercalary months are added in the course of nineteen years. The month is divided into three periods—the first ten days, second ten days, third nine or ten days according to the length of the month. The division of time into weeks of seven days is unknown in China. It is evident, from what I have stated above, that 235 lunar months make nearly nineteen years; hence the Chinese have 235 astronomical names of months, which names are used in judicial astrology, and form two of the eight characters exchanged in the ceremony of marriage.

DISCUSSION.

THE PRESIDENT referred to the similarity between certain Chinese customs and those of the Polynesians, such as the exclusion of a word occurring in the name of a great chief. In like manner, the prohibition of marriage between persons of the same surname is a custom common to the Chinese and the Australians. He alluded to the popular but erroneous notion that the Chinese were physically identical with the Mongols, and pointed to the fact that although both had long black hair on the head, and only scanty hair on the face, yet the Chinese had a long skull, with fairly developed brow-ridges, whilst the Central Asiatic had a broad skull deficient in brow-ridges.

Capt. SHERARD OSBORNE, R.N., said that he was not competent to pass an opinion upon any of the points alluded to in the paper beyond that of the social organization of the Chinese people. On that point Mr. Gardner's paper appeared to him a very perfect photograph of the condition of a race that had attempted to extend the patriarchal and parental system, which serves to control a family, to the government of 400 millions of people. That it was a success he disputed, though it might be interesting and strange. The Chinese systems of education, morality, and government were incapable of meeting the wants of to-day, or of securing the progression and happiness of that mighty people in their inevitable contact with European civilization. Mr. Gardner bore somewhat hard on the effect which contact with a superior civilization had produced on the condition of the Chinese race, and had depreciated that progress which was as inevitable as it was good. Capt. Osborne joined issue with him there. Chinese civilization and self-government were of themselves incapable of progress beyond a certain point, which seemed to be reached about every 200 years, when there was a general upheaving of the masses, horrible rebellions, and frightful destruction of human beings. Then the land relapsed into a state of torpor, and peace reigned again in China. Such had been her past history. The remedy for this was, no doubt, *Emigration*; but whence came that new institution? When the speaker first went to China, thirty years ago, it was death by the laws of the country for the poorest creature to emigrate. They are wiser now; but thanks to whom? why, to European example and English pressure. So with all else we offer them. The steamship they have already accepted. The railway and engineering talent of Europe is just what China now most needs. They are excellent in all that they have put their hand to, and the speaker knew no limit to what the people, unhampered by their wretched government and laws, were capable of becoming. In front of them, across the Pacific, lay land whither they were going in tens of thousands. Around them on every side were countries wild and hostile, which they had already colonized or would shortly. As colonists their powers of self-government, and the ease with which they formed petty organizations, were, in such wild lands as Borneo and Malaya, a great advantage against the idle and hostile races which they were superseding. It was there, as compared with wild

Malays and savage Dyaks, that the Chinese system of government shone; but it would not bear comparison with even the worst of European rule for large communities in modern days.

It had been said that the introduction of railways near Shangai would throw thousands of Chinamen out of employ, and perhaps drive them to become mere banditti; but Capt. Osborne replied by referring to the great inundations of the Yellow River, through which it had been computed that many millions of Chinese had been either starved or driven to beggary. European engineering skill, if introduced, would probably have averted these inundations, and would thus have saved all these unfortunate beings.

Mr. Rowland Hamilton, in reference to Capt. Osborne's remarks that the rebellions of the Chinese were caused by the want of any means of subsistence being found for the people in case of any great catastrophe, stated that, in 1859, one of the worst of the rebellions (that of the so-called Nienfi, who ravaged Shantung specially) was understood to have arisen from the abandonment of the works to retain the Hwang-Ho after they had been carried away by a great inundation. Some 30,000 people were then said to have been thus thrown out of employment; and no other means of gaining a subsistence were open to them, nor were there any imperial or provincial resources applicable to meeting so great an evil: hence the wretched people had no other means of saving their lives than by plundering the neighbouring cities. He believed that two great evils in China were the want of a "Poor Law," and inadequate taxation. For any great disaster beyond the power of private or local benevolence, there were no means of remedy provided by the law; and as regarded taxation, though no doubt the people paid heavily, yet no adequate amount ever came to the general or imperial treasury.

The moral state of the people showed a marked coincidence with this social condition. The feeling of fidelity to the village or guild was very strong; but the conscience of the people did not rise to the perception of their higher duties to the state or to its courts of law. With a vast extent of empire, showing many excellencies in detail, there was no power, moral or material, to meet great difficulties or to bring imperial resources to meet imperial necessities.

The Rev. Prof. Summers expressed his opinion that if the language of China were viewed apart from the written characters by which it was expressed, and then compared with the languages of the neighbouring nations, some common points of resemblance would be discovered, especially in the construction of phrases and sentences, as well as in the forms of words and idioms. The Chinese language was more worthy of the attention of the philologist than it was generally deemed to be; and in this opinion the speaker was borne out by the assertion of a very learned Sanskrit scholar, who believed that Chinese should form the basis and starting-point of philological study. With regard to the similarity of constructions, be found resemblances between the Chinese and Tibetan, and even the Sanskrit.

Mr. HYDE CLARKE said he felt bound to differ from his friend Mr. Hunter as to the hypothesis that the Chinese is the original language from which the Aryan languages have been practically derived. It was necessary to be particularly cautious in drawing conclusions of this kind; for there is no language which will not offer suggestions of similarity with others. His learned friend Prof. Summers had naturally referred to those which he had found between Chinese and the Aryan languages. He himself had found remarkable coincidences between Osmanli Turkish and English; but no one could suppose that either language had exercised an influence on the other in these details.

Mr. Gardner had referred in his paper to an interesting subject—the relation of the Chinese characters to those of the other ancient nations; and he might have added examples from the cuneiform, thus extending the field of relationship. At the same time the propagation and distribution of ideographic and phonetic signs have no necessary connexion with any affinity of language as between the Chinese and any other stock; nor do they justify the impression that the Chinese were the inventors, since they perhaps received them from another and an earlier race. On the other hand, they do not prove that ideographic writing was obtained by all the nations at one common centre, because the earlier systems of writing were most likely propagated from nation to nation, as at a later period the Phœnician alphabet is said by tradition to have been communicated by Cadmus to the Greeks. The distribution of the system of writing is a comparatively late ethnological phenomenon, one much posterior to that of any community of language.

The President had referred to illustrations of corresponding facts to those adduced by Mr. Gardner; and such must be familiar to all of them. He had witnessed many such instances on the other side of Asia; and even details like the applications of names and the influence of women had their parallel in the Osmanli and other eastern empires. We had a recent instance of the literary name in the case of our visitor, the late Fuad Pasha, Fuad being the literary name. Such illustrations might be multiplied. While making this observation, which goes chiefly to this extent—that a similar state of society, or of circumstances, will often bring about similar institutions, it must nevertheless be borne in mind, as a practical result of ethnological teaching, that the government of a country must be conducted in relation to the habits and customs of the natives. In this respect such researches as those of Mr. Gardner, and the discussions which they receive at the hands of men of science, are of particular value in their bearing on the art of government, and in our diplomatic and commercial relations with various races. Of this influence the Government of India is showing evidence, and the exertions of Mr. Hunter, Mr. Gardner, and others, all contribute to a better understanding.

Mr. Clarke remarked that he had observed linguistic affinities between the languages of the Sôurs and the Thugs of India and those of the Koriaks, &c., and also between those of the Japanese and

Loo-Chooans and the Tamil group. If these be true, then the Chinese, as intrusive on their intervening area, will be later in time, and their descent from the Tibeto-Chinese centre comparatively late, and perhaps within the historic period. In such case they may have inherited the civilization of earlier occupants. They would occupy in China a position corresponding to that of the Aryans in India.

Ordinary Meeting, November 23rd, 1869.

Professor Huxley, LL.D., F.R.S., *President, in the Chair.*

New Member.—Major-General Alexander Cunningham.

Dr. Leitner exhibited a portion of his collection of objects of ethnological interest from Dardistan and Tibet. He then made a verbal communication on the Dards, of which the following is an abstract:—

III. *On the* Races *and* Languages *of* Dardistan.
By Dr. G. W. Leitner, M.A.

The author commenced by giving an account of his tour in 1866, which extended from the beginning of May to the last week in October. During this period he passed through Lahul, Zanskar, Ladak, Little Tibet, Kashmir, Astor, and Ghilghit. Finding the ordinary passes closed, he discovered with much difficulty a passage into Ladak through Lahul and Zanskar by crossing the Shingûn and Marang, instead of by following the usual route by the Bara-lacha and the Lacha-lung. He thus reached Ladak in the middle of May, one month before the arrival of the post, and long before the passes are considered open.

In visiting the Abbot of Pugdal in Zanskar, Dr. Leitner found him willing to undertake the safe conveyance of any European to and from Lassa. It was in the huge cavern-monastery of Pugdal that the Hungarian, Csoma de Cörös, spent five years as a lama in order to learn Tibetan. Among the good effects of his life here, may be mentioned the abolition of the use of the prayer-wheel.

Dr. Leitner referred to the exertions of the Maharajah of Kashmir in promoting the advance of Hindooism, a fact opposed to the general idea that this faith is never proselytizing. During this tour the author discovered a people called the Brokhpá, of pure Aryan origin and traditions, living side by side with the Tibetans.

As the Maharajah of Kashmir held some Chilasi prisoners, it was considered by the Punjab Government that the services of

Dr. Leitner, when in Kashmir, might be utilized for the purpose of collecting information regarding these people. It was suggested that there might be some connexion between Chilas and the Kaylus or Olympus of the Hindoo gods. Failing, however, to obtain the required information in Kashmir, Dr. Leitner felt it to be his duty to cross the frontier, although the country was then engaged in war with Kashmir. He accordingly advanced to Ghilghit, thus going four marches beyond the furthest point previously attained by any European traveller. In this way he dispelled the illusion regarding the inaccessibility of Dardistan, or the country lying between Khagan and the Hindoo-Koosh. The Dards inhabiting this country were previously regarded as a ferocious people, and even as cannibals. They are a remnant of an ancient and pure Aryan race; and their languages were probably spoken long before Sanskrit was developed into the language of literature.

A great exception, however, is to be found in the Khajunah (the language spoken by the people of Hunza and Nagyr), which apparently bears no resemblance to any other known language. The only attempt at inflection consists in certain prefixed gutturals. It would seem, however, that the verb *to be* resembles an Aryan form; but it may have been introduced at a late period. The Hunza people speaking this language are known as the mountain-robbers of Kunjut.

Although the Dards have no written character, they have preserved orally, in songs and stories, some most interesting fragments of history and mythology. Dr. Leitner concluded by reading a Dardu legend which he had committed to writing, and which professed to give an historical account of the origin of Ghilghit. In this legend it was stated that a race, believed to be aborigines, were once ruled over by a monster who indulged in cannibalism. At a certain time three fairies appeared on a mountain, and ultimately delivered Ghilghit from the oppressor. After his death, an annual festival was held in commemoration of the deliverance.

DISCUSSION.

The PRESIDENT inquired as to the physical characters of the Siah-pôsh Kafirs, who had been described as a fair-haired, blue-eyed people. The author replied that they were certainly fairer than the Kashmirs, and that one of the Kafir youths who stayed with him had blue eyes.

Mr. TRELAWNY SAUNDERS was desirous of obtaining some information on the natural conditions of these Ghilghit valleys, especially of the north-eastern branch, including Hunza and Nagar or Nagayr. The latter valley was often alluded to by the name of Kunjut, especially with reference to the depredations made by its people upon

caravans trading to Yarkand from Badakshan on the west and Ladak on the south.

It is remarkable that, although Kunjut is surrounded by peaks 25,000 feet in height, it is occupied by a permanent population; while at the same time the adjoining valleys on the east, which form a part of the Shigar basin, are filled by the most formidable glaciers. The Biafo glacier was found, by Captain Godwin-Austen, extending from the frontier of Nagyr eastward for fifty miles. The causes of these distinctions have yet to be explained.

It was with great pleasure that Mr. Saunders had heard of the willingness of the Lama Abbot of the monastery of Pugdal in Zanskar to enable a qualified European to reach Lassa. Having in view the promotion of negociations at Peking for the removal of the absolute prevention by the Chinese Government of European intercourse between British India and the Chinese dominions, Mr. Saunders regarded such an exercise of the Lama's influence as highly desirable, and deserving of the attention of Government.

Mr. Rivington begged to be allowed to speak on the subject of his friend Mr. Cooper's journey through China into Tibet. He had the pleasure of seeing Mr. Cooper at Hong Kong after his return, and understood that, furnished with passes from the Chinese authorities, he met with no opposition from the Mandarins to the prosecution of his journey through China; but after leaving China and penetrating into Tibet, he was robbed and turned back by the Tibetans; upon his return through China he met with kindness from the Chinese. British subjects, he believed, found no difficulty in obtaining the requisite passes, which enabled them to travel through China with few obstacles from the authorities; but were passes to be obtained from Peking authorizing British subjects to travel in Tibet, it is considered very doubtful whether they would thereby be rendered secure from hindrance and ill-usage at the hands of tribes only nominally subject to the Chinese Emperor.

Mr. Hyde Clarke confirmed the statements of Dr. Leitner, that, as far as his own investigations had gone, there are no known congeners of Khajunah; and he agreed with him that the verb "to be" was not Aryan, but that the resemblance was casual. The numerals in many groups, as in the Indo-European, the Semitic, and the Malay, are typical and can be traced through each member of the group; but in the Ugro-Tatar this is not the case, and there is more than one type of numerals. This may be the case with the Khajunah, which possibly belongs to some group in which the numerals are unconformable. With regard to the other leading radicals, he hoped he should not be misunderstood when he stated that they appeared to bear some resemblance to Yenisseian. In the case of a member dissevered at a very ancient period, the variations of type are always found to be considerable. A very interesting question for investigation is whether there is any ethnological connexion between the Khajunah and the Dardi stocks, and, in such case, whether the Dardi tribes have not lost the Khajunah language and assumed the later Aryan.

Dr. Campbell said that through Dr. Leitner's kindness he had been enabled to inspect the whole of his collection at the India Office, of which a small portion only was then exhibited. It appeared to him that the articles of clothing and of domestic use clearly indicated that they belonged to a Tibetan people, and that the symbols of religious worship were decidedly Buddhistic. This was worthy of note, as the great body of the people in Ghilghit, Chitral, and Chilas were described by Munphool Pundit in 1867, and by Dr. Leitner himself, as Mahomedans of the Sunni and Shia sects. Dr. Campbell greatly regretted that General Cunningham (whose account of Ladak and Dardistan had been frequently referred to by Dr. Leitner) was not present; but Munphool Pundit's report was valuable as confirming Dr. Leitner's account of the country and people he had visited*. Regarding the Siah-Pôsh Kafirs, said by the Pundit to have blue eyes, ruddy complexion, and fair hair, Dr. Leitner hesitated to give his assent. Sir Alexander Burnes, who described the Kafirs in 1831, saw one boy only of this remarkable tribe; "his complexion, hair, and features were quite European, his eyes were of a bluish colour," and "some of his words were Indian." So that in respect of language Dr. Leitner's account agreed with Burnes's.

Dr. Leitner laid great stress on the advancement of Hindooism in Dardistan, and on the authoritative efforts of the Maharajah of Kashmir to spread his own religion in that country, and he deprecated the Maharajah's action in this direction. Dr. Campbell was quite familiar with a similar advancement of quasi-Hindooism in Nipal, where the Government was strictly Hindoo, and all classes had to look to Hindoos as the sources of honour and preferment. Among the various tribes of Nipal who are not Hindoos there is a constant increase of Hindoo observances in religion and social usages, although no forcible means are ever used to produce it.

Dr. Campbell was greatly pleased to hear the flattering tribute paid by Dr. Leitner to the memory of the late Csoma de Cörös. The speaker knew De Cörös well; there never was a more modest and single-minded man, or a more devoted scholar. He came to Darjeeling as his last hope of getting to Lassa; but on his way there from Assam he caught jungle-fever and died. Dr. Campbell said he should have great pleasure in communicating what Dr. Leitner had said of De Cörös to his fellow townsmen of Pesth, where his memory was held in great veneration.

Dr. Leitner did not believe in the stories of cannibalism told of some of the tribes of Dardistan; and they might not be true; but as it appeared, from the historical account he had read of the foundation of a new dynasty in Ghilghit on the destruction of a tyrant and cannibal ruler, that there was some slight foundation for them, Dr. Campbell said it was not surprising that the charge had come down to present times.

* [An Extract from this Report follows the Discussion.—Sub-Ed.]

The following Extract from a Communication by Munphool Pundit to the Political Department, India Office, 1867, is printed by permission of Dr. A. Campbell*.

Relations between Gilgit, Chitral, and Kashmir.

Gilgit is a small mountainous country, traversed by a river of that name and lying to the south of the Kara Koram, or Trans-Thibetan range, on the right bank of the Indus.

It is about 100 miles long from north to south, with a mean breadth of 26 miles. Its area is therefore about 2500 square miles†.

Yasin, a subdivison of Chitral-bala (Upper Chitral), borders on Gilgit in the west, Hunza and Nagri in the north and north-east, Daril (Chelas and Hasura or Astor across the Indus) in the south and south-east, and Balti in the east.

The Gilgit river is one of the principal mountain feeders of the Indus. Its upper course is formed of two principal branches, the Yasin and Parasot rivers. The former rises in north latitude 37° and east longitude 73°, at the point where the Kara Koram merges into the Hindu-kush. The source of the Parasot is in 36° 10′ north latitude and 72° 40′ east longitude, on the eastern face of the range which gives rise to the Chitral or Kunar river. After a separate course of 75 miles each, the two streams join above Roshan, in latitude 36° 20′ and longitude 73° 30′, and take an easterly course for 25 miles to Gaokuch, where they are joined by the Chatarkun river from the north. Thence to the town of Gilgit its course is east-south-east for 50 miles, below which it receives the joint tribute of the Hunza-Nagri rivers. It continues the same course for about 30 miles further, to its junction with the Indus, below the defile of Makpon-i-Shang-Rong. The general direction of the stream is to the east-south-east, and its whole length not less than 180 miles. The minimum discharge is probably 2000 cubic feet, or even more‡.

The valleys in Gilgit are:—Gilgit in the south and south-west, Chaprot in the north, Bakrot in the east, and Sai and Gor in the south-east, &c. And the forts or walled habitations:—in the north, Barr, Badlus, Chaprot, Chalat, and Nummul, along the right bank of the Hunza river; in the north-west, Bargu, Shakeyot, and Sherot, in the Gilgit valley, the largest in the country, in the direction of Payal and Yasin; in the south, Gilgit, Danyur, Naupur, Shakwar, and Manor; in the south-east, Nanrot, Chakarkot, Jagote, Domat, Sai, and Gor; in the east, Sanagahr, Bakrot, Hamusal, Ziaj, &c.

The people of Gilgit are Shia Musalmans; and the whole country is now supposed to contain not more than 1000 houses.

Its produce in grain and fruits, viz. rice, barley, apples, pomegranates, apricots, walnuts, peaches, figs, and grapes, barely suffices for home consumption.

* [This document is reprinted without any attempt to reconcile the spelling of proper names with that followed in Dr. Leitner's communication.—SUB-ED.]

† Cunningham's 'Ladakh,' p. 38.

‡ *Ibid.* pp. 98, 99.

Gilgit is 22 marches distant from Kashmir (the road between the two places lying in a north-westerly direction, through Hasura and Bunji, old dependencies of Kashmir), 8 from Yasin, 4 from Gaokuch (chief place in Payal, an old dependency of Yasin), 22 from Kashkaro (capital of Lower Chitral), and 6 from Daril.

Hunza (also called Kunjut) and Nagri, two small Shia districts, adjoining Gilgit in the north and north-east, and lying along the opposite banks of the Hunza river, are ruled by two different Chiefs, Rajas Ghazanfar and Zahid Jafar, at variance with each other, who, as the following narrative will show, are closely mixed up with the question of the Gilgit frontier. Hunza is supposed to contain 1500 houses, and Nagri about 4000* :—

The country of Chitral, divided into Upper (bala) and Lower (payan), and held by two different branches of an ancient family of rulers, is bounded on the north and north-west by the Hindu-kush range (continuation of the Trans-Thibetan or Kara Koram range), which divides it from the Pamer steppes in the north, and the Wakhan, Zebak, and Sanglich districts of Badakhshan in the north-west; west and south-west by Kafiristan; south by the Pranshi (Laspur) range of mountains; east by Gilgit and the wild independent tracts of mountainous country known by the provincial names of Shanaki and Kohistan—the former (Shanaki) comprising the districts of Hodar, Dodshal, Gibrial, Daril, Tangir, Kohli, Palas, &c., inhabited by different tribes of Dards speaking the Dard dialect; and the latter (Kohistan), a part of Yaghistan, contains the districts of Khundeyah, Guryal, Dothoin, Halail, Dubair, Samangyal, Munji, Bandkhar, &c., peopled by Afghans who speak the Pashto.

The valley of Chitral, running in a south-westerly direction through the whole length of the country (Upper and Lower included), and into which numerous smaller valleys and defiles open out, is traversed throughout by a river called Chitral, after the name of the country, and Khunar, from the circumstance of its joining the Kunar or Kama river at Chaghan Sarai, a place in Kunar, whence the united stream falls into the Landa or Kabul river at Jalalabad, 3 marches below.

The Chitral river takes its rise from a lake called Chittiboi, at the foot of the Chitral Pass, over the Kara-Koram or Trans-Thibetan range, between Chitral and the Pamer steppes. This lake is sometimes closed with avalanches from the pass.

Chitral-bala lies along the upper course of the river, and Chitral-payan on the lower.

The chief places in the former are—Mistuch, Yasin (seats of divisional governments), Chitarkun, Payal, Gaokuch, Varsh-gum; and in the latter, Chitral or Kashkaro, Suget, Baruz, Drus, &c.

The population consists of Musalmans, both Sunni and Shia, and Kafirs. The Sunnis inhabit the southern portion of the country, and the Shias the northern and north-western tracts, adjoining the

* The two districts (Hunza and Nagri) have an area of 1672 square miles. (Cunningham's 'Ladakh,' p. 38.)

Shia districts of Wakhan, Zebak and Sanglich in Badakhsan, and Gilgit, &c. The Kafirs are confined to a tract bordering on Kafiristan, to which it formerly belonged, now under Chitral-payan.

The rulers, professing Sunniism, have, ever since the introduction of Islamism into Central Asia, been carrying on the singularly horrid practice of selling their own subjects into slavery. Following a doctrine of their own creation, that the "Sharah" (Muhammadan law) permits the Sunni to make slaves of Kafirs (unbelievers), amongst whom they include the Shias*, they have been in the habit of capturing their Shia and Kafir subjects, as well as Siahposh Kafirs or others kidnapped or forcibly brought away from the adjacent countries of Kafiristan, Gilgit, &c., and selling them into slavery to slave-dealers from Badakhshan, Kundus, Turkistan, Balkh, Bukhara, and Afghanistan, &c., receiving their price in cash and goods. Criminal and political offences amongst the Shia and Kafir subjects of Chitral are, as a general rule, punished by enslavement of the offenders themselves, their children, or other grown-up relations. Sometimes whole families are sold away in groups. The Sunni population, professing the same faith as their rulers, and protected by the Sharah, are free from all such servile bondage and transfer.

The slave forms one of the principal items of revenue of the Chitral rulers. The annual tribute which they pay to the Chief of Badakhsan, to whom they owe a sort of allegiance, is made in slaves.

The Chitral slave girls and boys are the most prized of all the different descriptions of slaves brought to the Turkistan market, excepting, perhaps, the Irani (Persian), for their superior beauty †, docility, and fidelity. The Chitrali, perhaps, is equally faithful with his brother slave of Africa, the negro (Habashi—Abyssinian), whose devoted attachment to his master is proverbial in the East. The Kafirs, distinguished by their whiter skins, redder complexion, blue eyes, light hair, and robuster form, are the most untractable and revengeful of all the other descriptions of slaves in Central Asia.

Combining great physical strength with desperate courage, inured to chase and war, from the nature of their country, their social habits and institutions, and the constitution of their government, which is purely patriarchal, divided into numerous patriarchies, split by hereditary feuds into factions, the Kafirs have not only successfully repulsed the occasional predatory incursions of their Musalman neighbours, the Afghans, the Chitralis, and the Badakhshis, but constantly retaliated by making raids on all the tracts bordering on their own. These marauding excursions have, of late years, ceased

* The Shia, though professing Islam, is looked upon by the Sunni in the light of a Kafir, and termed "Rafazi" (heretic). Throughout Turkistan (Bukhara in particular) Shias are not tolerated. Whilst there, they are consequently obliged to hide their belief, and conduct themselves in all outward forms of religion, as well as social intercourse, like Sunnis.

† The Chitralis bear a strong resemblance, in their physiognomy, features, and colour, to the hill-people of Chamba and Kangra. Their beauty consists in symmetry of form, black eyes, and hair. The Shias shave their beard, and wear short hair, like natives of India.

in the direction of Badakhshan and Chitral, since the establishment of friendly relations between the border Kafirs and the rulers of those countries; but the former still continue to infest and plunder the caravan routes in the vicinity, and over the mountain passes of Durah and Lahauri *.

The mutual dissensions amongst the Kafirs drove the Kafir tribes now under Badakhshan and Chitral-payan to submit to foreign yokes.

Death is the only punishment the Kafirs inflict on their Musalman captives. All Kafir slaves who manage to escape back to their native country (Kafiristan Proper) are allowed to revert to their faith and social rights and privileges by their brethren.

The price of slaves throughout Turkistan generally varies from 500 to 100 Muhammad Shahi rupees†. It is generally paid partly in cash and partly in goods, and rarely wholly in cash.

The Chitralis speak a peculiar dialect, called Chitrali; the mercantile and the higher classes speak Persian also.

The town of Chitral, called Kashkaro, or Kashkar by the Afghans, capital of Chitral-payan, is the chief place of commerce in the country. It is situated on the two caravan routes between India, Badakhshan, and Yarkand, which, if cared for, can be made to connect more closely the north-western frontier of India with Western Turkistan through Badakhshan, and Eastern Turkistan through the Pamer steppes, by the shortest, the directest, and, perhaps, the easiest of all the lines of communication now in use. The only dangerous portion of the route is the country of Yaghistan (Bajour and Swat, including Dir), between Peshawar and Chitral.

Caravans of petty merchants now pass through Kashkaro annually, between Peshawar, Yaghistan, and Afghanistan, on the south-east and south west, and Badakhshan, Kundus, Balkh, Turkistan, and Kolab, a principality in Bukhara, on the north-west, and Eastern Turkistan on the north-east.

Mistuch and Yasin, in Chitral-bala, are also resorted to by traders for the purchase of slaves. The former lies on the caravan route leading to Yarkand, 7 marches up the Chitral river from Kashkaro; the latter, lying between Mistuch and Gilgit, is about 15 marches from Kashkaro, and 6 or 7 from Mistuch.

Trade in Chitral is chiefly carried on by means of barter ("marchah"). The Peshawaris, the Afghanistanis, and the Yaghistanis, both Hindu and Musalman, exchange Bahadarkhel salt‡, English and Indian piece-goods, grocery, haberdashery, Bajour iron, for Hartal (orpiment), Chitral woollens (blankets and choghas), and falcons. The merchants from the north-west bring horses, Bukhara and Kho-

* The easiest and consequently the most frequented passes on the caravan route from Peshawar to Badakhshan. The former (Durah) lies over the Hindu-kush range, between Chitral and Badakhshan, and the latter (Lahauri) between Yaghistan and Chitral.

† A Muhammad Shahi rupee is equal to 1 rupee and 3 annas of English money at Peshawar.

‡ In the Kohat district of the Punjab.

kand silks, cloaks of Russian broad-cloth, and Badakhshan salt*, cotton cloth, and degchoans (iron cans, cast after the Russian style), &c., for the purchase of slaves and Chitral woollens (cloaks, blankets, and stockings). The trade between Yarkand and India, or Afghanistan, through Chitral, is confined to certain adventurous Afghans only: natives of Yarkand seldom or never take this route.

Chitral, as already stated, is held by two different branches of an ancient family, descended from a common ancestor, "Kathor." The branch in possession of Chitral-bala is called the "Khushwaktia," from Khushwakt, an ancestor of the present incumbents; that holding Chitral-payan goes by the name of the "Shahkathoria," after Shah Kathor, grandfather of the present ruler, Aman-ul-mulk. The two branches not only rule over their respective countries, independently of each other, but are generally at variance with one another.

Sir George Grey, K.C.B., exhibited a collection of quartzite implements from the Cape of Good Hope, and the honorary Secretary read the following extracts from letters on the subject.

IV. *On* Quartzite Implements *from the* Cape of Good Hope. By Sir George Grey, K.C.B.

Extract of letter from Thomas Holdin Bowker, Esq.:—

Tharfield, near Bathurst,
July 8th, 1869.

"I do not know whether you are acquainted with any of the gentlemen who have taken an interest in our South-African antiquities (for we have such things). In the year 1858 I was the first to recognize the ancient stone arrow- and spear-heads, since found scattered all the way from Tharfield to East London, the Bashee, the Orange Free State, and to the Cape Flats and Green Point. An account of the discovery of these implements appeared in the 'Somerset and Bedford Courant,' and was taken over and published by the Anglo-African newspaper in Graham's Town; since then I have sent, through Mr. Layard, a parcel of them to Professor Owen, of the British Museum. I also sent at his request, through Mr. Commanding-General Barnet in Graham's Town, a considerable number to General Lefroy, who received them safely. My late mother's cousin, Lord Redesdale, at Vernon House, St. James's Park, has also a select parcel. One curious fact concerning these rude weapons, early attracted my attention, which was this: no South-African tribe has ever

* From the mines of Kalaogan in Mashhad and in Farakhar, both districts of Badakhshan.

been discovered in the use of them, not even upon their being first visited by Europeans, nor have they been found among any tribe in the far interior, though they may use them (as do the Hottentots and Kaffirs of the present day, together with ourselves) for the purpose of striking fire. I always use them for striking fire when hunting or taking wild boars. I am strongly impressed with the idea that they are the sole remnant or recording evidence in stone of a race of human beings that inhabited South Africa in times far anterior to the advent of either Hottentots, Kaffirs, or Bushmen."

Extract of letter from Dr. W. G. Atherstone :—

Graham's Town,
September 14th, 1869.

"I sent to you by Mr. Maturin (Controller General) a small box of stone arrow-heads &c., from Tharfield, which Mr. Holden Bowker gave me for you, and which I intended to have enclosed with some of my own collections; but Maturin left before I could get mine ready. We found kitchen-mounds, with fragments of pots, with the little bits of quartz incorporated, exactly like those found in the Danish kitchen-mounds. I also found parts of a human skeleton, a sacrum and pelvis (female), but so decomposed that most of it crumbled to pieces in getting it out. The bones stuck forcibly to the tongue, and must have lain buried there beneath the shell-heaps for centuries. I have written an account of this, and of the arrow-heads at the Kleenemand and Riet rivers."

EXPLANATION OF PLATE I.

Figs. 1 & 2. Stone objects found at Tharfield, near Bathurst, Lower Albany, Cape of Good Hope—"probably ear-rings, or rather buttons for insertion into the lobe of the ear." Natural size.

Fig. 3. Quartzite Implement, found at Tharfield, Cape of Good Hope. Half-size.

DISCUSSION.

SIR GEORGE GREY said that he was not aware of any existing race using or having used stone-implements in that part of South Africa from which these stone implements came. The Hottentots and Kaffirs (of various races) use iron implements, and are well acquainted with processes for manufacturing iron. The Bushmen use bone-headed arrows dipped in a deadly poison.

If the stone implements laid before the Society were manufactured by a now extinct race, or by one now amalgamated with the Hottentots and Kaffirs, they must, he thought, date back to a distant origin; for it is probable that the Hottentots, an iron-manufacturing people, occupied the country of the Kaffirs, where these implements are found, before the Kaffirs; for mountains and rivers in that country still bear Hottentot names. The Kaffirs of that district

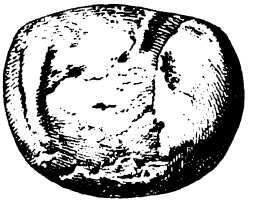


Fig 1.

Nat. Size

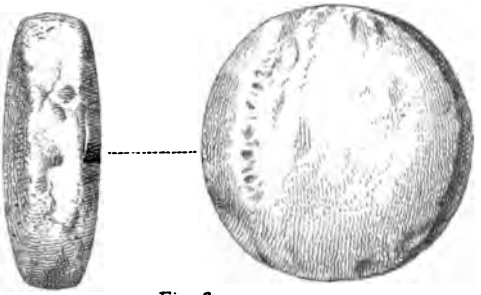


Fig 2.

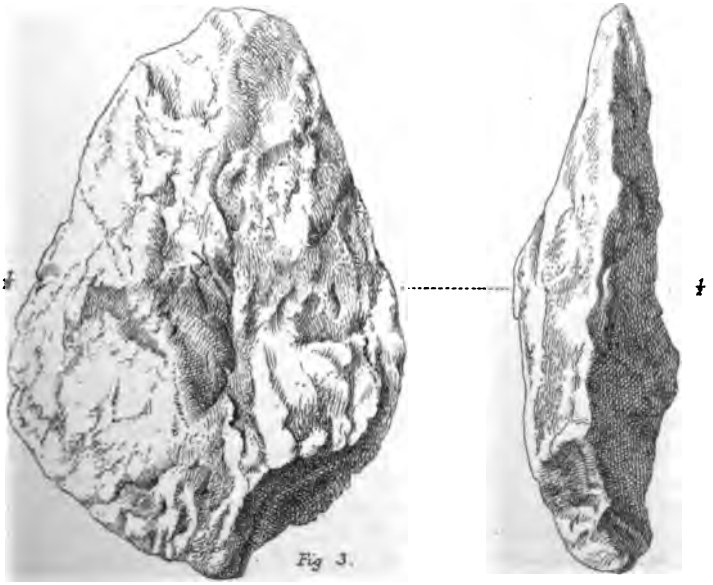


Fig 3.

STONE IMPLEMENTS &c. FROM THE CAPE OF GOOD HOPE.

have also adopted into their language two of the Hottentot clicks, which are not found in the Kaffir class of languages.

The Kaffirs, themselves an iron-manufacturing people, have occupied the country where these implements are found for many generations—at least fourteen (which they account for), and may have been there for a much longer time; and as they succeeded the Hottentots in the country, these stone implements apparently date from a remote epoch.

Col. Lane Fox said that amongst the interesting relics exhibited by Sir George Grey he noticed one or two types that were new to him; one of these was a small disk about 1½ inch in diameter and ⅜ inch thick (Pl. I. fig. 2); it appeared to be a water-worn pebble roughly ground on the circumference. Such disks were usually supposed to have been used as hammer stones: he thought, however, that this was too small to be used for such a purpose, and that the suggestion of Mr. Bowker, that it may have been used for insertion into the lobe of the ear, was a very reasonable one.

Quartzite implements from the Cape have been exhibited and described to this and other societies by Sir John Lubbock and Mr. Busk. The majority of those now exhibited are of the same character as those already known to us from the same locality, and do not call for any special notice; there is one form, however, which merits particular attention, from its resemblance to the palæolithic or drift type of this country (fig. 3): it is 6 inches in length, 4 in greatest width, and from 1½ to 2 inches thick at the large end, of a pointed oval form, the greatest width being at the thick end; the small end and the greater part of the sides are trimmed to a cutting edge; the thick end is roughly rounded, or the natural surface of the stone at this end has been left untouched. This type, indeed, is not unknown to us as occurring at the Cape of Good Hope; for one other implement of this form was sent over by Mr. Layard some time ago*. As we have now seen two implements of this form amongst the comparatively few specimens that have been sent from the Cape, it is reasonable to assume that it is typical; and being identical with those from the river-drift of this country, it may have been used in the same manner. It would be interesting, therefore, if it could be ascertained whether there is a corresponding difference of age, and whether the deposits in which the drift-type implements occur at the Cape are older than those from which the other implements are derived. Some of the other implements approach to the form of arrow-heads, and correspond to the "surface-type" of Europe, which, with the exception of the flakes, never occur in the same deposits as the palæolithic or drift type implements. In India, Mr. Bruce Foote has shown that implements of the drift type composed of quartzite, and so identical with these implements from the Cape as to be undistinguishable from them, are found in "Laterite deposits" of great antiquity, overlain by surface-deposits containing implements corresponding to the "surface-types" of Europe. The two cases, in India and in Europe,

* A drawing of this was exhibited, taken from a cast in the British Museum; the original was returned to the Cape.

are parallel; it is therefore of interest that the Cape deposits should be examined with reference to this point, and it is to be hoped that those gentlemen who have already done such good service by sending us these specimens will, before long, be able to give the Society some more detailed geological evidence respecting them.

As regards the drift-type implements of Europe, it has been usual to classify the larger forms under two heads—the long spear-headed form, and the oval form. No doubt, as this classification has been laid down and accepted by high authority, it must stand for the present. But the speaker doubted whether it was the best that could be devised: the two forms pass so imperceptibly into each other by connecting links, that it is impossible to draw any hard and fast line of separation between; and there is evidence to show that the form of implements depended on the form of the flint stones out of which they were made. When the fabricator found a long flint, he made it into a long spear-headed implement; and from an oval stone he constructed an oval implement: this was shown to be the case by some half-finished implements, in which the original shape of the stone was left untouched on one side, whilst the chipping process was completed on the other—thus showing the correspondence between the worked implement and the unworked stone*. He thought that if a difference in the design of the fabricator could be determined, it would afford a better means of classifying the implements than differences arising from the accidental shapes of the flints; such differences of design he thought might be traced. Some of these implements, whether of the long spear-headed form, or of the oval form, were thick and rounded at the large end, where the natural surface of the stone was often left untouched; the Cape implement exhibited was of this form: these were well adapted to be held in the hand. Others were chipped to an edge all round; and these were ill-adapted for holding in the hand, as the chipped edge would chafe the hand. He had elsewhere given his reasons for believing that this form led by degrees to the use of the celt, in which the cutting edge was at the large end. This type might have been used in a handle, whilst the other might have been held in the hand. If a different use could be assigned to these implements, it would afford clear ground for a distinct classification; but of course it was purely hypothetical to speak of the uses of these ancient weapons. Classification should be based upon observation, and not upon conjecture. In the one case, an edge was formed upon the sides and small end only; in the other the edge continued all round the periphery of the tool; and in thus distinguishing them, whatever might have been the uses to which they were put, a distinct difference of design might be recognized on the part of the fabricator. He thought also that geological evidence would bear out this classification. The round-ended types are peculiar to the drift; it may be said that they never occur in more recent deposits, although an approximation to them is occasionally, though rarely, met with amongst surface implements; but the spear-headed outline is, as the term itself implies, common to all periods in which flint spear-heads were used.

* [One of these unfinished implements was exhibited at the Meeting.—SUB-ED.]

Mr. Boyd Dawkins considered that the implement referred by Col. Lane Fox to the palæolithic type (fig. 3), was merely a roughly-chipped form not necessarily connected with the palæolithic implements of Europe. Such a rude approximation to a drift-type is presented by worked flints which he found on the South Downs, between Brighton and Lewes, along with polished stone axes. A somewhat similar form he has also seen from New Zealand. The implements at the Cape occurring over so wide an area, seem to have been dropped under the same conditions as those on the present land-surface of Great Britain and France, and cannot be referred to any well-defined European standard of archæological time. In his opinion, all that can safely be predicated about them is, that they belong to what Mr. John Evans calls "the surface-period." Mr. Boyd Dawkins also defended the present classification of the drift-implements, on the ground that, although all the types had been found in the gravels, with one exception at the Brixham cave, none of the spear-heads of the drift had been found in any palæolithic cave.

Ordinary Meeting, December 7th, 1869.

Professor Huxley, LL.D., F.R.S., *President, in the Chair.*

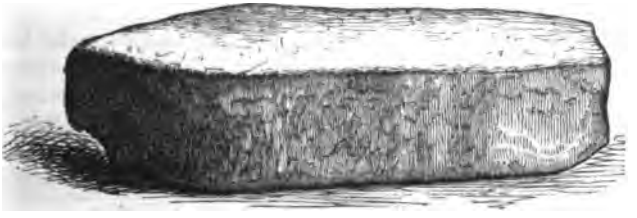
New Member :—Jonas Hewitt, Esq.

Mr. F. Acheson exhibited a supposed stone implement found in the washings of a gold-bearing stream in Wicklow, and the honorary Secretary read the following note:—

V. *Note on a supposed* Stone Implement *from* Co. Wicklow, Ireland. By F. Acheson, Esq.

In reply to your request for a description of the supposed stone implement I found in the Wicklow gold-mines (Fig. 1), I beg to

Fig. 1.



say that it was obtained at a depth of about twenty feet below the bed of the gold-mining river, near Wooden Bridge, Co. Wicklow, while sinking a shaft in search for gold.

The surface-stratum of the bed of the river consisted of a layer of slaty gravel, about four feet in thickness, which overlay a bed of stiff yellow clay, about twelve feet thick, which had vertical sedimentary layers of gravel parallel to each other, and of a lunar shape, appearing to indicate that the clay had been tilted up into a vertical position.

Below the clay was a stratum of dirty slate gravel, and sand, from six to eight feet in thickness, which lay upon the bed-rock of slate; the lower portion of this last, lying upon the rock, is called the "washing-sand," on account of its containing the gold.

While washing this latter stratum of gravel, between the clay and the rock, and testing it for gold, the above-mentioned piece of stone was found in the last washing-box by the man engaged, who used it for stirring up the auriferous sand in the washing-bowl. Observing this, I asked him where he obtained that stone, as I noticed its remarkable shape, when he immediately informed me that he took it out of the last of the washing-boxes; and on subsequently questioning him he persisted in this statement.

I need not enter upon any description of the stone and its appearance, as it is in your possession. I would only add that the accompanying gravel is very little water-worn.

The honorary Secretary then read the following note:—

VI. *Note on the* STATURE OF AMERICAN INDIANS *of the* CHIPEWYAN TRIBE. By Major-General LEFROY, R.A.

THE Hudson's Bay station of Lake Athabasca was visited during my residence there, in December, 1843, by a large party of Chippewyan Indians, from what are termed the Barren Lands, the region lying to the north and east of that great lake. These Indians are very rarely seen within the precincts of the trading-posts; they subsist principally on the reindeer, of which the Barren Lands are the great breeding-ground, and they represent an uncontaminated Indian stock. Nothing could exceed the wild appearance of the party now referred to, clothed as they were from head to foot in reindeer-skin dresses, and with scarcely any articles of European manufacture about them. I forget what they came for,—probably a little scarlet cloth, axes, and tobacco—*not* gunpowder, as they possess very few guns, and still rely principally on that ancient instrument the bow-and-arrow. To the great terror of many of them, I subjected the whole to the mysterious "medicine" of standing against a wall and having their stature recorded: this is unfortunately the sole physical datum

collected, and perhaps the only one they could have been induced to yield. Having had the note lying by me for many years, I venture to submit it to the Ethnological Society as a bare fact, worth recording for its rarity, perhaps, and one to which the early disappearance which too probably awaits the race may give a future interest. It will be seen that the mean height of 33 adult males of this subarctic tribe was barely under 5 feet 7 inches, and that the only woman who could be induced to stand up was 5 ft. 5·9 in. Six growing lads of uncertain ages averaged 5 ft. 2·8 in. There were several individuals who would be called tall, even in this land of tall men.

Heights of Chipewyan Indians, measured in 1843.

Adult Males.				Lads.	Woman.
	ft. in.		ft. in.	ft. in.	ft. in.
1.	5 11·1	18.	5 6·7	5 4·7	5 5·9
2.	5 10·4	19.	5 6·6	5 4·6	
3.	5 10·0	20.	5 6·6	5 4·4	
4.	5 9·7	21.	5 6·5	5 2·3	
5.	5 9·2	22.	5 6·5	5 2·2	
6.	5 9·0	23.	5 6·4	4 10·4	
7.	5 8·8	24.	5 6·1		
8.	5 8·8	25.	5 5·8		
9.	5 8·5	26.	5 5·8		
10.	5 8·0	27.	5 5·7		
11.	5 7·9	28.	5 5·0		
12.	5 7·8	29.	5 5·0		
13.	5 7·5	30.	5 4·5		
14.	5 7·5	31.	5 3·7		
15.	5 7·2	32.	5 2·8		
16.	5 7·1	33.	5 1·5		
17.	5 7·1				
Average.	.....	.....	5 6·95	5 2·8	5 5·9

Lieutenant Oliver R.A., then read extracts from the following Report:—

VII. Report *on the* Present State and Condition *of* Prehistoric Remains *in the* Channel Islands. By Lieut. S. P. Oliver, R.A., F.R.G.S.

Introduction.

It is only lately that public attention has been turned to the present unprotected state of our national monuments and relics

of past ages in this country, and at the request of the late *first* Commissioner of Works (Mr. Layard) the Society of Antiquaries have already been preparing a list of all historical and regal monuments, throughout the kingdom, to which the Imperial protection should be extended. Meantime, in consequence of Sir John Lubbock's appeal after the late destruction of the Great Tolmaen, the Ethnological Society appointed, in March 1869, a committee to investigate and inquire into the present state and condition of all prehistoric structures and remains in the British isles, with the view of obtaining the extension of the State guardianship over them.

Being quartered in Guernsey, I offered to report upon the existing prehistoric structures in the Channel Islands (although strictly speaking this Anglo-Norman archipelago can hardly be included among the British isles); and my services having been accepted by the Committee, I give the following as the result of my inquiries.

A protective supervision of such prehistoric structures is nowhere more needed than in the Channel Islands, and the urgent necessity for legislation on this subject has long been acknowledged by the most thoughtful island-archæologists, who have before attempted again and again, although hitherto ineffectually, to interest their fellow-islanders in the preservation of such relics.

The wholesale destruction that has taken place within the last half-century in these islands is beyond belief. In *Jersey*, for instance, out of fifty Celtic stone structures mentioned by Poingdestue but very few remain. The finest cromlech was presented to a popular governor on his leaving the island; and of the four cromlechs ruined vestiges alone remain, two having been *restored* (?) after the ideas of a Reverend amateur!

In *Alderney* the navvies employed on the Admiralty Works have amused themselves with smashing up all the megaliths that they could lay their hands on.

In *Herm* the quarrymen of a granite-company have in like manner destroyed most of the cap-stones of the numerous cromlechs and circles which abound in this small island.

In *Serk* but one insignificant portion of a kist alone remains extant, where doubtless there were originally numbers.

In *Guernsey* alone, hitherto, has that watchful archæologist, Mr. Lukis, interfered to put a stop to ignorant and wanton demolition, and even here often without success.

Nevertheless, in spite of all these drawbacks, there are few localities (Brittany excepted) in which the sepulchral stone structures of the neolithic period can be studied with greater advantage than in this small archipelago, and in fewer places have

these relics of the Celtic race been more leisurely and systematically examined by such experienced archæologists as Mr. Lukis and his sons: considering that sixty years ago Mr. Lukis commenced studying prehistoric remains, and was, I believe, the first exponent of their sepulchral character, he may be rightly termed one of the patriarchs of the present school of prehistoric archæology. The remains in the Bailliewick of *Guernsey*, which includes *Alderney*, *Serk*, and *Herm*, have more especially been explored and minutely examined by the above-mentioned gentlemen, and the results published from time to time in the 'Archæologia;' whilst by the liberality of the same veteran the sites of various cromlechs in Guernsey have been purchased to ensure their protection.

It is also satisfactory to know that the numerous remains which have survived the onslaught of the quarrymen in Herm are for the present safe in the hands of one proprietor, Major Montague Fielden, who undertakes to preserve them. I wish I could report the same of those in Jersey and Alderney, which, I am sorry to say, are in a most precarious situation.

In pointing out such prehistorical structures as stand in need of protective supervision, it is with the utmost diffidence (being, indeed, beyond my province) that I would venture to offer any suggestion as to the nature of the authority under which such supervision should be exercised, and more particularly since the peculiar insular jealousy of any Imperial interference with the unique laws of property extant in the Channel Islands renders any such suggestion a matter of great delicacy. I trust, however, that the results aimed at by the present inquiry may be sooner or later obtained through the influence of the President and Council of this Society.

It is almost needless to point out, although much to be regretted, that the neolithic vestiges now to be protected are more rare and less perfect than they would have been, could this protection have been afforded to them sooner; and we now pay severely the penalty for this inattention on the part of our forefathers. Such few, indeed, now remain for examination as have escaped the wreck and annihilation of ever-extending agricultural and engineering operations, whilst barely one exists which has not been more or less pillaged by the mere treasure-seeker—the excavations (those by Mr. Lukis excepted) having been conducted carelessly, unsystematically, without care or record, and thus caused an irreparable injury to the cause of science. Perhaps, however, these monuments have still worse enemies than the treasure-seeker and navvy, viz. those "modern Goths," as Earl Stanhope rightly denominates the *injudicious restorers*.

Still, even after all this great amount of unprincipled dilapi-

dation and so-called restoration, there remain in the Channel Islands many noble megalithic structures and other remains of immense prehistoric importance, for the protection and care of which it is now proposed to demand the guardianship of the State.

I proceed to detail the various structures, commencing with those in Guernsey; and I have also drawn up a synoptical Chart or Table, arranged according to the various parishes, by which at a glance can be seen those that are in most danger and their relative importance. The classification and nomenclature followed is that proposed by Dr. F. C. Lukis, and to be found in vol. xxxv. pp. 232–258 of the 'Archæologia.'

GUERNSEY.

Vale Parish.

No. 1. The large chambered cromlech on L'Ancresse Common stands on the summit of Le Mont de la Varde, or Mont St. Michel*; and the structure bears the name of *L'Autel des Vardes*. It was first discovered in August 1811, when a regiment of Mostemars arrived in Guernsey during the French Revolution for protection. The regiment was stationed on this hill, and raised a rampart around their camp by using the grass-turf in the neighbourhood, and thus exposed the cap-stones of the cromlech. Sir John Doyle, who was Governor at the time, caused the cromlech to be partially excavated by a party of soldiers, and worked down to the deposit at the western extremity; but, as some of the stones appeared dangerous to the working-party, the excavation was discontinued, and the sand soon drifted in and filled the interior. The same year Mr. F. C. Lukis made a partial examination of the monument, but also soon desisted in consequence of the carelessness of the workmen employed by him. "The employment of paid workmen to do this kind of work," said the Rev. W. C. Lukis†, "which should be done by the archæologist himself, is always unsatisfactory; no one should undertake digging who fears blistering his hands, whilst the eye of the explorer should be directed to every spade-full of earth."

* This hill is a rocky elevation, in great part covered by the sand which forms the surface of the plain or common of L'Ancresse. By the constant action of the wind upon the plain and elevated parts of this neighbourhood, by which the silt is thrown up, this structure might be again covered entirely with sand. It is to this covering, indeed, that we owe the preservation of this and other Celtic remains; for no mode of interment, says Sir Charles Lyell, can be conceived more favourable to the conservation of monuments for indefinite periods than their burial by drifting sand.

† At the Meeting of the Ripon Scientific Society, January 19, 1865.

In the summers of 1837 and 1838, however, a full and systematic examination of the interior of this cromlech was conducted by Messrs. F. C. Lukis, sen., F. C. Lukis, jun., Rev. W. C. Lukis, Thomas Harvey, and two assistants—when, after considerable labour, the cromlech was emptied of its accumulated sand, and its primæval contents exposed. This large cromlech (see plan, Pl. VII. fig. 1) is 45 feet in length, at its western extremity 15 feet wide, and 8 feet high beneath the largest cap-stone: from this point it gradually contracts on all sides towards the eastern end, the supposed entrance being barely 3 feet high. This space was covered by five larger and two smaller blocks of granite as cap-stones; of these the five larger alone remain *in situ*. The western stone is much the largest, and is about 17 feet long, 10½ feet wide, by 4½ feet in depth. The next is 16 feet long, the third being smaller, and thus they gradually diminish in size to the eastern end. They are not in contact; and the supporting side-props, seventeen* on the north and fifteen on the south side, preserve different relative heights in the same proportion.

It is surrounded by the remains of a circular peristalith 60 feet in diameter, and which probably marked the site of a wall surrounding the tumulus which is supposed to have originally covered this sepulchral vault. Approaching to this circle from the north and north-west are traces of a stone causeway in a serpentine form. One can be traced from the north 240 feet, and from the north-west 78 feet.

On the north-west side, adjoining the large western chamber, is a side-chamber, where one of the original side- supporting uprights has been moved back at a later period to form a supplementary kist.

It is needless to give more than the above outline of the construction of this cromlech, as it has been described in the 'Archæologia,' vol. xvii. p. 254, and its contents fully detailed and illustrated by Dr. F. C. Lukis in vol. xxxv. of the 'Archæologia,' pp. 232–258. This structure may be quoted as illustrating the want of State protection. In consequence of the seventh or smallest cap-stone being removed, Mr. F. C. Lukis obtained from the Royal Court of Guernsey a right to prevent persons from doing any more injury to this noble cromlech. This authoritative interference has thrice been exercised with effect; but, unfortunately, only last year the sixth cap-stone was violently thrown down and broken by persons unknown. At present this cromlech is in no immediate danger, although the inhabitants of the Clos du Valle claim the right of removal of stone from the common. It is possible that some restriction upon this

* Including the large western block.

right might be made by the Royal Court in reference to this and other Celtic structures in the neighbourhood.

No. 2. About the centre of the common at L'Ancresse, and to the southward of the last-mentioned cromlech, is a small *Kist-vaen* in a tolerable state of preservation (Pl. III. fig. 1, and Pl. VII. fig. 5). It was first discovered, surveyed, and drawn in 1811, by Mr. Lukis. In 1837 this place was cleared out, and the brambles removed, by Mr. Lukis, when a few pieces of well-marked pottery were found, which differed from that found at the cromlech on the hill (*vide* 'Journal of Association,' vol. iii. p. 342). In 1838 Mr. Lukis made a closer examination of this kist-vaen, as also of the remains of a similar structure ten or twelve yards to the eastward. The stones had been greatly disturbed, and the cap-stone of the latter removed a great many years back—at least eighty years ago.

In 1840, still further search was made, by Dr. F. C. Lukis and J. W. Lukis, Esq. The floor of the kist near the northern prop exposed two well-formed celts, Nos. 58 and 59 of 'Coll. Antiqua;' these instruments were most perfect and beautifully polished, the stone being a fine-grained diorite containing streaks and spots giving it a porphyritic character. One is of a finer texture, containing streaks of a darker colour; and about a dozen celts similar to this have been found in Guernsey*: whence these had been imported it is at present impossible to say. A plan (Pl. VII. fig. 5) is given of this kist-vaen, drawn by J. W. Lukis, Esq. The largest cap-stone, which is of a peculiar shape, and about 14 feet long, is, happily, still in position, and forms a picturesque object.

No. 3. To the eastward of the great cromlech, and situate in a hollow near a pool called La Mare aux Mauves, is another *Kist*, on the property of Mons. Falla of des Rocques Barrées (Pl. III. fig. 2, and Pl. VIII. fig. 1).

Twenty-four feet to the westward is a large stone, which perhaps may have been the western block of a cromlech to which this kist and adjoining chambers were but adjuncts (compare plan, Pl. VIII. fig. 1, with that of Du Thus, Pl. VII. fig. 2). Only one cap-stone, on six small supporting props, remains. This was examined by Mr. F. C. Lukis in 1844, and found to have been greatly disturbed. When the neighbouring Martello towers were built the workmen are supposed to have removed many stones from this kist †.

No. 4. About 100 yards from the above-mentioned kist to the north-east are the remains of another *Kist-vaen*. It was

* Mr. F. C. Lukis has found one specimen of a similar celt at Bonno, in the Morbihan, likewise imported.

† See 'Archæological Journal,' vol. i. p. 222.

almost entirely destroyed by the workmen at the erection of the Martello tower close by. Some flints and stone mullers were found here.

No. 5. Not far from Bordeaux harbour, near the estate known by the name of Paradis, is a locality termed Du Thus or Dé-hus, which was purchased of Jean Hubert (as appears from a deed in the possession of the heirs of Mons. Jean De Havilland) on the 23rd of April 1770, for the sum of 56 livres 16 sous Tournois, or about £4 1*s*. Here, close to the road, is situate a magnificent cromlech, which is known by the name of *L'Autel du Déhus*, or *L'Autel du Grand Sarazin*. This cromlech is still partially surrounded by the tumulus which originally entirely covered it, round the verge of which a stone circle existed 60 feet (the usual size) in diameter, of which circle but four or five stones remain. This cromlech consists of a large western chamber, about 15 feet square, supporting three large cap-stones, the largest, at the west end, being 16 feet 6 inches long by 11 feet 8 inches broad. The second cap-stone is broken, and a prop (see plan, Pl. VII. fig. 2) has been added to support it. There are seven cap-stones altogether to the main avenue, which is divided into three main chambers by evident dividing-blocks, and hence may be termed "*Tripartite.*"

The most interesting belongings of this cromlech are undoubtedly the unique side-chambers marked A, B, C, D in Mr. J. W. Lukis's plan (Pl. VII. fig. 2) of which A and B are quite covered, and C partially, with cap-stones. These lateral chambers, or side-kists, contained, when examined, curious and unique forms of interment*. Two of these are to the north of the main structure, the smaller one to the east, marked B, containing two kneeling, or crouching, skeletons. The easternmost kist of the two to the south, marked D, contained, when opened, three separate floors or layers of interment. These are minutely described in the 'Archæologia' †. The central point of the peristalith is in the main western chamber. The eastern extremity of this cromlech is closed by a large stone on the edge of the road which runs by it. This cromlech is safely protected by the proprietors.

No. 6. *Le Tombeau du Grand Sarazin* (Pl. VIII. fig. 2). Once a simple kist in the centre of a furze-field belonging to the estate called Paradis, proprietor Mr. J. Collas. It was most unhappily damaged by workmen who wanted stone for repairing the barn of the proprietor, and, unknown to him, partly destroyed, in 1810. In 1838 it was examined by Mr. Lukis, and human bones were found under the remains of the cap-stone. From the in-

* See 'Archæologia,' vol. xxxv. p. 232, &c.

† Association Journal, vol. iv. p. 323.

terior nearly twenty jars and vessels were removed. These urns have invariably the base rounded. No change in the state in which it which it was left by Mr. Lukis has taken place, and the proprietor is willing to preserve it.

The urns and jars are in Mr. Lukis's Museum; they are tolerably perfect. One rude celt was found, and a piece of opalized sponge.

No. 7. *La Roche qui sonne* (Pl. V. fig. 1; Pl. VIII. fig. 3). The remains of this cromlech are to be found nearly buried beneath the rubbish of a quarry which has been opened near it since its examination by Mr. Lukis. Many stones are extant in this neighbourhood which originally belonged to this cromlech. It is said to have been the largest in the island, consisting of five or six cap-stones evidently lying, in conformity with others in this parish, east and west. The remains were discovered by Mr. Lukis and his sons in 1837, nearly covered by a large hedge, which had been planted over the only remaining cap-stone of this once celebrated cromlech. By permission of Mr. Jean Henri, the thornbushes and hedge were removed; and a fine cap-stone about 14 feet in length was discovered resting on two props on the south side (see Pl. VIII. fig. 3). Several urns and vessels were removed from beneath it, as also a bracelet of silver and brass, and another of jet*, together with many good polished mullers and grinding-stones and fragments of pottery. The ground on the western side of this stone was explored, and found to consist of broken granite (or "spalls," as they are named by quarrymen), being the evident signs of the destroyed portions of the cromlech, said to have been broken up for building the farm-house called Belval, which stands in front of this structure on the south side of the highroad. It should be remarked that this building, shortly after completion, caught fire by some mysterious means and was burnt down—a sure judgment, as it is thought, for the desecration which had been committed by the destruction of the cromlech; this event, however, ensured the preservation of the remaining portion of this once magnificent cromlech. Among the *débris* of the western portion the fragments of pottery displayed superior workmanship in pattern and material. The above feelings on the sacrilege committed by the proprietor still act on the minds of the superstitious peasants in the neighbourhood, the more so since a ship laden with stones from this cromlech was wrecked and all hands lost. This monument still belongs to the Henri family, and is in *imminent* danger of being

* After writing the above we found a small celt of fibrolite in possession of a cottager near the *Roche qui sonne*, where he dug it up two years since. It is now in Mr. Lukis's possession.

entirely destroyed by the quarrymen who are at work close by the spot; but Mr. Henri, the proprietor, is disposed to preserve it if possible. This is the last of the Celtic structures to be described in the Vale Parish.

St. Sampson's Parish.

No. 8. On the Hougue, or hill, to the rear of the Parsonage, several *stone graves* have been destroyed. Hand-bricks and glass amulets of the Romano-Gallic (?) period were found.

No. 9. On the Vieille Hougue in the same parish, a *demi-dolmen* was discovered and preserved for some years. Bones and pottery were found beneath, and several stone celts in its neighbourhood. The stone itself was broken up by the quarrymen* in 1860, after the death of the proprietor, Mr. Isemonger, who had preserved it during his lifetime.

No. 10. A *Menhir* called *La Chaise au Prêtre* and *La Chaise de St. Bonix*, near the above-mentioned demi-dolmen, has recently been destroyed†. Two fine celts were at its base. The vicinity of these monuments, where several stone instruments have been obtained, bears the name of "Les terres du Dis" ‡.

No. 11. On the hill called Les Monts, or at present De Lancey Hill, formerly stood a Menhir nearly due south of the afore-mentioned Chaise de St. Bonix, and in sight of it, which was known as *La Pierre pointue*. When the *chevauché* went through the island, with the authorities of the ancient Court de l'Abbaye de St. Michel, the cavalcade and the pions were entertained, and dances were performed around this menhir. The proprietor, Mons. Blampied, regretted the destruction of the menhir, which, however, interfered with buildings then being erected on the site.

No. 12. On L'ilet, opposite to Vale Church, there still exists the hollow space where a *kist* once stood. It is supposed to have been destroyed in 1809—when the embankment called Arnold's Bridge was built, and the Braye du Valle was recovered from the sea. Several stone celts have been obtained in this vicinity.

No. 13. In the neighbourhood of Ronceval several stone troughs, rubbers, and stone celts have been discovered; and there was a small religious house (now destroyed) on the spot

* Nearly a dozen celts found in this neigbourhood are in Mr. Lukis's possession.

† Destroyed in 1864 by Dymond, the quarryman, after he had engaged to preserve it.

‡ The word *Dis* is interesting to the archæologist, and is here found in its proper place, on Celtic ground. The Gauls and Britons believed that they were descended from "*Dis*," *i. e.* from the earth. The Germans believed themselves to have sprung from "*Tuesco*," or "*Thus*."

known as Pulias, where still a wall of some building may be seen. The lands are situate on La Vingtaine de L'Epine, to the north-west of the hill called Les Vardes, and not far from highwater-mark. A considerable quantity of hand-bricks and pottery has been found, particularly on a small hougue known as "Le camp sauvage," belonging to St. Lainé du Vangrat.

No. 14. The singular rock-pillar known as *La Rocque Magié*, was destroyed three years ago by quarrymen. This is the more to be regretted, as geologically it was evidently connected with the raised beach in this part of the parish.

No. 15. Near Grand-Rock Battery some pottery and stone rubbers have been found.

Catel Parish.

No. 16. Near the Houmet Battery the small sea cavern called the *Creux des Fées* has nothing, so to speak, of human work about it, although often spoken of by the country-folk as connected with other ancient remains.

No. 17. Vazon Bay produces, like the Bay of Cabo, considerable beds of submarine peat, in which pottery, stone celts, and one portion of a stone bangle have been found.

St. Saviour's Parish.

No. 18. Richmond Point and Le Crocq. This hill, originally known as *Le Mont nouvé*, has still a menhir in good order, and the *débris* of a stone kist on the point of Le Crocq. Several stone celts, pottery, and clay beads have been found. On the coast here broken vessels and handbricks are frequently discovered. This menhir is about 10 feet in height (Pl. VI. fig. 3). One fine celt, with a button-head, was found near it by Le Sieur Le Bréton of the Jermies, and is in the collection of Mr. F. C. Lukis.

No. 19. *Le Trépied Cromlech* stands on a hill known by the name of Catioroc, probably a corruption of "Quoit en rocq." This was examined by Mr. Lukis in 1839–40, and described by him in the 'Archæological Journal,' vol. i. p. 222.

This cromlech is in the possession of Mr. Bonamy Maingy (Pl. IV. fig. 1; Pl. VII. fig. 4). There are three cap-stones: the westernmost one has slipped from its position; and underneath this undoubtedly some relics may yet be obtained. The second cap-stone is *in situ* on its props, whilst the third cap-stone is partly broken, and a large fragment lies underneath it. There are six stone side-props on both the north and side-stones, besides the western slab. It is doubtful if the stones shown in the plan formed part of a peristalith; but there are evidences

of a side-chamber on the south side. It is proposed to further explore this structure.

No. 20. About two hundred yards to the eastward of the above-mentioned cromlech, under a watch-tower, there were formerly four *stone graves*. These were explored by Mr. Lukis in 1840*. They were found to contain iron knives, swords, and daggers, as well as fictile vessels.

No. 21. On the promontory of L'Eée another cromlech has been left, happily without sharing any of the ravages caused by the hand of man. It stands near the road which leads to the small island of Lihou (Pl. VII. fig. 3). At present it consists of two large cap-stones, which measure about 20 feet across; these cover a considerable chamber supported by fifteen side-props. At the eastern entrance are five side-props uncovered, but an apparent cap-stone lies partially covered with turf on the south side of the entrance. Like all the others in Guernsey, this structure is orientated, and is nearly covered by the original tumulus; hence the interior presents the appearance of a dark and gloomy cavern, and is used as a stable for cattle. The popular name is the *Creux des Fées*.

Seven of the stones forming the original peristalith yet remain.

In 1840 a regular examination of this cromlech took place by Mr. F. C. Lukis and his sons. They found that this structure had been filled with stones and rubbish by the commanding officer of the soldiers at L'Erée Barracks, to prevent his men from hiding themselves within; and the whole of this rubble had to be removed.

The late Mr. Bonamy Maingy made an agreement to purchase the Creux des Fées, as the cromlech formed part of the line of demarcation between two proprietors. Mr. Corbin of Les Adams claimed a share of the cromlech on the side of his field. At a meeting of the parties on the field it was agreed that compensation should be granted to Mr. Corbin; and £7 was paid by Mr. Lukis, and a new line or limit was accordingly laid out. This property of the cromlech was then formally made over to the Royal States of Guernsey, as shown by the records.

No. 22. On a neighbouring point, where a battery was built many years since, a kist or cromlech was destroyed. The name *De Thuset*, or *Tussêts*, sufficiently designates some ancient remains having existed there.

St. Peter's-in-the-Wood Parish.

No. 23. On the road towards the menhir which is next mentioned, near the estate of Les Paysans, a tumulus once existed

* 'Archæological Journal,' vol. i. (Association), p. 305; *ibid.* vol. viii. (Association), p. 64.

over a stone structure, and was known by the name of *Creux des Faias*. Mr. Lukis obtained leave to excavate this, but, on his arrival at the spot, found that the proprietor had been before him and entirely emptied the kist in search of *tresor trouvé*.

No. 24. A fine menhir, called *La Longue Pierre* (Pl. VI. fig. 1.), stands on the estate of Les Paysans. Mr. Mansell will preserve it.

St. Andrew's Parish.

No. 25. A tumulus, named *La Hougue Fouque*, in this parish is being gradually removed by the proprietors when they require earth. Here portions of several celts and rubbers have been picked up by Mr. Lukis, and on the tumulus an iron spur was found. The name is a corruption of "*humus*," earth, and "*focus*," a hearth. This and the following have generally been considered to have served as watch-stations.

St. Martin's Parish.

No. 26. A tumulus similar to the above has also been nearly destroyed. Its name is *La Hougue Hatenai*. The proprietor informed Mr. Lukis that, when a lad, he remembers his father digging out some urns from this mound. *Hatenai* is an Arabic term for "knoll;" but how it became incorporated into the old Guernsey dialect it is impossible to determine.

Torteval Parish.

No. 27. Tumulus or cairn near Pleinmont Point. A low cairn on the summit of the highland, supposed to have been destroyed when a flag-staff was required to be erected on that point. Several celts and stone instruments have been found here.

No. 28. In Rocquaine bay is a small island known as Le Chateau de Rocquaine, or Fort Grey. In the foundations of this fort numerous urns and other vessels were found; but no account remains of its antecedents.

St. Martin's Parish.

No. 29. At Jerbourg Point, pottery has been found in various parts. Stone instruments, flint knives and arrow-heads, have been discovered in the earthworks, which extend from Bay *Portelet* on the west to *La Baie des Murs* near Le Bec du Nez on the eastern shore, and are in the collection of Mr. Lukis.

In Jacob's 'Annals of the Norman Isles,' it is stated (p. 479) that there is a smaller Druids' altar in the Vale Churchyard. This must be an error, as there is nothing of the kind; but a large boulder near the west end of the church has been thought

by the vulgar to bear a resemblance to an altar. In the parish of St. Peter Port, no stone remains are to be now found, although the names of several places near the town, still retained, are sufficiently significant, and above a dozen celts and stone instruments have been found in the parish within the last fifty years. The following are some of the old names still revered by an ancient and rude people :—

1. La Longue Pierre.
2. La Petite Longue Pierre.

1. La Pocquelaye.
2. La Pocquelaye du bas.
3. La Grande Pocquelaye.
4. La Pocquelaye Normanville.

Les Rocquettes, on which a windmill existed in the reign of Elizabeth. It fell into bad repair; and application was made for its reconstruction on *La Pierre de L'hyvreuse*, probably a menhir. This mill stood where Victoria Tower now stands. Near De Havilland Hall is an estate called Les Grands Courtils; and on part of it, overlooking La Grande Pocquelaye and Le Longue Rocque and Rocquettes, is a spot to which the term *Le Trépied* is still attached. In this neighbourhood indications of some structures have been observed; and three or four celts and an amulet from this locality are in the museum of Mr. Lukis. There are also traces of small props or menhirs in the direction of this Trépied; and it appears as if there were some connexion between this spot and *La Tintel-lais* field, where two stone axe-heads were found. This spot, Le Trépied, can be seen from the opposite hill, called *La Rocque à l'or*, where four fine axe-heads were discovered. Several stone graves were opened by Mr. Isemonger in the parishes of St. Sampson and the Vale, about the year 1842; but no account of them or their locality exists. Several of the stone-mills, or querns and mullers, from them are in Mr. Lukis's Museum.

Herm.

Before the year 1838, the island of Herm was not known to possess any ancient remains. In that year, however, Mr. Lukis paid a sketching visit to the little-frequented spot; and his experienced eyes immediately detected indications of stone structures, of which the cap-stones had been removed by the quarrymen then engaged upon the spot. Five or six sites were noted by him at the time; and as soon as leisure permitted, he set to work to explore these localities. It was not until 1841 that he was able to commence this examination, when he obtained a portion of the farmhouse, through the kindness of Mr. P. Falla, then proprietor.

The principal sites are mostly in the north half of the island,

on three hills, called respectively *Le Monceau*, *Le Grand Monceau*, and *Le Petit Monceau*, and on the sandy plain at their foot.

On the 10th August, 1841, Mr. Lukis and his party commenced exploring the kist on the Petit Monceau, not far from the stone circle (Pl. X. fig. 3). The numerous masses of bones discovered in this kist appear to have been brought thither and deposited within it, after the maceration of the bodies elsewhere. This likewise appears to have been the case in another kist, where, under one of the large stones lying within the area of a small peristalith, or circle, were found dry sand, limpet-shells, and ten adult skulls, arranged in two sets of five at either end, and disposed in an accurately quincuncial order. During Mr. Lukis's absence, these skulls were despoiled of their teeth by an enterprising dentist who happened to be a guest of the proprietor. He found the enamel to be of such superior quality that he thought they would make excellent false teeth; and it is therefore not improbable that, after having done their duty in a Celtic skull, they may have performed a second tour of duty in an Anglo-Saxon one.

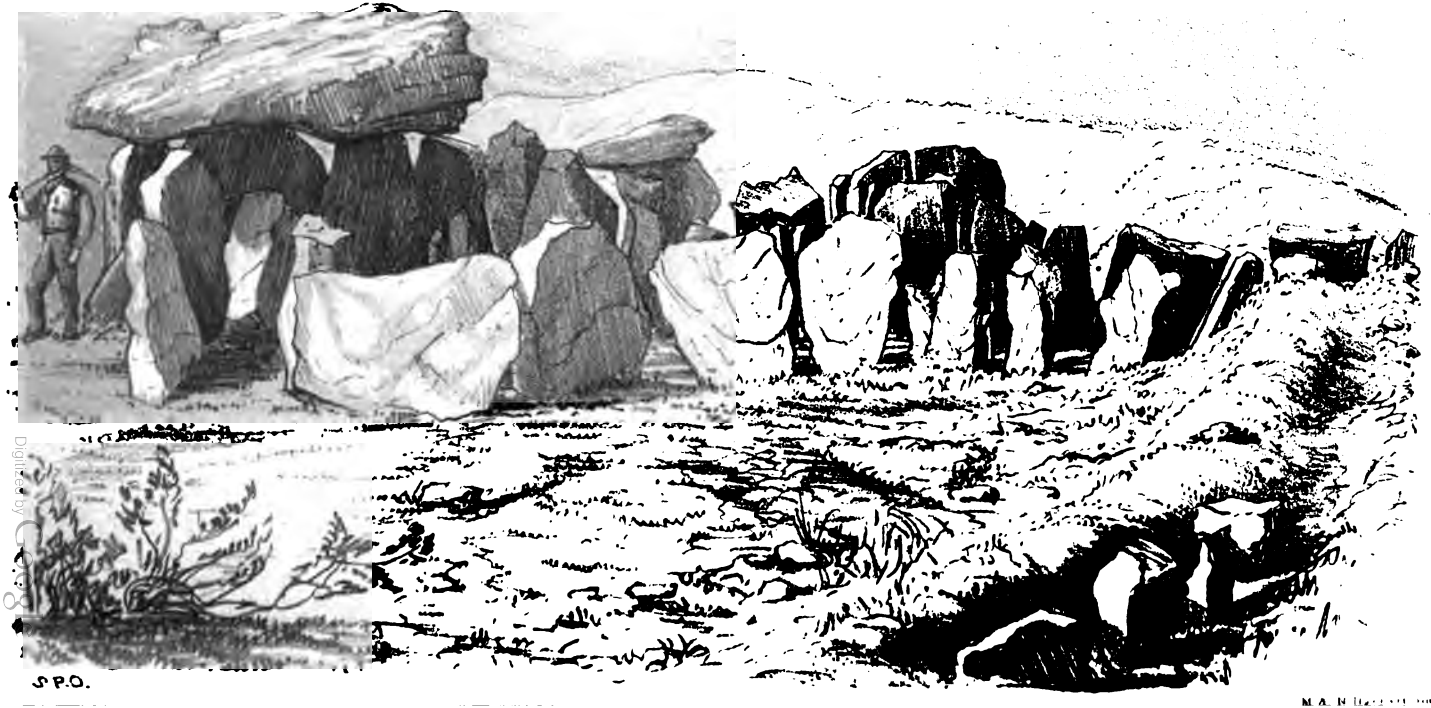
The two cromlechs on the sandy plain were soon after uncovered, in which bones and pottery, in fragments, with several urns in excellent order, were discovered. The circle or peristalith on the western side of Le Petit Monceau, with the cromlech on Le Monceau, and several others on the Mielles, or sandy plain, were likewise examined, and planned out, and described in Mr. Lukis's 'Collectanea Antiqua,' under the article "Herm." In all twelve localities sepulchral remains were discovered. Over many of these the sand has again drifted, obliterating all but the bare tracings of them. Amongst others remaining visible is a portion of a large circle tolerably defined, with approaches to it somewhat similar to the one at L'Ancresse, Guernsey; within its perimeter, to the N.E., is the kist (Pl. V. fig. 2, and Pl. X. fig. 6). It would occupy too much space in this report to describe each structure separately and minutely. A list of them is therefore given in the synoptical chart (*vide* also plans in Pl. X.).

There is a large kitchen-midden, portions of which are being continually washed away by the tide; and this has lately been described by Mr. J. W. Flower, F.G.S.

Two smaller specimens of these middens are to be found in Jedthou, also on the coast, but at a higher elevation.

Serk.

In Serk there remains only a small portion of what was once apparently a kist. Situate in Little Serk, *i. e.* the southernmost portion of the island, almost cut off by the Coupée from



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the main island, these few stones still exist near some old tin- and copper-mines now abandoned. In digging near an old embankment—perhaps an ancient fortification—several celts, mullers, &c. of rude type have been found. They are mostly in the possession of Mr. W. Collings, the present Seigneur of the island, who takes the greatest interest in archæology.

Jersey.

St. Martin's Parish.

No. 1. Cromlech at *Anneville* (Pl. II., and Pl. VIII. fig. 4). Up to the year 1848, the only visible portion of this megalithic structure was a single huge flat block of granite, measuring 15 feet long, 10 ft. wide, and 3 ft. in thick, situated apparently on a heap of rubbish, and known to the country-people under the name of the *Pocquelaye* or "*fairy stone.*" During the year 1848, however, Mr. Fauvel, at that time the proprietor, commenced excavations around and under this stone, removing the accumulated earth and soil of what perhaps had formed an artificial tumulus. This large block of stone was then found to be a cap-stone, resting upon five large side-blocks (only four of which, however, it actually touched) arranged in a semicircular position, whilst four other similar blocks almost completed the circle, forming the large western chamber of a cromlech*.

Adjoining the large chamber, there now remain vestiges of two secondary chambers which were at the same time uncovered, whilst a smaller cap-stone was thrown down and other blocks of stone displaced by the ruthless searchers for treasure-trove. What vessels or instruments were found during this search, I have been unable to discover; but I believe I am right in stating that the majority of relics found were sold to the British Museum; whether they can be identified there, or not, I cannot say.

Things remained in this state until last year, when the Vicar of Yeddingham (Yorkshire), with the assistance of labour from the neighbouring Naval School, proceeded to further excavate the mound still surrounding the cromlech, and proceeding eastward uncovered several more chambers, with an avenue of smaller stones, apparently leading to the large western chamber. In common with all the Channel-Island cromlechs, this structure exhibits intentional orientation. The general features of this monument are readily comprehended from the accompanying plan and elevation, and will be seen to correspond closely in form and dimensions with the neighbouring cromlech at Mont Ubé in the adjoining parish (Pl. VIII. fig. 5). The dimensions of

* Is it not possible that originally this circle, 11 feet in diameter, was complete, with a second cap-stone similar in proportions to the one above mentioned to cover it in?

the cromlech are as follow:—Extreme length 44 feet, diameter of western chamber 11 feet, breadth of eastern avenue 3 feet, height of side blocks at west end 5 feet 6 inches, diminishing gradually at east end to 4 feet and 3 feet 6 inches. The original walls of the central portion of this cromlech (which I take originally to have been of a bottle-shape, like that at Mont Ubé) have apparently been disturbed by subsequent comers, who have made side-kists from the blocks which formerly were part of the main body of the structure. In some of these side-kists parts of human skeletons were found. The Rev. G. F. Porter, not satisfied with the simple exposure of the stones of which this elaborate structure consists, judged it necessary to *restore* the dilapidated ruin, and the small cap-stone was replaced as nearly as possible in its original position. One stone was lying prostrate some feet away from where it now stands. The Messrs. Fauvel, who were present when it was thrown down, differed as to the spot on which it originally stood; but ultimately it was resolved to re-erect this stone in the position where it now rests, in accordance with the views of the younger Fauvel.

At the narrow eastern entrance to the cromlech were found portions of two exterior circular walls (shown in Pl. II. and Pl. VIII. fig. 4), the inner one arranged so as to allow an entrance to the eastern avenue. Both these walls were mostly pulled down and built up again under the direction of Mr. Porter; and four small vertical stones were found on the southern side of the inner wall, probably part of it. Only a small portion of the inner wall, where it joins the eastern entrance to the cromlech on the north side, is left intact; the outer wall has, unfortunately, been broken so as to break the circle, and the two ends (if I may so express it) turned inwards, so as to allow of easy entrance by visitors (*ladies* I presume), who otherwise must have had to climb over this wall of loose stones. Formerly, no doubt, there were two circles, but whether concentric or excentric it does not appear easy to decide; at present the larger portions of them are still covered over with soil.

No. 2. In the same parish, is the small cromlech *Le Couperon*, which stands on a small promontory between *Douet de la mer* and *Saie* harbour. Close to it is a small battery and magazine, built during the French war, and in the construction of which it is to be feared that many of the stones then composing the cromlech were broken and used. It is described in Falle's 'History of Jersey,' as follows:—"It consists of twenty-one stones, set on end in the form of an oval. Within this oval are fourteen others, in two straight rows, seven of a side, which sustain three large flags, lying close and touching one another, and may be supposed to have made one altar 18 feet in length."

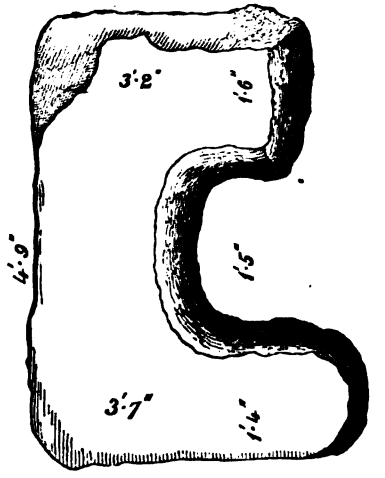
The next record I find of this cromlech is a drawing by Mr. Lukis, made about 1848, with marginal notes (Pl. IX. fig. 3), when it apparently consisted of an outer circle, 10 paces long by 4 broad, containing twenty-two stones; the cromlech itself had then eleven props supporting three cap-stones, and two other stones, whether cap-stones or not was doubtful. Mention is made also of two stones at the south, and one at the north end; but what portion of the cromlech these formed seems undecided.

Last year this cromlech was examined, cleared, and *restored* through the exertions of the Rev. G. F. Porter*. The following comparative Table shows the different states of the cromlech as described by Falle, Lukis, and Porter:—

Enumeration of stones composing the cromlech, according to	Falle, 1820?	Lukis, 1848.	Porter, 1869.
Number of cap-stones { certain	3	3	7
Number of cap-stones { uncertain	....	2	
Number of props { north side	7	....	10
Number of props { south side	7	11	9
Number of props { west side	....	....	1
Outer circle	21	22	18
Other stones, doubtful	....	3	
Total	38	41	45

Mr. Lukis has drawn my attention to the cap-stone, as now

Fig. 2.



Original side-prop, now fifth cap-stone, of Le Couperon cromlech, Jersey.

placed fifth from the western end. His son has observed, on

* See Appendix, p. 68.

examination, that this stone (see woodcut, fig. 2, and plan, Pl. IX. fig. 2) has been carefully hollowed out by the hand of man, and in every way resembles similar stones which have formed props or dividing-stones of chambers in the Brittany cromlechs —two stones, each with a semicircular aperture, forming an entrance through which it would be possible to crawl. If this theory be true, which I doubt not, then this stone, which is now a cap-stone, could not originally have been a cap-stone. Whether the restored cromlech (Pl. IX. fig. 2) is a good representation of the original, it is not for me to judge.

St. Clement's Parish.

No. 3. Cromlech at *Mont Ubé* (Pl. V. fig. 4; Pl. VIII. fig. 5). The side-props and partition-stones of this cromlech, for years past, have alone survived the general demolition of such structures; nor can I find any record of the cap-stones being recognized as such. It is probable that they were regarded as natural boulders, and broken up by the successive proprietors, ignorant of the irreparable damage they were committing. Mr. Ramié, the present proprietor, however, caused excavations to be made in 1848, by which the original plan of this Celtic sepulchre was clearly defined* (Pl. VIII. fig. 5). This monument stands on the side of a gently sloping hill, at present cultivated as a market-garden—greatly to the disgust of the tenant, whose potato-plants are trodden down by the tourists who visit the cromlech.

On comparing the plan taken this year with the one drawn by Mr. Lukis when first denuded, the absence of several stones (shaded on the plan) is at once observable, and serves as an additional illustration to show how these ancient remains, unless carefully watched, are liable, as it were, to melt away imperceptibly and by degrees. Indeed it is wonderful, considering that twenty years have elapsed since these stones were uncovered, that so many remain; for it is manifestly the interest of the market-gardener to have these huge stones removed; and, no doubt, from time to time he and his predecessors have gradually destroyed them, one by one, in hopes of ultimately demolishing the entire structure.

Of the four chambers, which (when first discovered) were well defined, it will be seen that only one remains intact. Another is indicated by two pillars, whilst the stones which marked out

* Of the same type as the cromlech called the Pocquelaye at Anneville. The dimensions of this cromlech are as follow:— Extreme length 42 feet, *i. e.* 2 feet shorter than the one at Anneville; breadth of western chamber 10½ feet; eastern avenue 4 feet; height of pillars 6 feet at west end, at east end 5 feet, and 4 feet 6 inches.

the remainder have totally disappeared. The lower half only of an upright pillar remains, the workmen having already commenced breaking this pillar when Mr. Lukis was fortunately enabled to put a stop to the proceeding.

The stones at the eastern chamber have been removed, and others substituted, probably from one of the western chambers, so as to block the entrance at the time when this cromlech was used as a pig-stye.

From an inspection of the original plan, there appear to have been several side-kists, similar to those existing on either side of the cromlech of Du Thus in Guernsey.

Mr. Lukis has drawn my attention to the fact that the summits of the stone pillars have been undoubtedly worked and shaped by hand, probably to adapt them to the proper height for the superincumbent cap-stone. I cannot but regard the exterior slab on the south side as a stone to block up the entrance into the tomb, through which subsequent interments may have been made, or periodical visits effected for the purpose of replenishing the offerings of food to the dead*.

I am informed that there were, and most likely still are, traces of a peristalith; but there were no signs of it when I visited the spot, and the ground being under cultivation prevented verification of the fact. The proprietor, Mr. C. W. Ramié, will certainly preserve these interesting remains during his lifetime.

No. 4. In an orchard belonging to Mr. Le Jeune, close by the above-mentioned cromlech, there is a small menhir, known to the neighbourhood under the name of *La Pierre Blanche*, which calls for no especial notice.

St. Helier's Parish.

No. 5. *Ville-Nouaux Cromlech.*—Close by the much-frequented thoroughfare of St. Aubin's Road, on the right-hand side on leaving St. Helier's, after passing the first martello tower, is the locality known by the name of Ville Nouaux.

Here, in a piece of waste land, over which the sea-sand has drifted in heaps, here and there covered with sparse vegetation, a ballast-hole was formed; and as the sand was carted away to the shipping, some large granite stones were half exposed, two of them being dragged away from their positions and "cracked up" as road-metal for the adjoining highway. Fortunately the ballast-hole fell into disuse some three years since, and the other stones remained unnoticed.

In May 1869 these stones were examined, and found to form

* Compare similar apertures at Le Couperon, Ville Nouaux, Jersey (Pl. IX. fig. 1), Herm (Pl. X. fig. 1), &c.

a portion of a megalithic structure, from the interior of which the accumulated sand and soil were carefully removed, by leave of M. de Quetteville, the proprietor.

As now exposed to view, this cromlech appears to be an elongated *allée couverte*, nearly due east and west, measuring 35 feet in length. Its sides, about 4 feet apart, are as nearly as possible parallel, although there are indications of the avenue being narrowed towards its eastern extremity, as we should expect to find. The side-blocks of stone average from 4 to 5 feet in height, and number eleven on the northern, and seven on the southern side, the western end being closed by a fine single slab. The interstices between these blocks are roughly filled up with irregularly-shaped smaller stones, evidently built in to prevent the exterior earth and soil of the superimposed tumulus from falling into the sepulchral grotto (Pl. V. fig. 3; Pl. IX. fig. 1).

There must have been formerly at least nine cap-stones; of these, two have been removed, as observed above, whilst the whole fabric appears to have been tilted, with an inclination to the south, probably caused either by the unequal pressure of the accumulated sand-drift on the northern side, or by the removal of the ballast from its southern supports. It is difficult to determine whether all the cap-stones are in their original positions, or whether some of them have not slipped between the side blocks from their summits.

On the south side, under the second cap-stone, between two props is an aperture which I consider to indicate a similar intention as the one mentioned in the account of the Mont-Ubé cromlech. The sixth cap-stone has evidently slipped down, so as to form a partition-wall between the eastern and western portions—indeed, so much so as to make it almost doubtful whether it is a cap-stone or really a dividing-block. I think the supposition that it is a cap-stone, however, the more likely. On removing the sand-drift, at a depth of 2 feet a fine black soil was reached, and this was removed carefully; but the usual layer of limpet-shells (so universally met with in the cromlechs throughout the Channel Islands) was wanting, indicating, according to Mr. Lukis, that the interments are of a secondary period.

At a depth of 4 feet, in the north-west corner, fragments of pottery were first found, red and black, and a pavement of flat sea-worn pebbles apparently indicated the bottom of the vault. As Mr. Lukis has found several layers of interments with similar pavements in the Guernsey cromlechs, it is not improbable that lower layers and remains may yet be found on further search being made. As the work proceeded, groups of urns, in sets of three, were discovered; along the north side nine of these were preserved more or less perfect; in one case a smaller urn

was enclosed within a larger one. Some of these urns were in a fine state of preservation; and, with the exception of two*, they are all in the possession of the owner. It must be observed that all these urns, when discovered, were surrounded by flat stones placed vertically around them, and above them, so as to form small kists; but they were so disarranged that it was almost impossible to determine the exact way in which they had been placed. Some of the jars seemed purposely inserted in the intervals between the side-blocks.

Nearly in the centre of the cromlech was a flat stone in a vertical position, and close to it was found a small stone amulet with two holes drilled through it. Here and there the earth about it was discoloured, as if with decomposed bone; but there were no very significant traces of osseous interment. No marks or holes have been found on any of the stones composing this cromlech. Much yet remains for examination concerning this structure, and there is little doubt that exterior chambers may be found; for the eastern extremity is still covered with sand.

No. 6. The celebrated cromlech which formerly stood on the present site of Fort Regent was removed to Henley-on-Thames, and needs no further allusion here.

St. Brelade's Parish.

No. 7. On a farm belonging to Mr. Ramié, in the wild part of the island known as Vingtaine de la Moye, is a fine menhir which goes by the name of *Le Quesnel*. A curious fact may be noticed relative to this monolith, viz. that it is so neatly balanced that when the wind blows high it shakes distinctly, so that an iron ring was driven into the top in order to make fast a guy, to steady it, when a small windmill used to be fixed to the top. By scraping away the earth accumulated at its base the flat edge of a spade can be passed underneath the centre of this monument, between it and the flat rock on which it stands.

Although Mr. Ramié is willing to preserve this monolith, if possible, yet the ground within a few feet is being quarried, and so little control apparently can be exercised over the quarrymen that any day Mr. Ramié may find this fine landmark destroyed.

No. 8. About half a mile from Le Quesnel, and directly above La Corbière Point, is a fine single stone Dolmen, called the *Table des Marthes*. It measures 12 feet by 6 feet by 3 feet. It is supported on two small cairns, and Mr. Ahier found some bronze instruments beneath it: he does not say what; but probably they were wedges. A great deal of the granite on the

* Two urns were given by Mr. Quetteville to the Rev. F. Porter, who was present at the exhumation.

surface of the ground about here is being broken up, and at any time this dolmen may disappear.

Besides these, there are several more obscure remains which may here be briefly alluded to, such as indications of tumuli, viz.:—*Le Bequi* near Plemont, in St. Ouen; the *mound* under the tower called *La Hougue Bie*, in St. Saviour's; and another, also in St. Saviour's, near the highroad, not far from the church. Again, there is another conspicuous rock, falsely called a menhir, on the Quenvais.

There is some rumour of a trilithon called the *Pré des trois roches* having existed close to the sea at St. Ouen; but I could find no trace of it, nor could I find any one who knew of an *alignment* said to be extant some years ago at *Vinchelez de Bas*. So also I am informed that a dolmen was discovered at St. Ouen in 1839, on les Monts Grantez, in a field called la Grande Place.

There now exists a doubtful demi-dolmen in the northern part of Trinity parish, called the *Roche à la Fée*, close to the sea, east of Petit Port; but I was unable to visit it. The name certainly indicates a Celtic monument.

At Dicq, Havre de Pas, it is said that a circle and cromlech formerly existed; but this is all built over. So also the name of *La Pocquelaye*, at Rouge Bouillon, indicates the existence of a cromlech in by-gone days.

A rocking-stone is stated to have formerly stood at *Les Landes Pallot*, in St. Saviour's Parish; and there is a stone worth examining on Mr. T. Lerrier's farm at Grouville.

The *Rocque Berg*, or "Witches' rock," is simply a rock on which are said to be the marks of cloven hoofs; they are merely the holes caused by the decomposition of the softer portions of the granite.

I ought not, perhaps, to omit mention of certain caves said to exist in the hill over the Couperon cromlech. They are noticed by Falle as follows:—"In the side of the same hill are caverns wrought leading into one another, the entrance 3 feet high and 2 wide; but for what use intended I am unable to say." From this account it appears as if they were artificial; but no one in their neighbourhood appeared to know of their locality, and my own visit was too brief to allow of a systematic search; they may be worth examining.

ALDERNEY.

Alderney has suffered almost more than the neighbouring islands as to the destruction of its megalithic structures. Mr. May, who has for many years been in charge of the Admiralty works in connexion with the breakwater in this island, writes to

me, "For many years past this island has been infested with the genus *homo*, species '*navvy*,' who make it their business on Sundays to destroy all such landmarks as those you are looking for."

And he is quite right; for hardly any remain, with the exception of part of a cromlech, near Fort Tourgie, called the "Druids' altar," and two dilapidated cromlechs by Corblets Ray. At least five cromlechs and six tumuli (chambered) are described as existing in 1847 by Mr. Lukis*. But since that account was written, the island has been covered with modern fortifications, and almost all vestiges have been removed. I have given a list of such remains, but I am sorry not to be able to report more fully on them, from the fact that during my brief visits to this island I was more or less employed on military duty, and was unable to afford the time necessary to make a more careful search to identify the few remains existing. Many of the instruments found in Alderney are in the possession of Mr. Lukis; and I picked up a portion of a celt myself in a ploughed field near the *nunnery*.

Conclusion.

There are numberless points of interest connected with these megalithic remains, which are, however, beyond the province of the present paper; but perhaps I may be allowed to observe how much I was struck, during my examination of these monuments, by the remarkable resemblance they bear to the monoliths and stone tombs which I had seen in Madagascar, and which are erected by the hill-tribes of Hovas even at this very day. Choosing the natural cleavage of the rock (generally granite), where adapted for their purpose, they light fires of dung along the line indicated, and then dash water onto the heated stone, which is thus split, and a huge mass detached. By means of strong levers, and on rollers of hard wood, with the help of ropes made from the *rofia* and other palm-fibres, they manage to move these rocks over difficult ground to their position. A whole tribe of some five hundred men will, perhaps, be engaged in moving one such stone. Similarly I have recognized an affinity with the aboriginal Indian tombs in Central America. Figs. 2 & 3, Pl. VI., represent a rudely carved stone now forming a gate-post in the churchyard of St. Martin's Parish, Guernsey, which reminded me irresistibly of the stone idols which I had seen on the island of Momotombita in the Lake of Managua—the head, shoulders, and arms alone being represented, the remaining portion being unhewn and rough.

In conclusion, however, my sole object has been to give as

* See Archæologia, Journal of Association, April 1847, "Antiquities of Alderney."

faithful an epitome as possible of all the information I have been able to collect as to the present state and condition of the prehistoric remains in the Channel Islands; nor at present do I offer any suggestions as to the means to be employed to preserve those that remain intact. But I cannot conclude without mentioning that this Report ought rightly to be considered rather as Mr. Lukis's than my own; for it is to Mr. Lukis that I owe the majority of notes, plans, drawings, &c., in fact, the whole *materiel* for this paper, which has mostly even been put together under his personal superintendence. Any credit, therefore, that it may deserve is attributable to him, whilst I must blame myself alone for the shortcomings and faults—which I trust will be dealt with leniently, in consideration of my inexperience.

APPENDIX.

The Opening and Restoration of the Cromlech of Le Couperon.

"The Rev. F. Porter, vicar of Yeddingham, Yorkshire, a gentleman who has given much attention to the sepulture of the aborigines of various countries, and who, with the Rev. Canon Greenwell, of Durham, has opened and examined many of the tumuli which abound on the moors and wolds of Yorkshire, is now a temporary sojourner in the Isle of Jersey. This gentleman, true to his instincts as an antiquary, was readily attracted to the cromlechs still extant in this island. A very cursory view of these satisfied him that they had been opened, but, apparently, unskilfully explored. One was said to remain intact. Mr. Porter thought otherwise, but resolved to reopen it. This cromlech is situated on the north-east part of the island, on a promontory called or known as *Le Couperon*. The promontory projects considerably into the sea, and has perhaps an altitude of some 70 or 80 feet from the level of high water. The locality here chosen as the last resting-place of our unknown friends is a proof of good taste, and shows a degree of refinement for which we are scarcely prepared to give them credit. From the east end of the cromlech is seen the bold headland of La Coupée, and there the eye passing over the sea rests on the coast line of Normandy. The sun gives to the cromlech his first radiance, the western slope again admits his rays as he goes down; and here warmth and light and cheerfulness pervade the tomb, and take from it much of that sadness we are so prone to associate with death. Let us now give a concise account of Mr. Porter's operations. In July last he assembled a party of friends, including the Rev. W. Ick, Col. Rynd, Capt. Evison, R. N., Capt. P. Gaudin, Mr. W. G. F. Porter, &c., with the proprietor of the soil, and proceeded to an examination of the ancient monument.

It was found in a state of great dilapidation; some of the upright stones had fallen and thrown off the transverse blocks, briers, ivy, and the rankest vegetation had taken possession of the whole exterior, and the monument had become, to the casual observer, a mere mass of confusion. When cleared externally, it was found to be surrounded by an oval *peristalith*. The reverend gentleman having gained access into the interior of the cromlech, saw at once that it had been previously despoiled. He, however, carefully removed and sifted the earth, and was rewarded by finding a few flint flakes and the bottom portion of a rude urn in small fragments. The reverend gentleman having satisfied himself as to the previous opening, set about *restoring* it to its pristine condition. The space within the peristalith he did not examine, fearing his *newly-executed* work might fall in. We give its dimensions as measured by Mr. Porter. The cromlech of 'Le Couperon' lies within a peristalith, and is the only instance in the island. The circumference of the peristalith is 100 feet, composed of rough blocks of stone about four feet long by two feet thick, standing about two feet above the soil: they are not in contact, and eighteen only remain. The position of the cromlech is (by compass) due east and west. It is 26 feet 9 inches long; width at east end 2 feet 3 inches, centre 3 feet 6 inches, increasing at west end to 4 feet 4 inches. The cromlech consists of nine vertical or supporting-stones on the south side, and eleven on the north, which are about 3 feet 6 inches high at the west end, gradually decreasing to about 2 feet at the east end; these uprights support *seven covering-stones*, the three largest being at the west end, measuring:—No. 1, 5 feet 6 inches long, 5 feet 6 inches wide, 2 feet thick; No. 2, 5 feet 10 inches long, 5 feet 6 inches wide, 2 feet thick; No. 3, 6 feet 7 inches long, 5 feet wide, 2 feet thick. The height at west end from covering-stone to present floor is about 3½ feet. The space between the peristalith and outside of the vertical stone of the cromlech is about 3½ feet. Many of the vertical stones had been displaced, and two only of the transverse or covering stones out of seven were found in position. The cromlech as it now stands is worthy of a visit from the antiquarian tourist"*.

EXPLANATION OF PLATES II.–X.

Plate II.

Pocquelaye Cromlech, Anneville, Jersey. (See plan, Pl. VIII. fig. 4.)

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* Two beautifully-executed photographs have been taken of it, and may be obtained at the establishment of Messrs. Asplett and Green, 18½ Beresford Street.

PLATE III.

Fig. 1. Kist-vaen at L'Ancresse, Guernsey. (See plan, Pl. VII. fig. 5.)
2. ——, La Mare aux Mauves, Guernsey. (See plan, Pl. VIII. fig. 1.)

PLATE IV.

Fig. 1. Cromlech, Le Trépied, Guernsey. (See plan, Pl. VII. fig. 4.)
2. ——, Le Grand Monceau, Herm. (See plan, Pl. X. fig. 2.)

PLATE V.

Fig. 1. Remains of a Cromlech, La Roche qui sonne, Guernsey. (See plan, Pl. VIII. fig. 3.)
2. Kist-vaen at Les Mielles, Herm. (See plan, Pl. X. fig. 6.)
3. Cromlech at Ville Nouaux, Jersey. (See plan, Pl. IX. fig. 1.)
4. —— at Mont Ubé, Jersey. (See plan, Pl. VIII. fig. 5.)

PLATE VI.

Fig. 1. Menhir, La Longue Pierre, Les Paysans, Guernsey.
2. Rudely carved stone now forming a gate-post in the churchyard of St. Martin's Parish, Guernsey. Side view.
3. The same, front view.
4. Menhir, Le Crocq, Guernsey.

PLATE VII.

Fig. 1. Plan of cromlech at L'Ancresse, Guernsey.
2. Plan of cromlech, Dé-hus, Guernsey.
3. Plan of cromlech, Le Creux des Fées, Guernsey.
4. Plan of cromlech, Le Trépied, Guernsey.
5. Plan of kist-vaen at L'Ancresse, Guernsey.

PLATE VIII.

Fig. 1. Plan of kist-vaen, La Mare aux Mauves, Guernsey.
2. Plan of kist, Tombeau du Grand Sarazin, Guernsey.
3. Plan of remains of cromlech, La Roche qui sonne, Guernsey.
4. Plan of Pocquelaye cromlech, Jersey.
5. Plan of cromlech at Mont Ubé, Jersey.

PLATE IX.

Fig. 1. Plan of cromlech at Ville Nouaux, Jersey.
2. Plan of Le Couperon cromlech, Jersey, restored.
3. Le Couperon as it appeared in 1848.

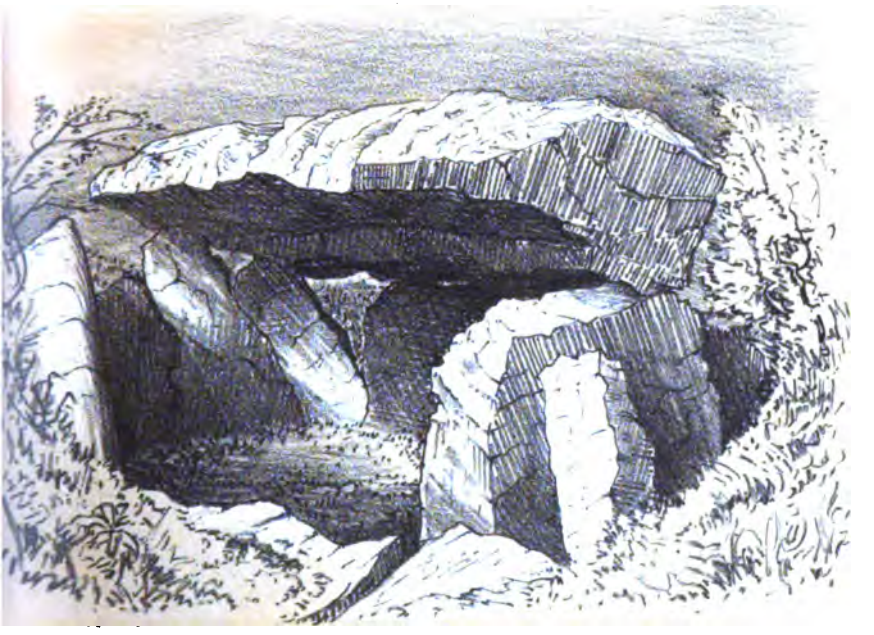
PLATE X.

Fig. 1. Plan of cromlech at Le Grand Monceau, Herm.
2. Plan of another cromlech at Le Grand Monceau, Herm.
3. Plan of stone circle at Le Petit Monceau, Herm.
4. Plan of stone circle and kist at Le Monceau, Herm.
5. Plan of stone circle at Le Petit Monceau, Herm.
6. Plan of stone circle and kist on Les Mielles, Herm.

N.B.—The scale of the plans in Plates VII. and X. is $\frac{1}{120}$, and that of those in Plates VIII. and IX. is $\frac{1}{144}$.

The plans of the cap-stones are shown in dotted lines, and those of the side-stones in continued lines. The stones shaded have been removed since 1848.

These plates represent only a portion of the large collection of plans and drawings which accompanied the report.



KISTVAEN AT L'ANCRESSE, GUERNSEY.

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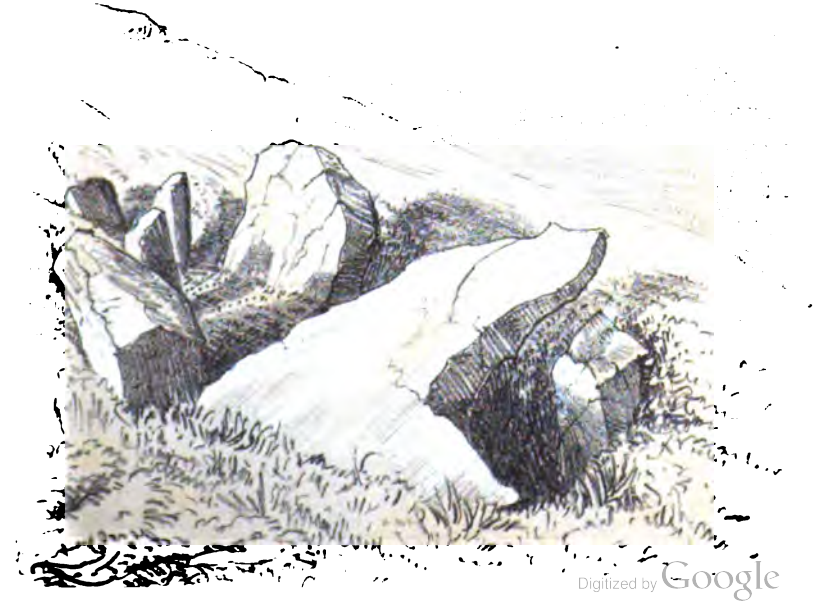
LA MARE AUX MAUVES, GUERNSEY.

LE TREPIED, GUERNSEY



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LA ROCHE QUI SONNE, GUERNSEY.

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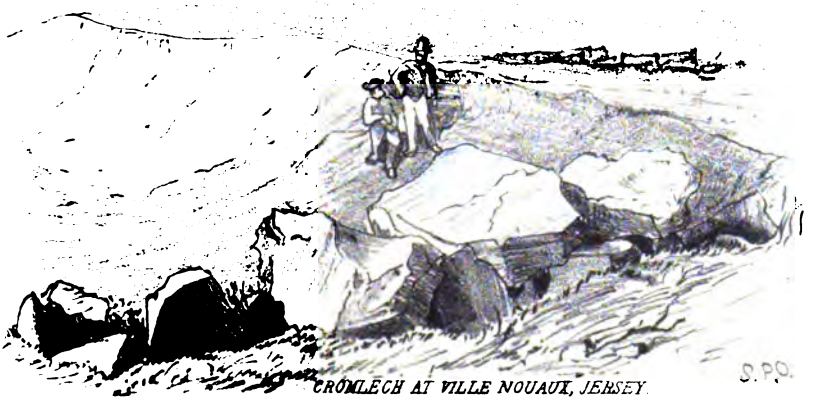

CROMLECH AT VILLE NOUAUX, JERSEY.

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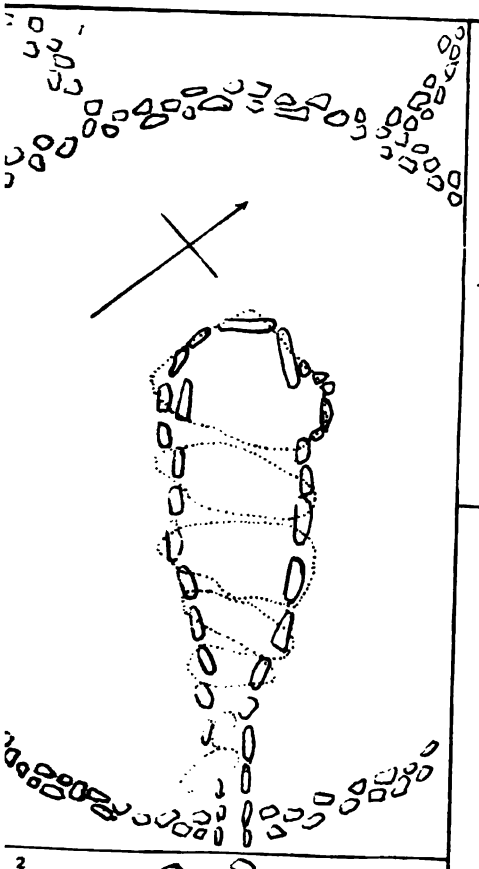
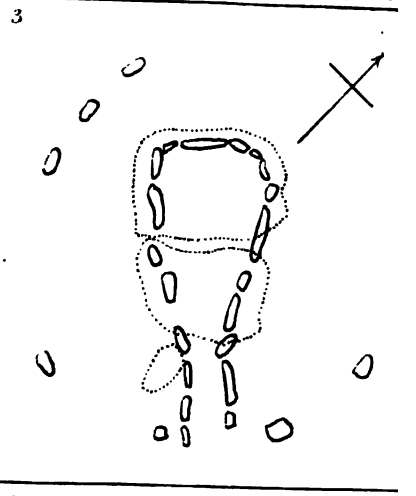
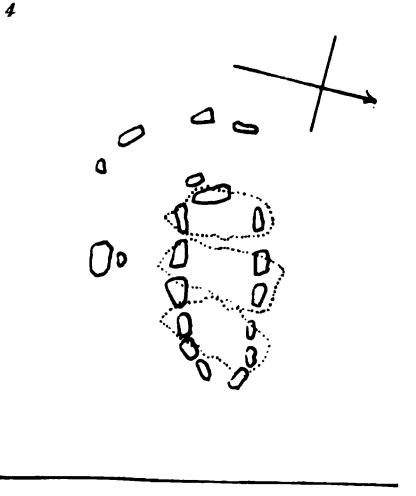
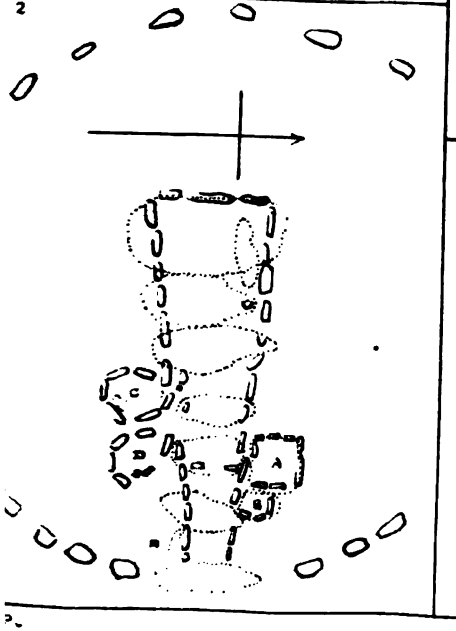
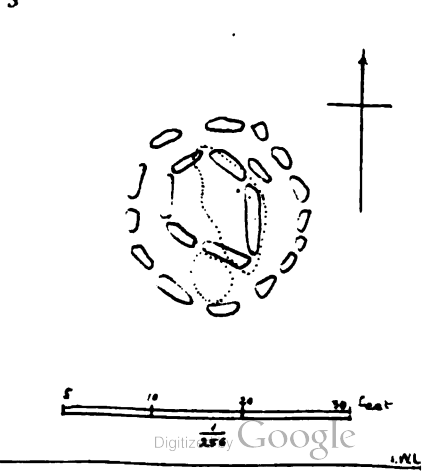
CROMLECH AT MONT UBE, JERSEY.

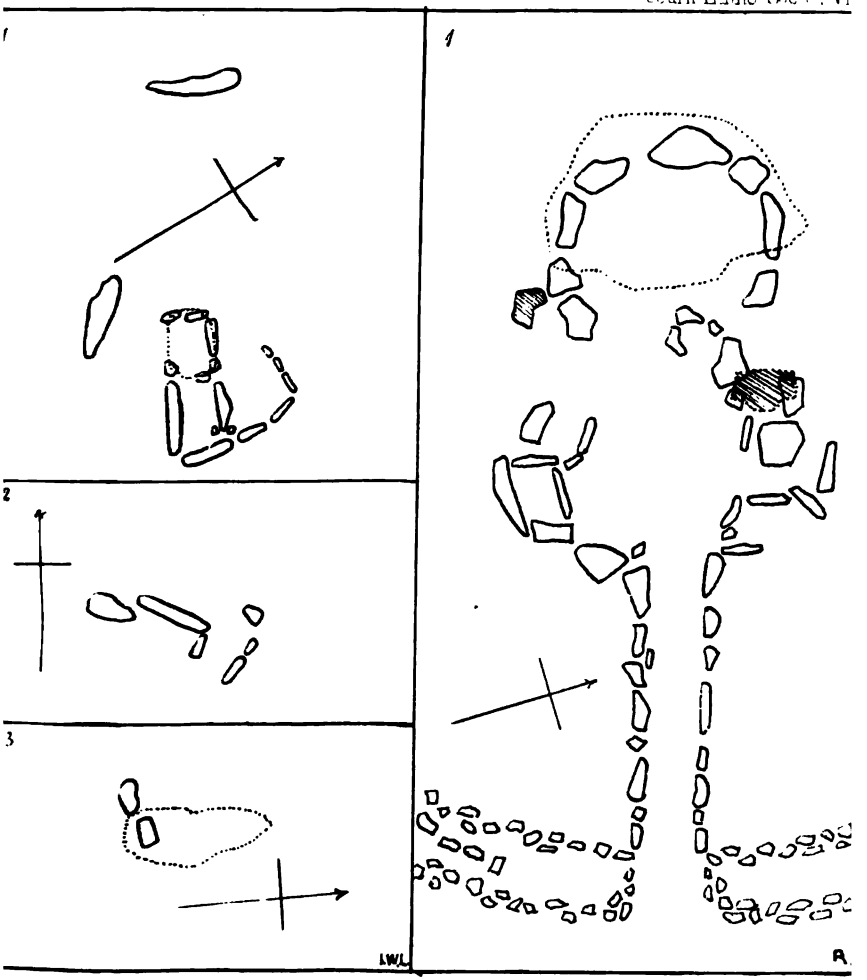












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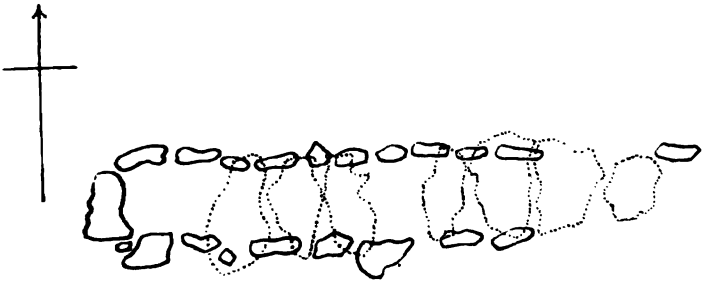

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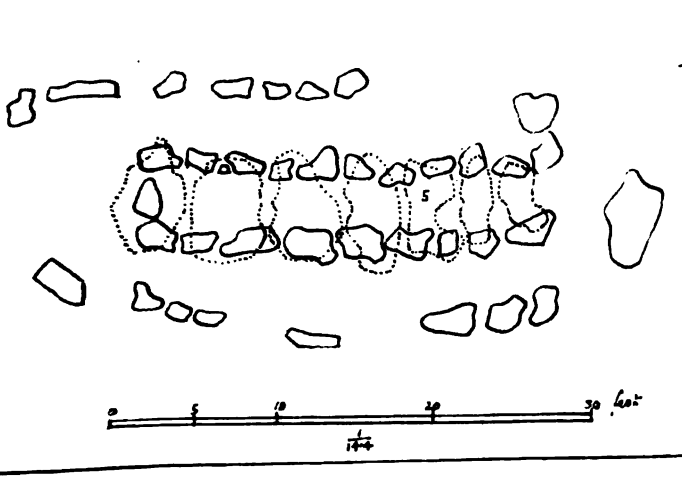

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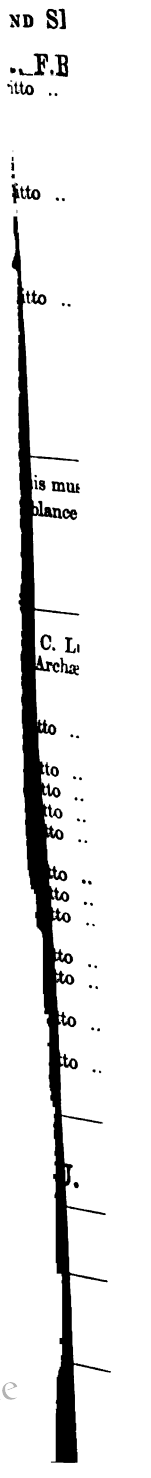
›r excavated ; when, and by whom.	If in danger from Quarrymen. *	If Proprietor is willing to preserve it. *	Remarks.
ed or uncovered a century ago ; by M. Fauvel (1848), who sold and within to the British Mu- British Collection, cases 34, 35) ; uncovered by the Rev. F. Porter, ıldingham, in 1868–69. he Rev. F. Porter, 1868.	No	Yes	The stones which have been moved are shaded in the plans.
W. Ramié in 1848	No	Yes.	
.....	No	Yes.	
ıy 1869, by Lieut. Oliver, R.A., . Porter.	No	Yes.	
Henley-on-Thames.	Quarry opened close to it.	Yes.	
. Ahier ; date unknown	Yes	?	
d and rifled of its contents a long date unknown. The cap-stone was wn, but in 1830 it was replaced by tin.	No	Yes	These remains will be more fully described in a future supplementary Report.
alone remain. Examined by F. , 1841.	?	?	

villing to preserve ; but unfortunately in many cases, however willing remains have been destroyed in the temporary absence of the pro-



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Discussion.

The Honorary Secretary read the following letter from the Rev. F. Porter in justification of his attempts at restoration :—

"What I did with regard to the Couperon cromlech was this :—I cleared away the briers &c. with which it was overgrown, and found that all the cap-stones, save two, had been displaced, some being on the north, others on the south side, but all within the peristalith.

"In clearing out the interior I found the vertical stones, which had been thrust inward; I had merely to raise them upright, and they were as nearly as possible in their true position; I think it was almost impossible for me to make a mistake here. The cap-stones were then placed on their supports, exactly in the order in which I found them, I did not pick one here and another there, because it would fit and look better, but replaced them in the order in which they lay, thinking, from their large size, that they could not have been moved since the time of their overthrow.

"I did bring one stone which had been taken a few yards from the place, and put it as one of the block stones at the west end of the cromlech. Many of the stones of the peristalith have been taken away, and used for building- or road-purposes; not one of those remaining was in any way removed or replaced by me.

"And now for a word respecting the 'Anneville cromlech.' With the one or two exceptions I will name, I left every thing as I found it. I again distinctly deny the charge of replacing the scattered stones in an arbitrary manner.

"The walls surrounding this cromlech I was obliged to break through, in order to remove the interior of the mound. Much, however, of the original walls was untouched; to these portions I built up (according to measure taken before their removal) those portions which the necessity of the case obliged me to remove.

"I replaced a cover-stone over one of the kists on the north side, raised upright one of the stones of a kist on the south side, which had given way from the removal of the soil at the back, and brought in, from the base of the mound, a stone which had formed part of a kist on the south side, and replaced it in the position it formerly occupied, being assured as to this fact, as also in the case of the cover-stone on the north, by the person who some thirty years back opened part of this cromlech.

"As many of the stones had been destroyed and taken away, I thought, by showing the nature of the monument, this might for the future be prevented; my object was to preserve, not destroy, or to make a 'cooked-up' structure to please my own taste or fancy."

Mr. J. W. Flower remarked that, if there was any thing to regret in Lieut. Oliver's able Report, it was that it was not made a little more full by adding further particulars of the objects found in the dolmens. All these megalithic structures seem to be more or less alike as regards their external forms; and it was therefore chiefly to the implements, weapons, and pottery found in them that we must look for indications of the conditions and modes of life of those who built them.

Mr. Flower exhibited the cast of a very beautiful implement in green jade, being one of seven or eight which Mr. Lukis, sen., had procured from the Guernsey dolmens, and which, he observed, indicated a perfection in this art of which no traces had been elsewhere found. This implement is eleven inches long, and seven in circumference in the centre. At one end it forms a sharp hatchet; and the other is rounded to a point, and forms a pick-axe, the centre being pierced to admit a handle, and the sides of this opening being strengthened by two bands or ribs left when the stone was carved. Mr. Flower also exhibited some small polished implements of granite, brought to an edge of two facets, and some hand-made bricks or trivets, of a peculiar form, which he had lately found in examining a kjökken-mödding in the Island of Herm, containing a prodigious quantity of limpet and other shells. Precisely similar objects had been found by Mr. Lukis in several of the Channel Islands; and although it by no means followed that, because these things were found so near to each other, the dolmen-builders must also have been the people of the kjökken-möddings, still it seemed possible, if not probable. Mr. Lukis had ascertained that trivets or bricks of the same form were even now in use by the potters of Allahabad, in order to support their pottery when placed in the kilns. The kjökken-mödding also contained several fragments of undoubted Samian ware; and it would seem therefore not only that the builders of the dolmens were probably identical with the kjökken-mödding people, but that they also had some intercourse with the Romans; and, further, the same method of preparing pottery for burning which was in use in Europe at this remote period was still practised by the potters of India.

Mr. J. W. LUKIS, referring to the Rev. F. Porter's letter which had been read in justification of his so-called reconstruction of some of the cromlechs in Jersey, remarked that he was sorry that the Rev. gentleman had made such an egregious mistake as to replace, in lieu of the missing cap-stone No. 5 of the Couperon cromlech, a stone (fig. 2, p. 61) which had been hollowed out on one side, and had originally formed, with a similarly hollowed block, an entrance-hole into the chamber. Examples of such entrances are to be seen in the cromlechs at Avening, at Rodmarton, &c., and also in two places in the chambered barrow of Kerlescant, Brittany.

This hollowed stone which, is the only example of the kind hitherto discovered in the Channel Islands, had passed totally unobserved until Mr. J. W. Lukis visited that island in July last.

In corroboration of Mr. J. W. Flower's remarks relative to finding Samian ware in the kitchen-midden in the Island of Herm, Mr. Lukis mentioned that, in examining the "Autel des Vardes," L'Ancresse, Guernsey, in 1848, several pieces of Samian ware were discovered, one of which had been worked in a circular form and perforated in the centre, probably to be used as a charm; of course this pottery was found at the surface, and not immediately connected with the earliest deposits. In 1847, Mr. Lukis found in a cromlech near Hennebont, Brittany, three Roman coins of the Lower Empire. It it more than probable that many of these localities were not only held sacred by subsequent races, but made use of by them.

Mr. Hyde Clarke said, with reference to the age of the kitchen-midden in Guernsey, that it did not follow, because the pottery was of the class called by us Samian, that the period was Roman. He had found the like pottery in the kitchen-midden pointed out by him on Mount Pagus, at Smyrna. It was possible that the pottery might have been imported earlier than the Roman period. He thought it very desirable that the theoretical matter in the paper should be turned to account. He considered the Council might endeavour to get the States of the Islands to extend their protection to public objects, and to give greater facilities for the conversion of these monuments into heirlooms. With regard to the favourite assignment of these megalithic remains to the Celts, he knew of no justification for it. Their distribution is not conformable to the Celtic area, and the Celtic nomenclature is not distinctive or historical, but meaning only "long stones," "great stones," &c., which forms usually imply that the monuments belonged to a much earlier population.

Col. A. Lane Fox observed that he had found hand-bricks of the same kind as those mentioned by Mr. Flower in a pit near St. Peters, Broadstairs, associated with Roman pottery and with evidence of the fabrication of flint implements: the contents of this pit had been described in the first number of the Society's Journal for the year 1869. He did not concur with Mr. Hyde Clarke in thinking that Samian pottery, in this country, could be attributed to pre-Roman times. He thought that the occurrence of Samian ware, wherever found, might be regarded as a proof of Roman occupation. It was not, however, to be inferred from the presence of this class of pottery in the kitchen-middens referred to by Mr. Flower, that other kitchen-middens were Roman, but only those in which the Roman pottery occurred. A kitchen-midden might be of any date; the period could only be determined by the characters of the associated remains; and many were proved to belong to the early stone age. At Richborough, in Kent, examples of kitchen-middens might be seen belonging exclusively to the Roman age.

Ordinary Meeting, December 21st, 1869.

Professor Huxley, LL.D., F.R.S., *President, in the Chair.*

New Members.—Rev. James Simpson; George Campbell, Esq.; Dr. Thomas Nicholas, M.A., F.G.S.

The following paper was read by the author:—

VIII. Description *of and* Remarks *upon an* Ancient Calvaria *from* China, *which has been* supposed *to be that of* Confucius. By George Busk, Esq., F.R.S.

Amongst the various curiosities of the Great Exhibition of 1862, there was scarcely any more striking and interesting, of its kind,

than an object in the "Department of Goldsmiths' Work and Jewellery," in the Chinese Court. This consisted of the upper portion of a human skull, richly mounted in gold and jewels.

The object is briefly described and figured in Mr. Waring's 'Masterpieces of Industrial Art' (vol. iii. pl. 291). "The skull is placed on a triangular stand of pure gold, and rests on three very roughly shaped gold heads; the cover, also of pure gold, is richly ornamented with minute patterns in low relief, and is studded with small precious stones. The ornament [ornamentation?] itself presents nothing peculiar, the principal portion of it being formed by the usual conventional mode of representing clouds or sky, typical perhaps of the region to which the soul of the deceased had flown."

In the same work it is also stated that the object was taken from the Summer Palace of the Emperor by one of Fane's Cavalry, and at the time of the Exhibition was the property of P. M. Tait, Esq.

Of this extraordinary and beautiful piece of Chinese workmanship nothing now remains except the portion of skull upon whose preservation and adornment such great pains and art had been bestowed. With the most astounding stupidity the gold has been melted down for its mere weight as bullion, and one of the most interesting and curious relics of Chinese art and history has thus been irretrievably lost.

The remaining relic has lately come into the hands of my friend Mr. Mummery, with whose permission it is now laid before the Society.

From such a small portion of course little can be deduced as to the general characters of the entire calvaria. But it is sufficient to show that the individual to whom it belonged was a man probably advanced in life, and, so far as his bones were concerned, of delicate make. The cranial bone generally is thin; and scarcely any appearance of a diploë remains. The sutures, though distinct enough, are closed, and the lower portions of the coronal on either side completely obliterated.

1. *Norma lateralis* (Pl. XI. fig. 1).—On the side view the skull presents an elevated vertex, the summit of which corresponds to about the middle of the sagittal suture. The upper part of the frontal bone is somewhat depressed.

2. *Norma verticalis* (Fig. 2).—The vertical aspect presents an oval outline, slightly compressed at the situation of the coronal suture.

3. *Norma frontalis* (Fig. 3).—In the front view the outline is somewhat pyramidal, a form that is still more manifest in the

4. *Norma occipitalis* (Fig. 4) or occipital aspect.

The dimensions of the *calvaria* are as under:—

Length	6″·8
Breadth	5″·3
Height	3″·0
Least frontal width . . .	3″·6
Greatest frontal width . .	4″·5

As the skull has been sawn across in a plane running above the glabella and through the upper part of the squamous bones and of the supraoccipital, something should be added to the above length for that of the entire skull, which I consequently estimate at about 7″. This would give a latitudinal or cephalic index of ·757. Comparing this and the other measurements above given with those taken from nine Chinese skulls, I find some important differences.

For instance, the mean cephalic index of the Chinese skulls is ·807; the maximum being ·868, and the minimum ·746. The mean width of the nine Chinese skulls is 5″·71; the greatest being 5″·8, and the least 5″·4. The mean anterior or least frontal width in the Chinese is 3″·72. the greatest being 4″·0, and the least 3″·5; whilst the mean of the posterior or greatest frontal width is 4″·7, the widest measuring 4″·8, and the narrowest 4″·6.

The present *calvaria* therefore would seem to differ very considerably from the average or typical Chinese skull, although it may in all respects but one, perhaps, be comprehended within the limits of variation of that form.

It is, in the first place, dolichocephalic, whilst, with one exception out of nine, the Chinese skulls may be termed brachycephalic, the only other exception being that of a Chinese pirate, whose cephalic index is ·770, and who may not improbably have been of a more mixed race than the inhabitants of the interior.

It will also be observed that in the frontal transverse diameters the *calvaria* only equals the narrowest among the Chinese, and is notably less than the mean of them. In its extreme or parietal width, again, it is absolutely narrower than any of the Chinese skulls.

On the whole, therefore, it appears to me, if any reliance can be placed on such scanty data, that the so-called skull of Confucius must have differed considerably from that of his fellow-countrymen, and that it is not improbably of foreign origin.

But besides the craniological characters there are some other points in the specimen which appear to me worthy of remark in an archæological or antiquarian sense, and which may eventually perhaps be found to lead to its identification.

The interior offers nothing of remark, except that it exhibits

here and there small thin patches of what appears to be wax, or some similar substance, by which, doubtless, the gold with which it is said to have been lined was cemented to the bone.

The outer surface is everywhere highly polished; and to effect this, some thickness of the outer table of the bone has apparently been removed. The skull seems to have been very carefully sawn, in the plane above described.

The sawn edge, also, has afterwards been ground, as it would seem, on a flat surface, so as to be quite true. This was doubtless done to ensure the close fitting of the gold lid.

But the most remarkable circumstance, as regards the outer surface, remains to be described, and which, so far as I am aware, appears to have been hitherto overlooked. It consists in the existence, in three places, of figures in faint relief, which, though easily escaping observation on the bone itself, are very distinctly seen in a plaster-cast of it, upon which, indeed, I first noticed them. One of the figures is placed at about the middle of the frontal bone, and the others on either side, just behind the parietal eminences.

The frontal figure (Pl. XI. fig. 5) is obviously a written character of some kind, whilst the others can only, I should imagine, be regarded as ornaments. That on the left side (fig. 6) is very distinct, and of a trefoil shape; and that on the right side, though nearly obliterated, is seen on close inspection in a plaster-cast to have been of the same form. There also appear to be traces of a figure (fig. 7) of some kind on the back of the skull, just above the termination of the sagittal suture. These are so faint, however, that it can only be doubtfully surmised that the figure was originally of a horse-shoe shape, with the points of the crescent expanded into more or less circular disks.

These figures, as before said, are in slight relief; but whilst that on the forehead is apparently altogether raised above the general surface-level, the others seem to have been produced by a mere local excavation of the immediately surrounding surface.

As the chief interest of the relic in its present condition appears to lie in these curious markings upon it, I had recourse to my friend Mr. J. Fergusson for an explanation of their meaning. He took much interest in the matter, and has kindly bestowed considerable pains in its elucidation. But although he at once recognized the Sanskrit character of the frontal inscription, and was assured that it was not of a Chinese type, he was unable to define its exact significance. He thereupon consulted two distinguished oriental scholars, who are especially skilled in the interpretation of ancient inscriptions—Mr. E. Thomas and General Cunningham,—who both agree in regarding the frontal monogram as representing an initial *A* of the

Tibetan form of Sanskrit in use about the seventh and eighth centuries of the present era. The correctness of this determination will at once be obvious to any one who regards the character placed above fig. 5, and which is copied from General Cunningham's letter to Mr. Fergusson. And I may remark that the letter appears in precisely the same form in plate xxxix. vol. ii. of Mr. Thomas's edition of 'Prinsep's Essays on Indian Antiquities;' and from another plate in that volume it would seem that the same letter, or one scarcely distinguishable from it, is in use in Tibet at the present time. Mr. Thomas has also pointed out that a similar form of *A* occurs in an ancient Mongol inscription, of which an account is given under the title of "Versuch über eine alte Mongolische Inschrift," by V. H. C. v. d. Gabelentz, in the 'Zeitschrift für die Kunde des Morgenlandes,' vol. ii. p. 1, and plates 1 & 2, where it is stated that the inscription in question was discovered, with several others of the same kind, in China in the year 1618; and it was assigned, by the Chinese antiquary who attempted to decipher it, to the age of the Mongol Emperor Youan, who reigned from 1260 to 1294, and who appears to have been the first to provide an alphabet for the Mongolian language. In order to carry out this object the Emperor, it is stated, applied to the Pag-pa Lama of Tibet to furnish him with suitable characters, who complied with the request by sending the Tibetan alphabet then in use. It is to be presumed, therefore, that the inscription in question was rendered in these characters; and we are thus enabled to trace the direct connexion of the frontal monogram with a Tibetan origin.

Presuming therefore that the significance and origin of the letter is placed beyond all reasonable doubt, the next question arises as to what it means. But as to this I fear we are at present much in the dark.

General Cunningham has suggested that it might probably be intended for the initial letter of the name of Ananda, who is said to have been the nephew and devoted disciple of Buddha (Gotama), and to have been with him at the time of his decease. And, in support of this surmise, General Cunningham adds the interesting remark that the relic-bones of Sâriputa and Magalâna, found at Bhilsa, were similarly inscribed with the initials of their names; and he goes on to observe that it would be interesting to find that any relic of Ananda had been taken to China, as he does not remember the notice of any *relics* except those of Buddha himself, although *statues* of several disciples are recorded. He has no doubt, however, that many relics of the principal disciples must have found their way to China at the time of the persecution and final dispersion of the Buddhists.

"The Tibetan letter," he adds, "cannot be older than A.D. 600–700, and is probably later."

With the utmost deference to any hint from so weighty an authority, it seems to me that a great difficulty lies in the way of the above supposition, from the circumstance that Buddha, or the Buddha with whom Ananda was connected, died at the latest between five and six hundred years before Christ; and consequently the inscription must have been placed on the skull eleven or twelve hundred years after the death of its owner,—a circumstance that, of itself, would tend to cast great doubt upon its authenticity, although, as we know from evidence much nearer home, doubts of this kind, as regards relics, do not weigh much in the theological mind.

Mr. E. Thomas, on the other hand, has thrown out the suggestion that the letter might have been intended for the initial of the word *Aum* or *Om*, which, as Mr. Fergusson informs me, though sometimes used to express the Deity, is also equivalent to the exclamation *Ave!* or *Hail!* But as an objection to this interpretation it might perhaps be urged that the same Tibetan alphabet in which this form of *A* occurs contains also a slight modification of the same character, answering to *au* or *o*, as well as one signifying *am*, and it might reasonably have been thought that one or the other of these two characters would have been employed to represent *om* rather than the simple *A*. But on the present occasion it would be useless for me to speculate further on a matter upon which I cannot pretend to give any opinion.

A second interesting subject of inquiry is that of the probable object or purpose of the specimen when entire. With respect to this, however, I am unable to offer anything beyond the vaguest conjectures.

We may regard it either as a simple monument of piety or veneration (without any special use or purpose), as a drinking-vessel, or as a sort of mortuary coffer or reliquary.

Of these, the supposition that it was intended to be used as a drinking-vessel, or perhaps as a libation-chalice, though at first sight not very probable when we regard the weight and form of the setting, becomes less improbable when we consider that the skull itself does not appear to have been in any way fixed upon its stand, but simply to have rested on the three golden heads, from which it could, consequently, be readily lifted to the lips. On the other hand, that its destination might have been for some such purpose is rendered still more probable by what we know of the very general prevalence, throughout the ancient world and amongst the most widely separated peoples, of the custom of using the skulls of their enemies, or of their friends and relatives, as drinking-vessels, on high and solemn occasions. The

custom, in fact, has survived, it may be said, to our own day in Australia*.

But as regards ancient times, to pass over the mythical accounts of the banquets of the gods in the Scandinavian Valhalla, which nevertheless in all probability represented the actual practice of the warriors, whose valour was stimulated by the prospect of joining at some future day in the sacred feasts, I would briefly refer to some of the more definite accounts given by ancient writers of the use of skulls, artificially prepared as drinking-vessels†. Amongst the first of these is Herodotus, for a reference to whose 'History' I am indebted to Mr. Fergusson. And since the passages therein contained relate to Asiatic tribes whose descendants are more immediately involved in the present inquiry, they seem to me of very considerable interest.

The Father of History mentions two nations or tribes amongst whom the custom in question obtained.

In his 'History' (book iv. chapter 26) we read, in Mr. G. Rawlinson's translation, that the "Issedonians are said to have the following customs. When a man's father dies, all the near relations bring sheep to the house, which are sacrificed, and their flesh cut into pieces, whilst at the same time the dead body undergoes the like treatment. The two sorts of flesh are afterwards mixed together, and the whole is served up at a banquet. The head of the dead man is treated differently; it is stripped bare, cleansed, and set in gold. It then becomes an ornament on which they pride themselves, and is brought out year by year at the great festival which sons keep in honour of their father's death, just as the Greeks keep their 'genesia.'"

The second place in which Herodotus refers to the custom is in the same book (chap. 65), where, in speaking of the Scythians, he says:—"The skulls of their enemies—not, indeed, of all, but of those whom they most detest—they treat as follows:—Having sawn off the portion below the eyebrows, and cleaned out the inside, they cover the outside with leather (ox-hide). When a man is poor, this is all that he does; but if he is rich, he also *lines the inside with gold*; in either case the skull is used as a drinking-cup. They do the same with the skulls of their own kith and kin if they have been at feud with them, and have vanquished them in the presence of the king. When strangers whom they deem of any account come to visit them, these skulls are handed

* [At the following Meeting, Col. Lane Fox exhibited two Australian skulls which had been used as drinking-vessels in the manner described by the author.—Sub-Ed.]

† The Scandinavian custom appears to have extended into Thrace, as Ammianus Marcellinus relates that the Scordisci, who are supposed to have been of Teutonic origin, "Hostiis captivorum Bellonæ litant et Marti, humanumque sanguinem in ossibus capitum cavis bibunt avidius."

round, and the host tells how that these were his relations, who made war upon him, and how that he got the better of them, all this being looked upon as a proof of bravery"*.

Mr. Rawlinson seems to be of opinion that the above-mentioned Issedonians inhabited a country west of the Ural chain, in N. lat. 54° to 56°; but Major Rennell, whose opinion I presume must be regarded as of great weight on such a point, places them in the neighbourhood of Bootan, which brings them not far from the Tibetan frontier†. And he states that he "has seen, brought from Bootan, skulls that were taken out of temples or places of worship; but it is not known whether the motive to their preservation was friendship or enmity. It might very probably be the former. They were formed into drinking-bowls in the manner described by Herodotus, by cutting them off below the eyebrows; and they were *neatly varnished all over*." It is curious to remark that the lining with gold and the polishing of the exterior, which is perhaps what Major Rennell terms varnishing, are both exhibited in the present skull.

It is, moreover, worthy of note that, in Major Rennell's opinion, the modern descendants of the Issedones are represented by a Mongol tribe, the *Oigurs* or *Eluths*, a people occupying a tract in the centre of Asia, who were conquered in the last century by the Chinese. And he says that it seems to be understood in Asia that these Oigurs furnished the Mongols with their alphabet; while M. Souciet, who is quoted by Major Rennell, says that no Tatar nation besides them had the use of letters in the time of Jinghis Khan (13th century), and also remarks that the characters used by the Eluths were the same with those in use in Tibet. This latter statement, though not admitted by other writers, appears to be in accord with what is above related concerning the Mongol inscription found in China.

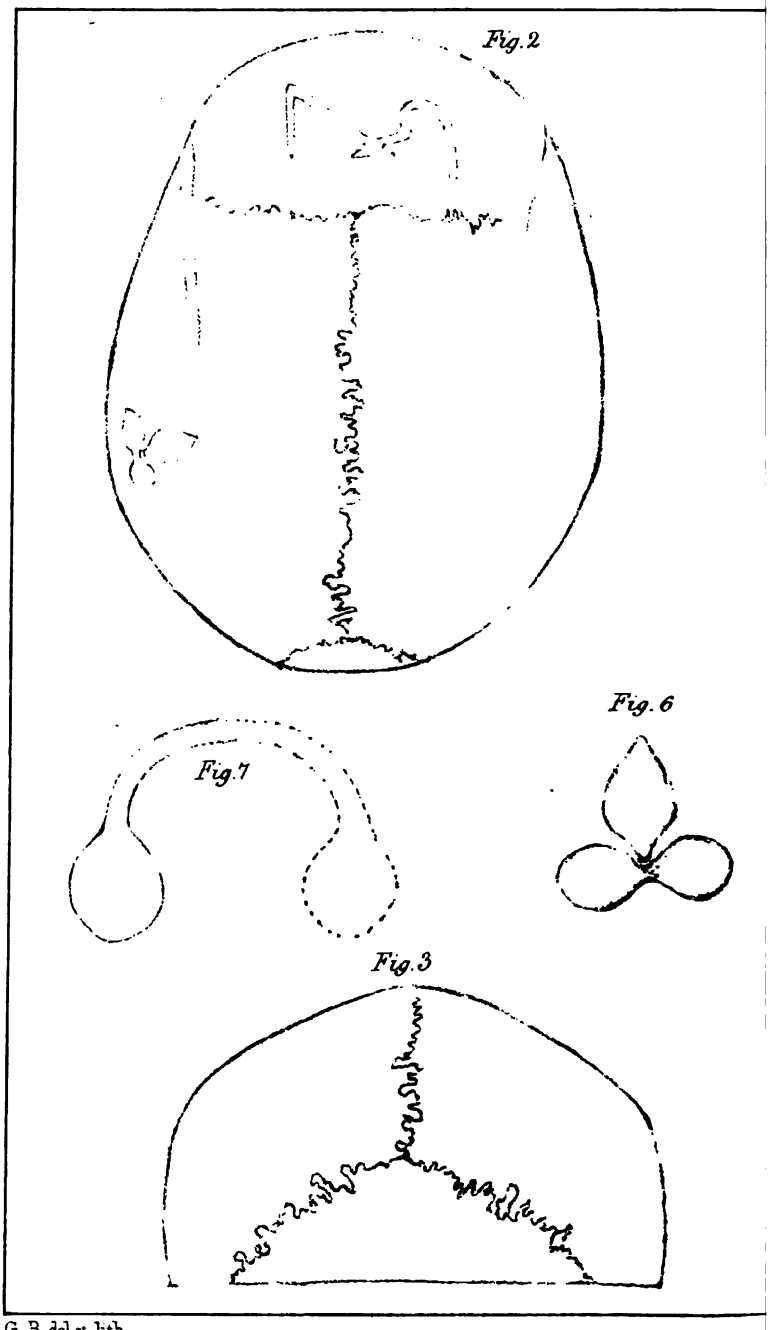
As an instance of the same mode of using the human skull, in a widely remote region, may be cited the account given by Livy‡ of the defeat, by means of a very ingenious stratagem, of a large Roman force under L. Postumius by the Boii, a tribe of Gauls, where we find that "spolia corporis caputque ducis præcisum .... templo quod sanctissimum est apud eos intulêre: purgato inde capite, ut mos iis est, calvam§ auro cælavêre. Idque

* The Celtæ, according to Strabo (iv. 65), were also in the habit of embalming with resinous substances the heads of distinguished enemies, which they exhibited, as marks of prowess, to visitors. These heads were kept in wooden coffers.

† Geographical System of Herodotus, p. 144.

‡ Book xxiii.

§ I do not know when the word "cranium" was first employed as a Latin term for a skull. Though so universally admitted it is not to be found, so far as I can discover, in any Latin author or dictionary. The earliest citation of its



G B del.et lith.

Fig. 1.

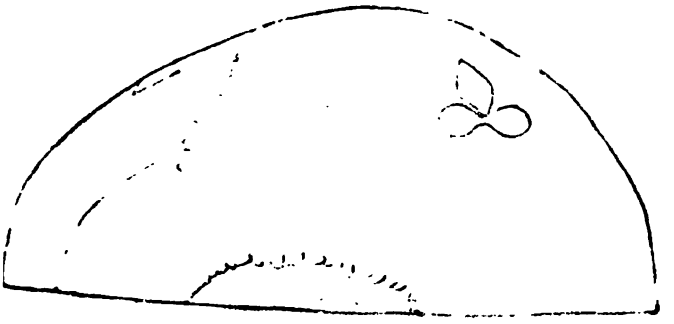


Fig. 5

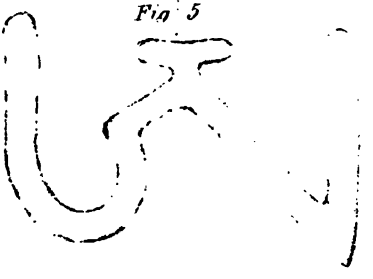


Fig. 4

W. West. imp.

sacrum vas iis erat quo solennibus libarent; poculumque idem sacerdoti esse ac templi antistitibus." Here we are left to conjecture as to the form or mode in which the embossing with gold was carried out; but the instance shows that the same vessel might be used both as a sacrificial chalice, and as a drinking-bowl for the priests and their assistants. But there is still another point which may be adverted to. It would seem from the worn condition of the exterior surface, as shown in the nearly complete obliteration of the embossed figures on the occiput and right parietal region, that the skull had been subjected to frequent handling, and perhaps for a long period anterior to its being so carefully encompassed with gold and, as it was supposed, securely lodged amongst the treasures of the Imperial Palace. With reference to this subject it is interesting to learn, as I have from Dr. Hooker, that the Tibetans at the present day use human skulls divided as the present one is, and having membrane or skin stretched across them, as a sort of drum or timbrel in certain religious ceremonies; and it seems by no means improbable that the present *calva* was originally applied to that purpose.

From the above it will be seen that it would at present be premature to regard the skull as having any direct connexion with Buddhism or any other form of religious faith. It might quite as probably, perhaps, be related to some of the more ancient legendary customs above alluded to.

There is no reason whatever, but quite the contrary, for believing that it has any thing whatever to do with Confucius*.

EXPLANATION OF PLATE XI.

Fig. 1. Lateral aspect of a *calvaria* from China, which has been *supposed* to be that of Confucius.
2. Vertical aspect of the same.
3. Frontal aspect of the same.
4. Occipital aspect of the same.
5. Figure in faint relief on the frontal bone.
6. Trefoil figure on the left side of the skull.
7. Traces of figure on the back of the skull.

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use, in 'Ducange's Glossarium,' is in a barber-surgeon's report of a case in 1380; and here it is spelt "craneum," evidently a latinization of the French *crâne*. The proper Latin term for the naked skull is *calvaria* (in one instance *calvarium*). In the above passage from Livy it seems that the classical term for the upper portion of the *calvaria* is *calva*, a term which it may, on occasion, perhaps be useful to retain.

* Since this paper was read, Mr. Mummery has informed me that Mr. Lockhart has suggested to him that the skull may be that of a revolted Mongol prince, not improbably Ichangir.

Discussion.

Mr. Fergusson said that he remembered this skull and stand in the Great Exhibition of 1862, when it belonged to Mr. Tait. The speaker had no hesitation in saying that it was the most exquisitely beautiful specimen in oriental goldsmith's work which he had ever seen. The price then put upon it was one thousand guineas.

Mr. Fergusson was afraid that the Buddhist theory must be entirely abandoned. We are too familiar, both from description and experience, with the mode in which Buddhist relics were preserved, to be mistaken on this point. They were preserved either in miniature dagobies or caskets like bon-bon boxes, or in metal cases; had this skull been a relic, it would have been turned upwards, fastened to its stand, provided certainly with a covering of some sort, and placed so as to be admired and worshipped. On the contrary, it was lined with gold, fitted with a jewelled lid, and laid loosely on its tripod so as to be easily removed and handled; and its worn and polished appearance shows how frequently this was done.

It seemed to him, on the other hand, very clear, that the passages which Mr. Busk had just quoted from Herodotus and Livy contained the true explanation of its history. It must have been the skull of some revered ancestor or dreaded foe of the present Tatar dynasty of China, and was consequently honoured, and used (as we find it was) in the summer palace at Peking.

Mr. Mummery, the owner of the *calvaria*, said that it had been given to him by a medical friend, Dr. Millar, who saw it lying, uncared for, at the house of a Jewish gold-dealer in Houndsditch.

The speaker had received a letter from Dr. Lockhart, founder of the Hospital at Peking, who expressed his decided opinion that the skull was never supposed by the educated Chinese to have been that of Confucius, although it has usually been assigned to that philosopher by Europeans. He believes that the skull belonged to some Tatar prince who was a tributary to the empire, and who had rebelled—his overthrow and death having been commemorated by this costly work of art and an ancient Mongolian initial engraved on the frontal bone. He adds that the trefoil is probably the emblem of the Buddhist trinity.

Dr. A. Campbell said, with reference to Professor Busk's remarks on the objects for preserving this skull, that Buddhists made some strange uses of human bones in religious observances. The thigh-bone was used as a trumpet for calling to prayers; and Dr. Campbell had a lama's rosary which was composed of circular pieces cut out of a human skull.

Dr. Donovan observed that this could not be the skull of a man of note in any civilized country, or even of a man at all. It was far too small for an ordinary male skull. The sutures showed that it could hardly be the skull of an educated person; for they were very simple and not at all serrated.

Dr. Oppert stated that skulls were used both as drinking-vessels and for religious purposes in much later times than had been mentioned.

In A.D. 574, Alboin, the King of the Longobards, was killed at the instigation of his wife, Rosamunde, the daughter of Kunimund, the last king of the Gepidæ, who had been beaten and slain in battle against Alboin. Out of the skull of Kunimund a drinking-vessel had been made, and used as such at the great festivals of the Court. At one of these feasts the intoxicated king compelled his wife to drink out of the skull of her father, which atrocity enraged her so much that she assassinated him*.

But as the skull in question is brought into connexion with East-Asiatic customs, an interesting instance may be cited from oriental writers. When Ong-khan, the chief of the Keraites, had been slain, in the year 1203, Tayanuk-khan, the chief of the Naymans, ordered the head of his late friend to be enchased in gold and silver. When, on one occasion, the head moved, as Tayanuk-khan addressed it in a jesting manner, this was regarded by the Tatars as a bad omen; and soon afterwards the Nayman chief was slain. The Persian chronicler Mirkhond says that the Nayman chief was a Butperest, or heathen, which word *But* is, without doubt, derived from Buddha †.

Major F. MILLINGEN, F.R.G.S., then read a paper "On the Koords and Armenians."

IX. *On the* WESTERLY DRIFTING *of* NOMADES, *from the Fifth to the Nineteenth Century.* By H. H. HOWORTH, Esq.—Part III. The Comans and Petchenegs.

(Part II. was published in Vol. I. pp. 378–387.)

I SHALL now return to the consideration of an area much more connected with European ethnology. Here we shall meet with greater difficulties and complications. South of the Jaxartes we can with some approximation discriminate Turkish invaders from Persian settlers. They belong to two separate divisions of the human race in the classification of modern science. Religion, manners and customs, physique and language, all present features assisting the division. North of the Jaxartes, in the great deserts of the Khirgises, and in the steppes of Little Tatary and of Siberia, we meet with much more complicating circumstances. There the difference is one of degree rather than of kind, and we only multiply difficulties in multiplying dif-

* [These "Longobards" may very well have been the descendants of the *Boii* above noticed, to whom the foundation of Bologna, Parma, Reggio, Modena, &c. is assigned.—G. B.]

† [At the Meeting of the Society on the 22nd February, 1870, Mr. Busk exhibited a second *calva*, lined with copper, which had been kindly forwarded to him by Mr. W. Lockhart; and at the same time read some additional remarks on the subject, the substance of which was derived from communications from Mr. Lockhart, Mr. Wylie, and Mr. R. Swinhoe. These will appear in the next Number of the Journal.]

ferences. Turan, the complement of Iran, is used as the collective name of a congery of clans and families rather than of races or states, all nearly related, and having common traditions. They all speak languages of the agglutinative type, and as we recede from our own times they approximate more closely to one another, and it becomes impossible to classify them rigidly.

Greatly as I respect the name of Latham (and I have some occasion to respect it), I cannot believe in the artificial weight he attaches to names and distinctions, nor in the sharply defined races which his arguments require. I believe Ugrian, Turk, and Mongol to be of much more geographical than ethnic value. If by Ugrian be meant those tribes living under hard conditions along the borders of the Frozen Sea, and having their typical idiosyncrasies in Lapland, and by Turk those prouder races which, having been frontagers of a series of civilizations in the plains of Great Tatary and Turkestan, have received from them grafts of a more energetic blood, and have had their language, manners, and appearance altered, and of whom the type is the Turkish race of the Ouigours, I am content with the classification; but between these extreme types almost every possible intermediate form exists, having more or less common features, as, for instance, the Bashkirs, who, in their indigenous name and their physical forms, are very Ugrian, while their language is *very* Turk, &c. Bearing this in mind, every one can appreciate the almost superhuman difficulty of reconciling the thousand contradictory statements of the Byzantine, and the often empirical nomenclature of the Arabian geographers, and may also find ample reason for the confusion which still reigns in this somewhat repulsive and uninviting field of ethnological inquiry. Few have traversed it with even moderate success, nor do I claim to be better than my neighbours. I have had the assistance of their ingenuity, and I have consulted every authority within my reach, among whom let me especially name the often-forgotten Strahlenberg, the plodding Zeuss, whose great work on ethnology this Society ought to translate, and the ubiquitous Klaproth; with these materials I have endeavoured to give a connected theory, on which I humbly invite criticism.

First I must say a few words about the Mongols. As is well known, they are divided by geographers into two great branches, the Mongols proper in the east and the Kalmucks in the west of Mongolistan. I have already given an account of the separation, about the beginning of the seventeenth century, of the European Kalmucks from their mother race in the little Altai, when they drove many of the Nogay hordes from between the Tobol and the Jaik before them. The Kalmucks of the Altai, known as Olöt, derive their origin from Tangout, the country

lying between the Kokonoor or Blue Lake and Tibet; nor do I see any reason to quarrel with this tradition. The date of their settlement about Lake Balkash and in Soongaria I cannot believe to have been much before the time of Zenghiz, and I believe them to have drifted hither gradually during the supremacy of the Great Mogul Khanate of Karakorum; for in the earlier wars of Zenghiz their present area was occupied by the Naymans, whose name still survives in one of the clans of the Usbegs and among the Khirgises, and who may therefore be considered to have been Turks.

If the Olöt are to be traced to the Keraites, as D'Ohnson asserts, we have another confirmation of this position. Before the time of Zenghiz, then, I hold that the Mongols were limited on the west by the present boundaries of what are known as the Mongols proper, the hordes of the forty-nine banners of the Chinese writers—that is, roughly, by the eastern frontiers of the great provinces of Chinese Turkestan, known as Thian Shan Nanloo or Little Bukharia, and Thian Shan Peloo or Soongaria—that they occupied all the country from the Chinese Wall in the south to the province of Irkutsk in the north, roaming over the great desert of Gobi, and having their chief focus in the regions around Lake Baikal. Hence they crept westward. Bar Hebræus, who wrote in the middle of the thirteenth century, and who lived among them, places their western limit at the country of the Igurri Turcæ, and says the same Mongols conquered the Igurri and took tribute from them: these Igurri are the Ouigours of Bishbalig &c. Later on they gradually infiltered the Khirgis deserts with their blood, and imparted the same in a smaller measure to the Nogay Tatars.

If I were asked for an opinion as to the ethnic affinities of the Mongols, I should say that they are merely the result of a mixture of Tongus with Turks, their neighbours on either hand—that on the west they fade almost insensibly by such transition tribes as the Kalmucks and the Buriats into Turkish forms, while on the other hand they do the same even more insensibly into Tongus through those tribes of the Baikal to whom the name Tatar was originally applied, the greatest affinity, no doubt, being with the latter, whose religious and social conditions they most affect.

The great provinces of Chinese Turkestan, from which we have succeeded in eliminating the Kalmucks, bounded on the north by the little Altai, on the south by Tibet, on the east by the desert of Gobi, and on the west by Great Bukharia, were known to the Arabs as Kara Kathay, or Black Kathay, either from their inferior position to Great Kathay, or China, or from their sterile aspect.

The name Kathay is derived from the Kitans or Khitans, who were known to the Chinese writers as Leao. The Kitans had been masters of Northern China from the year 907. In the year 1125 the Niu Tche, a Mantchu race, broke the power of the Kitans, and a body of them invaded Kaschgar and settled there. These were known to the Chinese as western Leao, and were the Kitans who gave their name to Kara Kathay. Their leaders only were Kitans, the soldiery was composed, like the army of Zenghiz, of Turks. They repeatedly invaded Transoxiana, and in 1171 defeated the Charizmians. Their most renowned exploit, however, if it be possible to credit the story, is their invasion of Georgia. A race still remains there (called the Chaitaki, their land Khaita or Cara Khaita) who claim descent from these Kitans. I do not see how the story is to be undermined, and should be thankful for some more information on the subject of this obscure tribe. As far as we know, they are Turks, and allied in race to the Basians.

Before the arrival of the Kitans, Chinese Turkestan was the seat of a renowned power known to the Chinese as that of the Hoe-tche, originally a clan of the horde Kao-tche, settled south of the Selinga. In 742 their Khan was acknowledged as Grand Khan by the Chinese emperor. In 745 his empire reached the Altai and the Irtysch in the west and the country of the Tunguses in the east. In 758, the same year in which the Arabs burnt Canton, there was a quarrel at the Chinese court about precedence between the embassy of this Grand Khan and that of Aboudjiasar al Mansor, second Khalif of the Abassides (De Guignes). At the end of the eighth century the empire of the Hoeitche was one of the most important in Asia. Among others, the Khirghises were subject to it.

These Hoeitche, or Goeitche, as they are also called, were, as we have seen, in contact with the Arab conquests of the Samanides; and many of them, on the frontiers of Transoxiana, adopted Mahommedanism. They are, in fact, the Turkish race known to the Nubian geographer as Odhkos, and to the various Arabians as the Gusses, of whom we have already written at length, and from whom were derived the Turkish invaders of southern Asia, the Ghaznevides, the Seljuks, &c. Their history is mixed up with that of the Ouigours or Kaotchary Turks, called by De Guignes the Cha-to, Tagazgaz by Maçoudi, and Bagargar by other Arabs. The Turkish chroniclers divide their own race into two sections, the northern and the southern, each with an eponymous hero as its ancestor: these sections are the Oghuz and the Ouigour. I have more faith in such traditions among the Turks than among any other race. In this case it is confirmed by many facts; the language of the Uzbeks and that of

the Ouigours is almost identical, and is the purest Turkish idiom known, while their habits and traditions are the same.

I am awaiting impatiently the results of M. Vambery's examination of the remains of the Ouigour literature. At present, while we associate with the name Ouigour the typical home-grown civilization of Asia, which Zenghiz made its cultivators teach his people—while we are joined closer in sympathy with the same cultivators by the extraordinary labours among them of the early Nestorian missionaries, and by the fact of their land, and especially its town Konam-tcheou, having been the *entrepôt* where the Arab traders exchanged the products of Spain and Arabia for those of Siberia and China—while we assign to the Ouigours these glories, we must on this occasion follow them to the west in company with and in subordination to their more enterprising brothers the Hoeitche. Let us resume our story.

The Hoeitche or Gusses, although continually drifting westwards, still kept up connexions with China, and about 890 the Chinese received tribute from them. They now become celebrated in the civil strifes of the Samanides. Under Bograh Khan, in 992, they took Bokhara; he also possessed Kaschgar, Balasgoum, Khoten, Karas, and the country as far as China. He advanced as far as Georgia, and his successor Illih Il Khan was master of both Samarcand and Bokhara. In 999 the Hoeitche overturned the dynasty of the Samanides. They still paid tribute to China. We now hear of their struggles with the Khitans, and of their power crumbling away before those eastern invaders. I have already given some account of their swarming into Persia; but this was only the history of one portion. Another took the way of the Kirghis desert towards the Volga. A third stayed at home, and became, as I believe, the ancestors of the Naymans, whom I have referred to, and of the numerous Turkish races still found in Western Chinese Turkestan. The Jeteh or Geteh, of the annals of Timour and of other writers, who are placed south of the river Khujend, and in the deserts of the Khirgises, from them called Desht Jeteh, I believe with some authorities to have been merely such Turks as still remained pagans and did not submit to Islamism. Timour calls them his countrymen. Whether this opprobrious designation of heretics be the origin of the term Jut and Get in the Sikh annals I know not.

I have said that the Khitan invasion drove some of the Hoeitche to the west: these would not be likely to stay in the sandy wilderness of the Khirgises; and we accordingly find it recorded by the Arab Maçoudi that, about the beginning of the tenth century, hordes of the Gusses, a Turkish folk, wintered

on the east of the Volga (called by him the Nites), and when it froze over invaded on horseback the land of the Chazars.

The Volga, the eastern limit of Europe, was near enough to the Greeks and Russians to lead us to expect to find such an invasion (especially as it was not likely to be a mere isolated raid) mentioned in their annals; and on turning to them we find ourselves among a long series of such notices. Wherever we find the term Gusses or Gozz in the accounts of the Arabs, we have the names Uzes or Comani used by the Byzantines, the former term used with great laxity, and sometimes made to include the Petchenegs. Anna Comnena, in 1070, first uses the name Comani. De Guignes makes Comani to be a mere diminutive of Turcomani,—a very wild etymology. It is clearly derived from the river Kouma or Kuma, the country about which was known to the Persians as Kumestan, and which the Arabian Edrissi, who wrote about the end of the eleventh century, distinctly calls Al Ckomania, and adds, which gives name to the Ckomanians (Klaproth, Travels in the Caucasus, 155).

The *name* Comanians is therefore of small value in tracing the history of the Gusses; it is merely the appellative they derived from their situation. Nikon, the Russian chronicler, in speaking of them, says, the "Cumani, more properly Polowtzy." Another writer, quoted by Schlözer, says, "the Cumani, that is the Polowtzi." Nestor, in describing one of their invasions of the Greek empire, says Polowtzi where the Greek writers say Cumani. We thus identify the Cumani of the Greeks with the Polowtzki so celebrated in the Russian annals of the eleventh and twelfth centuries. Polowtzki merely means steppe-men. Rubruquis, who wrote about 1253, says, "Here [*i. e.* in the present Nogay steppe] the Comani live and feed their flocks; they call themselves *Capchat*; to the Germans they are known as Walani, and their country as Walania." Here, then, we have the indigenous name of the Comans, the name adopted by the Mogul khanate of Batou Khan, to which we have previously referred—a name still borne by Uzbek and Nogay tribes, and by a tribe of the middle horde of the Khirgises, in whose territory is a town Kaptchak and a lake Kaptchi, a distinctly Turk name, being adopted, there can be little doubt, from some noted leader; for we find Kaptchak mentioned on three or four occasions in Uzbeg history as the proper name of a chieftain. The plain between the Volga and Ural was known, from such a one, as Desht Kaptchak (the desert of Kaptchak), just as it was subsequently known as Desht Bereke, from Bereke the Nogay leader. Here we have another proof, if such were needed, of our being right in tracing the Comans to the same parentage as the Uzbegs. The German appellative by which the Comans

were known is not so easy to explain. The province of Volhynia took its name from them, according to Latham. But this can hardly be so, as the name occurs much earlier than their invasion. Zeuss gives the form Falawa, and says it is the literal rendering of Polouci (*i. e.* Steppe-men). He also adds the forms Falon, Valni, Valewe, Valwen, and Walmoen. There can be little doubt that Zeuss is right.

The Comans are described by various authors as a savage race, living on flesh and drinking mare's milk and blood—the typical food of the Turkish hordes.

To this accumulated evidence we may add the best of all tests, namely, that of language. Rubruquis tells us that the language of the Jugurri (*i. e.* the Ouigours) is the original and root of the Turkish and Comanian languages. The Genoese called the language of the Turks of the Black Sea (*i. e.* of the Comans) Ugaresca (*i. e.* Ouigour). When many of the Comans were driven out of their quarters by the Mongols, they fled, as we shall see, into Hungary. Here their descendants still remain: although they have forgotten their tongue and adopted Hungarian, this is only very recently; several copies of the Lord's Prayer in their language have been preserved. Lastly, Klaproth has published a very elaborate analysis of a Persian and Comanian vocabulary he discovered in the library of St. Mark at Venice. These remains are all of them purely Turkish.

The Byzantines place the first arrival of the Comani or Kiptchaks about the years 894–899, when they drove the Petchenegs from between the Ural or Jaik and the Volga. The Russians first speak of the Polowzi in 996, during the reign of Wladimir, when their prince, Wolodar, invaded Russia. They were then defeated and their king killed. From this date to the year 1229, when they occur for the last time in the Russian chronicles, the history of Russia is little more than the account of their fearful devastations, invited and assisted by the miserable squabbles of the various Russian princes. In their earlier struggles with the Petchenegs we find the Kiptchaks in alliance with the Khazars; and with them they first drove the Petchenegs across the Don. A portion of the latter, however, survived in the deserts between the Ural and the Volga; the remainder were gradually pressed westward into Hungary and on to the weak defences of the Greek empire; and the Comans gradually occupied the country north of the Euxine and the Caucasus, where they are placed by Rubruquis and De Plano Carpino. Describing the Nogay steppe north of the Crimea, the former writer says, "This whole level was, previously to the irruption of the Tartars, inhabited by the Comanians. . . . . On the invasion of the Tartars a great multitude of Comanians fled to the sea-shore . . . . The whole country

from the Danube to the Tanais is more than two months' journey across, even for such swift riders as the Tartars, and is entirely inhabited by Comanians, who extend even beyond the Tanais to the Edil (Volga), a tract of ten long days' journey between the two rivers." In an old map of the year 1318, in the Imperial Library at Vienna, Comania or Chumania is the tract north of the Sea of Azof. In this tract Rubruquis mentions passing the tombs of the Comani—stately erections, pyramids and pillars, upon each of which was placed a rude figure holding a drinking-cup. Klaproth, who describes them as they still remain, doubts their having been made by the Comani. Similar erections in the same area are undoubtedly described by the Romans as having been put up by the Huns. The arrival of the Mongols broke up the Comanian power. When the former had forced their way through the Caucasus, they were opposed by an allied army of Comans and Alans. Commencing the struggle, as they invariably did, with intrigues, they detached the Comans from their alliance by claiming them as brothers and of the same kin, which they denied to the Alans. This is another proof of the ethnic affinities of the Comans; for we know that the army of Batou Khan was almost entirely composed of Turks. Having defeated the Alans separately, the Mongols, with consistent treachery, turned their arms upon the Comans. On another occasion, when Comans and Russians were allied, they attempted, but unsuccessfully, the same policy in more flattering terms, saying the Comans were their ancient slaves while the Russians were a noble, independent people. The various alliances of Comans, Russians, and Alans, however, were of little avail. The Mongol tide swept on, and the Comanians, as a *separate nation* (their capital was Soldaya), were heard of no more in the Nogay steppe. Many of them were sold by the Mongols to the family of Saladin, and became the nucleus of the Mamelukes, one of whom, called Bibars or Biberdi (a Turk name) became sultan of Egypt and concluded a treaty with the Greek emperor in 1261. Many of the Comans, however, followed in the steps of previous unfortunate nomades and made their way towards the Hungarian plains, with whose inhabitants they had had many conflicts, in two of which, in 1070 and 1089, they had been severely defeated by the Hungarians Salomo and Ladislav (see Zeuss, 'Die Deutschen und die Nachbarstämme'). In Hungary numbers of them settled. On the middle Theiss still remains a country called Kunsag, and people known as great and little Kumans—the former on the right, the latter on the left bank of the river. In 1410 they were converted to Christianity, and in the same century followed the trades of masons and archers (in Hungarian Jazok). They still exist to the number of 112,000 free persons, but have

entirely forgotten their language. According to Klaproth, the last who understood it was a man named Varro, who died in 1770. Remains of it, as I have said, have been preserved and proved to be clearly Turkish.

The establishment of the Mongol empire of the Kaptchak on the ruins of the Comanian power did not eradicate that race altogether; although the name Coman disappears, the name Kaptchak was adopted by the conquerors, and a vast number of the original Kaptchaks or Comans remained behind in the steppes, under the rule of the Mongols, and became the nucleus of the various Nogay hordes, the most important of whose tribes is known as Kaptchak. The name Nogay is applied to most of the wandering tribes from Bessarabia to the Kuma. Most of these have, as I believe, their genealogies rooted among the Comani, mixed, unquestionably, with a tinge of Mongol blood, and in a greater degree with the blood of earlier occupiers of the same steppes. Their main element is the same as that of the earlier Turcoman invaders of Persia, namely, that of the Gusses, the western wave of the same flood of which the Turcomans formed the southern wave—a flood caused by the dispersion of the empire of the Hoeitche in Turkestan.

Having cleared up the ethnology of the Comans, we are in a position to examine that of the Petchenegs, whom the former drove out.

Before the Coman invasion the country west of the Volga was occupied by the Khazars and the Petchenegs, the former a great and most interesting race, who long gave their names to a very wide territory—the land of Khazaria, as it is called by Maçoudi. The Petchenegs were a body of but recent origin, who were constantly fighting with the Khazars. In the earlier Coman invasions we generally find the Comans in alliance with the Khazars against the Petchenegs. Who, then, were the Petchenegs? Zeuss gives their various synonyms thus:—they were known as Patzinakitai to Constantine Porphyrogenitus, Pecenatici, Pizenaci, Pincenates, Pecinei, Petinei, and Postinagi, to the western writers, Peczenjezi to the western Slaves, Bisseni to the Hungarians. Behnakÿe is their name in Ibn el Wardi, and Drewenses (*i. e.* woodmen, from *drew* or *derew*, a wood) in the Russian chronicles.

Strahlenberg has the ingenious suggestion that Petscheneg is derived from Petsch or Pietsch, which he says is the literal translation of 'Hund,' a dog, and connects them with the Huns. Latham suggests that the name may be the same as Peucini, so called from the island Peuke in the Danube,—not that the Petchenegs were in any way connected in blood with the Peucini of the Romans, but that the name was adopted by the invaders as Briton has been adopted by an Anglo-Saxon race.

I cannot accept either of these etymologies. Klaproth relates that when Jermak, the Cossack, attacked the Siberian Tatars on the Tawda, and they had assembled in the neighbourhood of *Patschenka*, a prince named *Petscheneg* was among the slain. This shows the name was not confined to the Petchenegs of the Danube, and shows further the probability that, like Kaptchak and Uzbeg, it was a family name of note, and adopted for that reason by the whole race, and so adopted at no distant date either; for Constantine Porphyrogenitus tells us they were formerly called Kangar or Kankar, which among them means valour. The mention of *Patschenka* seems to introduce us to the typical area of the race. Snorro Sturleson mentions the Petchenegs as *Pezina* Vollhr. Sviatoslav, the Russian, we are told, was beheaded in *Petschenka* curia. Where, then, was Patschenka?

The Arabian geographer Scherif Edrissi speaks of the country of Bedschenay, and places it in the seventh part of the seventh climate, in contiguity with Bassdshirt (Baskiria). He says it was not extensive, he did not know whether they had any larger town than Banamuni, which contained many inhabitants of the race of the Turks, and that they carried on war with the Russians and the Greeks. With these scanty materials it would be impossible to dogmatize. The name by which they were known to the Hungarians is said to be the origin of the syllables Besse in Bessarabia. It is at the same time a curious coincidence that one of the Thracian tribes was also called Bessi or Bissi.

In the statement of the Emperor Constantine, already quoted, we come upon more fruitful etymologies. The Kangar can be no other than the Kangites of Carpino, the Curges and Changle of other travellers, the Cancalis so celebrated in the Ural steppe at the time of Tchinghiz—names derived by Klaproth from their invention and use of wheeled carriages, "kanek" meaning wheels. Among the names of Petcheneg tribes preserved by Constantine is the Talmat, which Strahlenberg compares with the *Talmasata* found east of the Volga in his day—another proof of the identification. The ethnic affinities of the Petchenegs are clear enough. Nikon the chronicler associates them with the Torkmeni, Tortozy, and Cumani. Ibn el Wardi calls them a Turkish race. Anna Comnena says they spoke the same language as the Comans. The Byzantines constantly confound the Comans and Petchenegs under the common name of Uzi. All these facts confirm the position of most inquirers, that the Petchenegs were a horde of Turks belonging to a previous wave of invasion to the Uzi proper, less purely Turk, I believe, and more mixed with foreign elements. Their former seats were situated at the foot of the Ural mountains; and I believe them to have been

very nearly related to the Baschkirs—a race whose language is Turk but whose blood is mixed. The name Baschkir suggests comparisons with Bessi and Bisseni of the Hungarians; and I know of no other source whence the Turkish language of the Baschkirs can have been derived, if it were not from the Petchenegs or Cancalis. The Kangli or Cancalis had been an ancient foe of the Hoeitche on the other side of the Volga. When the power of the latter became settled, the Caucalis emigrated or were forced towards the west; I believe they then drove out the inhabitants of Pascatir or Baschkir land, and caused them to migrate to Hungary; they also broke the power of the Khazars, many of whom they also drove into Hungary. The Petchenegs occupied the vacant lands, and gradually pressed westward into the woods of the Ukraine, whence they grievously afflicted the borders of the Greek empire and the Russians of Kief. With the Cumans they are described as a savage race, living on the flesh, milk, and blood of their herds; we are also told they were an inferior race to the Comans, both in numbers and in appearance, and that they had a distinctive dress. Their chief town was called Korosten or Kourosteszov (*i. e.* wall of bark), also known as Nowopolci, on the river Tetera, famous for the death of Igor and the mound under which he was buried. Another of their towns was Ovroutsche, where Oleg was murdered (see Bohusz, Recherches historiques sur l'Origine des Sarmates, &c., 8. xxxi. 532). We are told the Petchenegs lived in tents, that each of their eight tribes had a separate chief, and that these tribes were themselves split up into forty lesser ones. The names of these eight tribes, as given by the Emperor Constantine, are Ertem, Tzur, Gyla, Culpée, Charoboé, Talmat, Chapon, and Tzopon; they divided their conquests into eight provinces corresponding to them—four east of the Dnieper, between the Russians and the Khazars, and four west of the Dnieper, in Moldavia, Transylvania on the Bug, and the neighbourhood of Kief. The same writer places their first arrival at fifty years before his time, *i. e.* about A.D. 862. Rhegnion, who lived about 908, makes the date 889 (De Guignes. Nestor mentions them first in Russia in 915; they occur in his pages very frequently. They killed Igor in 945, and in 968 laid siege to Kief. In alliance with the Russians they made constant raids on the Greek empire. From the Petchenegs the Russians bought their oxen, sheep, and horses, their country not producing these animals. In their hands, too, was the traffic with the Baltic coast for amber, and with Novgorod for all the products of the east.

From these seats they were driven by the Comans, some into Bessarabia, some into Hungary, where the Hungarian kings

made them useful in settling them on the marchlands or frontiers of the *Theutonici*; others, again, coalescing with the Comans, became the ancestors of the Nogays. As I have already related, one of the western hordes of the Nogays is still called *Budzuch*, while one of their eastern ones retains the name of Mangut, applied to one of the divisions of the Cancalis. The Petchenegs who were left on the other side of the Volga in the great invasion, I consider were the ancestors of those Turcomans roaming between the Caspian and the Aral, known as Karakalpacs or Black-caps. Lastly, I trace to the Petchenegs also the various Turkish tribes still found in the Caucasus, called by the Georgians Bassiani. Klaproth reports the tradition of their elders that they were formerly settled on the steppes of the Kuma as far as the Don, and that their capital city was named Ckirck Madshar, represented by the ruins of Madshar. He has proved that its remains are entirely of a Turkish type. "At the commencement of the second century of the Hegira (or, according to other accounts, so late as the fourteenth century) their several princes, living in constant enmity with their neighbours, were at length expelled by them, on which they retired to the Great Kabardaah, whence they were in the sequel driven by the Tscherkessians, and being divided into detached bodies were necessitated to fix their habitations on the highest mountains, at the sources of the Kuban Baksan and Tschegem; one portion still remained on the Malka, and did not remove till a later period to the source of the Tscherek, whence it yet retains the name of Malkar or Balkar." The other Turks of the Caucasus, not included under the name of Bassiani, and known as Ckaratschai, have a similar tradition, and that they were driven from Madshar and into the mountains by the Circassians. The language of all these Turks is very like Nogay; and I can see no reason for doubting for a moment their traditional origin, and that they form another detached fragment of the Cancalis.

In conclusion, I would survey the ethnological effects of the twin invasions of these sister races, the Petchenegs and the Comans. In the first place, I believe them to have been the first Turks whom we can show to have invaded Europe. I do not deny that Turkish chieftains may have led the armies of the earlier invaders; but, contrary to the opinion of Dr. Latham and of every other authority I know, I deny to any of the previous races the characteristics of Turks. The earlier occupants of the Nogay steppe, the Khazars and the Alans, were, I consider, entirely different races; the materials for their ethnological distinction have been assiduously collected by Fraehn, Vivien, St. Martin, and D'Ohsson, although they have none of them, so far as I know, solved the problem.

If these races were the first Turks that invaded Europe, it follows that M. Vambery is only very partially right in trying to trace the Hungarians to the Ouigours and other Turkish tribes. The only Turks in Hungary are the remnants of the Cancalis or Petchenegs, the Comans, and the Osmanli; and they have only affected the population in a very superficial manner, hardly so much, perhaps, as the Normans affected the English. The examination of this superficial coating cannot be more profitably done than by a careful criticism of the Turcoman hordes of the Persian border and the remains of Ouigour literature; and it is a question of very great interest; but we shall be very wild in our ethnology if we attempt to connect the main bulk of the Hungarian nation and its idiosyncracies with such an origin and cradle-land. Notwithstanding the rudeness and turbulence of Turkish nomades, we must never forget that, from their arrival on the northern and eastern borders of the Caspian till their overthrow by the Mongols, they were the main traffickers between Europe and the Persian and Indian frontier; from the Crimea to the city of Kharazm or Khiva caravans were constantly passing. I believe that they succeeded to a culture much more advanced than their own; but that of the Turkish hordes has been unnecessarily decried. The Tatars of the Crimea have remains which display no mean taste. It is a melancholy fact that both Tatars and their remains are being rapidly extinguished. Hardly any remain in Bessarabia. Thousands are now being cruelly transported from the Crimea; and if we would study the diminishing type we must travel to the distant desert of the Kuban. Yet the proverb is true enough, that when we scratch the Russian we meet with the Tatar; and we may in the marchland of the Ukraine find much that can only be explained as the heel-mark of the Polowtzian and Drewensian invaders.

REVIEW.

Daily Life and Origin of the Tasmanians. By James Bonwick, F.R.G.S. (Sampson Low, Son, and Marston, 1870.)

The Last of the Tasmanians; or, The Black War of Van Diemen's Land. By James Bonwick, F.R.G.S. (Sampson Low, Son, and Marston, 1870.)

Now that the Tasmanians have become so nearly extinct as to find their sole surviving representative in the person of an aged female, it is well that some attempt should be made to put on record a history

of this hapless race. Materials for such a history have been zealously collected in the colony by Mr. Bonwick, and the results of his labours are given in the two interesting volumes cited above. Inverting the order of their publication, that work is placed first which promises the greater amount of interest to the Ethnologist—a work which introduces us to the physical characters, the daily life, the language, and the superstitions of the Tasmanians; whilst the second work tells the melancholy tale of their gradual decline.

The Tasmanians are described as having been a people of moderate stature, and, compared with the Australians, stout and robust. The skin was of a dark brown colour, or nearly black, and was ornamented with cicatrices cut upon the chest, the shoulders, and the thighs; while the entire body was bedaubed with a mixture of grease and red ochre, which was also liberally applied to the hair. The hair was black, and often presented a crisp and woolly appearance, but was nevertheless extremely different from that of the Negro.

As weapons the Tasmanians used the waddy and a wooden spear from 15 to 18 feet in length. Unlike the Australians, they had neither the boomerang nor the wommera or throwing-stick. Their tools consisted of a stone axe, generally made of greenstone or basalt, and a smaller implement described as a stone knife. It is notable that certain stone circles, and piles of stones evidently of human erection, have been found in the interior of the island.

NOTES AND QUERIES.

The Veddas of Ceylon.—Fuller information as to these tribes, from new observation or accounts not generally known, would be of great ethnological value. The Veddas are understood to speak a Singhalese dialect containing Dravidian (Telugu) words, and, if so, are the only known savage tribes speaking an Aryan language. Physically they seem to belong rather to the indigenous non-Aryan tribes. It is probable that they are a mixed race. There are papers on them in the Society's Transactions (vols. ii. and iii.), and accounts in Prichard's 'Natural History of Man,' Sir John Lubbock's 'Prehistoric Times,' Sir J. E. Tennent's 'Ceylon,' &c. But a much more perfect account of their language, physique, and habits is required. —Edward B. Tylor.

Georgian and Sontal.—I note the following parallels between Georgian and Sontal or the Central-Indian forms.

House	oda,	ada.
Arrow	isari,	sar.

Oda in Turkish is commonly "a room."—Hyde Clarke.

Water.—The Turkish for "water" is *soo*; the Georgian for "drink" (thou) is *soo*.—Hyde Clarke.

THE JOURNAL

OF THE

ETHNOLOGICAL SOCIETY OF LONDON.

ORDINARY MEETING, Jan. 11th, 1870.

RICHARD KING, Esq., M.D., *in the Chair.*

New Members.—The EARL OF DUNRAVEN AND MOUNTEARL, K.P., F.R.S., F.R.G.S., F.S.A.; THOMAS HENRY BAYLIS, Esq.; DAVID DUNCAN, Esq., M.A.; JOHN EDWARDS, Esq.; and J. F. MCLENNAN, Esq.

The following paper was read by the author:—

X. *On the* KITAI *and* KARA-KITAI. By Dr. GUSTAV OPPERT.

WHILE studying Oriental languages and ethnology, and preparing a critical history of Central Asia and India, my attention has been directed to a people whose few descendants now live in a state of dependency scattered over Asia: I allude to the Kitai or Kara-Kitai.

In the Russian Government of Derbend, near the Caspian Sea, in the Chanate of Kaitach (or Kara-Kaitach), and in the Siberian district of Ili or Guldja, are found to this day in humble condition the offspring of those who once governed Central Asia and China.

The Kaitach and Kara-Kaitach are a very industrious race, who in their Chanate live mostly as husbandmen, while their brethren in Guldja excel as clever artisans. The whole Kitaian population in both districts, who still show in their physiognomy their Mongolian or Tatarian origin, will hardly amount to 50,000 souls. Till 1725 the Kaitach and Kara-Kaitach, near Derbend, remained independent; but they then submitted to the Russian supremacy, and since 1799 their Chan or Usmeï has enjoyed an annuity from the Russian Government. They are now mostly Mahommedans, though in Guldja some still adhere to their former belief.

This is all that at this moment remains of a people once

supreme in Asia, reigning over Northern China and Central Asia, and whose preponderance was felt even in Europe. The Kitai are very likely of Tatarian or Mongolian race—an opinion which is supported by the famous historian Rashideddin, who calls them Kidan Tatse or Kitan Tatars*. The home of the Kitai is to be found in those mountainous regions in the north of Korea, whence all the rulers of China descended to the plains, as in later times also did the Niutche and the Mandju. There, in the north of the Chinese province Leaotong, they remained for some time ravaging the imperial domains, and were dreaded as dangerous neighbours, before they became of political consequence. For their subsequent power they are mostly indebted to their chieftain Apaoki, who at the end of the ninth and the beginning of the tenth century contrived, by his great military genius, united to a shrewd and excellent statemanship, not only to raise his nation, and of course himself, to a position of the utmost consequence, but also to extend his dominion so far, that it reached from Kashgar and the Tsunling Mountains in the west to the Pacific in the east. Korea and North China were subject to his sway, and his chief capital was Leaoyang in Leaotong, until he changed it for Yan, the modern Peking. After his death, which occurred A.D. 926, his successors continued extending and strengthening their realm, until they ultimately gave their name to the whole of Central Asia and China,—a name not even now forgotten, as Kitai is the appellation by which China is expressed in Russian.

As the terms Kitai and Kara-Kitai are promiscuously used for the same nation, it is difficult to decide whether these two names were also previously employed at the same time. The Tatarian

* With us it is customary to speak of Tatarian, Mongolian, Turkish, and Tungeeze races, but I do not believe that such is the case in the East. These great classifications are, however, only very vague. According to Oriental tradition, Turk was the son of Japhet; the twin-brothers Tatar and Moghool were Turk's grandchildren, and Tungeez was the son of the famous Aghooz Khan, also a descendant from Turk. Although I do not wish to be made responsible for the correctness of these pedigrees, one may safely derive from them one conclusion, namely, that the progeny of these patriarchs regarded themselves as near relations, though they did not always treat one another as such. About the time of Gengyz these tribes passed under the name of Tatars, and as they behaved like children of hell, they were considered to have come from Tartarus. I do not know whether the Tatars were made acquainted with the bad odour in which their name stood, but under the Gengyzkhanides they repudiated that name and called themselves Mongols: afterwards they found fault with this expression; and if we read the works of Tamerlane or of Baber we often find that they object to be called Mongols, and prefer as gentlemen to be addressed as Turks; now the European Turks do not consider it polite to be called Turks, but prefer the title of Osmanlies. We therefore see that in the East these different significations were applied at different times to the same race.

tribes are very fond of expressing by certain colours the changes of political condition to which a nation may be subjected. ***Black*** or ***Kara*** has the meaning of dependency and servitude, while ***White*** or ***Ak*** has that of sovereignty and freedom. These expressions were put before the name, and *Kara*-Kitai would properly signify the dependent Kitai. But these colours are employed only so long as they really describe the position of a tribe; for if a dependent horde becomes independent and sovereign, the former *Kara* or *Black* will be changed into *Ak* or *White*; the Tatars, to whom the mighty conqueror Tchingyz-khan belonged, were named before his time *Kara*-Tatars, while another tribe was called *Ak*-Tatars or White Tatars. This is also the reason why the Emperor of Russia is called the White Zar, and the divisions of Russia into White and Black express the same meaning.

During their reign in China the Kitai undertook great expeditions to the West; and one of those, made in the middle of the eleventh century, is mentioned by the well-known Primas of the Jacobite Church, Gregorius Abulfaradg, in the year 1046 A.D., or 438 of the Hedgra. At that time the Kitai possessed five capital towns of the first rank, 156 fortresses, and 209 cities of a third rank; 5002 hordes of Tatars were reduced to submission, and 60 kingdoms paid tribute. But this prosperity did not last long; after preponderating for 219 years (from 906 to 1125) the Kitai were beaten by a kindred nation, the Niutche or Kin*.

Though defeated by the Niutche and subjected in China, the Kitai were not doomed to extinction; nay, they even raised a more powerful empire, and again filled Asia and Europe with tales of their prowess, grandeur, and riches. A prince of their dynasty, Yeliutashe, went westwards with a number of his followers, who preferred exile to slavery, and by lucky circumstances and great ability contrived to become the founder of a large empire. All Central Asia, Samarkand and Bokhara included, to the borders of China became his dominion. The Emperors of China were again afraid of their former foe and had recourse to stratagems, as open enmity did not avail to postpone Yeliutashe's expedition towards the East. The mighty and victorious Sultan Sanjar defied him, and marched against him at the head of a numerous army, but deemed himself happy when with a few companions he reached the River Gihon, in

* The Kitai emperors, as soon as they had established their power, assumed the title of *Leao*, or *Iron*; while their victorious enemies, the Niutche, called themselves the *Kin*, or *Altun*, i. e. the "*Gold*." I think this adoption of bynames taken from metals should not be overlooked. It may perhaps be regarded as a proof that those people were well conversant with the working of mines, especially if we consider that the native countries of both the Kitai and the Niutche are rich in minerals.

1141, after his dreadful defeat not far from Balkh. This is the battle mentioned by Benjamin of Tudela.

But what still more enhances the interest of Yeliutashe is, that he represents a personage so often mentioned in the middle ages, but whom nobody has before been able to trace to his proper origin; he is no other than *Prester John*, or *Presbyter Johannes*.

The first chronicle in which the name of Presbyter Johannes occurs, is that compiled by Otto, Bishop of Freisingen in Bavaria, a grandchild of the Emperor Henry IV., a half-brother to the Emperor Konrad III., and uncle to Frederick Barbarossa. Otto relates that a powerful king, called the Presbyter Johannes, had defeated in a most sanguinary battle the *Samiardos fratres*, the kings of Persia and Media. Sultan Sanjar, together with his brothers, reigned in the western part of Asia, and the word "Samiar" is nothing else than the name Sanjar. Otto had received the news through the Syrian bishop of Gabala, who had come to Asia to ask for assistance against the growing power of the Atabek Zenky, who had taken possession of the strong city of Edessa. Before leaving Asia, the Bishop of Gabala had been beleaguered by the Greek Emperor Johannes Comnenus in Antioch, for the prince of Antioch, Raimund, had refused to allow the Emperor to march with his troops through his territory. It is this siege which is mentioned by the famous traveller William Rubruquis as coeval with the appearance of a mighty Prince in the North, named Coirchan of Kara khatai. The title of the Prince of the Kara-Kitai was Korkhan, which means the Khan of the Khans, the Supreme Khan, or, according to another explanation, may also signify the Lord of the People. This title was used in the same way as that of Pharaoh by the Egyptian kings. The first K in Korkhan is a *Kaf*, which in the Turkish languages can be pronounced as K, G, or J. Gorkhan or Jorkhan sounds to the Syrian ear very much like Jokhan or Jochanan, which is the Syrian form for Johannes*. This being the case, it is easy to see how the Bishop of Gabala could call the Kitai Korkhan, *Johannes* or *John*. But this John is further described as a Nestorian and a Presbyter. Now it is generally known that the Nestorian missionaries were spread over Central Asia and China, and we have the respectable evidence of William Rubruquis, who states that the Nestorian bishops, appearing seldom in their

* The title of Korkhan (Kūrkhān, Gūrghān) was also in later times used by Tatarian sovereigns, as, *e. g.*, by Tamerlane, by his grandson, the famous astronomer, Ulug Beg, and others; and if we had not shown it before, this circumstance alone would make it highly probable that the Kitai belonged to the Tatarian race.

sees, consecrated to the priesthood each male, even the children in the cradle. The Persian historian Mirkhond distinctly remarks that the daughter of the last Korkhan was a Christian. Moreover the title of Presbyter Johannes was in the middle ages held in great respect, as it was then often announced that the end of the world was near, and the adherents of the Millennium were waiting for the arrival of the Presbyter Johannes as the precursor of Christ. The first Prester John was succeeded by four sovereigns of his family, who all reigned prosperously, till the last, Jiluku by name, was shamefully deposed by his own son-in-law, a Nayman prince, who had previously found at the Court of the Korkhan shelter from the persecution of Tchingyzkhan and had received the hand of the Princess Imperial, the heiress to the throne, and who now showed his gratitude by ousting his benefactor. Rubruquis mentions that the last Korkhan was succeeded by a Prince of the Nayman tribe, who also took the title of Prester John. Kushluk only reigned as Korkhan or Prester John a few years (from 1213 to 1218), when he was totally defeated by the troops of Tchingyzkhan and killed while flying from the field. Thirty years afterwards the French monk and ambassador to the Great Khan, Johannes de Plano Carpini, passed through the valley in which Kushluk was defeated. With him became extinct the princes who had the title of Korkhan of Kara-Kitai, and he was the last prince of that empire, though himself only a usurper. Another dynasty of Kara-Kitai princes settled for some time, from 1224 to 1364, in Kirman; but the memory of the empire of the Korkhan soon passed away, and when the European travellers passed through Asia, the existence of the Korkhan or real Presbyter Johannes had already assumed a mythical aspect. The rapid progress of the Mongolic conquests and the entire overthrow of all the previous empires, and of the whole political state of Asia, explain in some degree why there exists no trustworthy history of these times, and how a manifest falsification of history could have been made and supported even up to the present day. I speak here of those who contend that Unkkhan, the chief of the Keraite tribe, was the real Prester John. This hypothesis is quite unsupported; for Unkkhan, who was never more than an insignificant chieftain, and could not hold his own without the assistance of Tchingyzkhan, and his father, Pesuka behadur, was not in power, perhaps not even born, in 1141, and was killed before the usurper Kushluk, the last Prester John, had arrived at the Court of the Korkhan.

Thus the mighty empire of the Korkhan had been destroyed in the West by the troops of Tchingyzkhan, while in the East, in China, he restored the Kitai, if not to their previous influence,

yet to independence. The Great Khan was anxious to strengthen his forces on his expedition against the Emperor of the Kin, and nowhere could he find stauncher supporters than in the descendants of the former rulers. Tchingyzkhan succeeded in gaining the affection of the oppressed population; and though the Niutche, aware of the dangerous consequences of a revolt, tried the utmost cruelty to deter their subjects from rising, yet Yeliu Lieuko, a descendant of the imperial family of the Leao, and therefore a relative of the Korkhan, contrived to unite his forces with those of the Tatars, to defeat the Chinese, and to be acknowledged as the sovereign of the Kitai, though naturally recognizing the Great Khan as his souzerain. His family inherited the sovereignty; and as long as the Mongolic dynasty reigned in China, the Kitai also held their own, keeping up a good understanding and friendship with the Tatar Emperors.

It is now intelligible how the Archbishop of Peking, Johannes de Monte Corvino, could speak in his letter, dated from Peking, on the 8th of January, 1305, of a neighbouring king Georgius, a descendant of Prester John, with whom he stood on very intimate terms; and who, persuaded by his preaching, had left the Nestorian church, had become a Roman Catholic, was consecrated by him a priest, and used to administer in his royal garments during the service. This king Georgius was followed by his son Johannes, a godson of the archbishop. Marco Polo, too, mentions this king Georgius as the fourth (according to others as the sixth) in descent from Prester John, of whose family he is regarded as the head. "There are two regions in which they exercised dominion. These in our part of the world are named *Og* and *Magog*, but by the natives *Ung* and *Mongul*; in each of these provinces is a distinct race of people. In Ung they are Gog, and in Mongul they are Tatars."

Marsden, in his edition of 'Marco Polo,' despairs of explaining this chapter; but to me the mentioning of Gog and Magog signifies the existence of a wall, that is of the Chinese wall, of which Marco Polo nowhere speaks, because it was for the most part destroyed by the Tatars, and then of no great use, as on both sides of the wall obedience was paid to the same sovereign, the Great Khan. But what makes us sure of the correctness of this hypothesis is that the name of the wall is in the language of the Kitai *Ungu* and of those who had to watch it *Ungutti*; and thus we see that by this *Ung* is clearly expressed the Chinese wall, and that the Kitai lived near it.

Having thus proved the importance of the people of the Kitai, it only remains to add a few words on the tales of Prester John. At the time when the rumour of this prince reached Western Asia and Europe, the Crusaders were in a very bad position.

Stronghold after stronghold had fallen into the hands of the Moslems, and despair began to fill their hearts. Is it therefore astonishing, when the defeat of their fiercest enemy Sultan Sanjar excited the most sanguine hopes, that reports from the East supported the excitement of expectation, and the simple truth was shaped into marvellous forms? We have thus to understand that singular letter of Prester John, which was received by the Pope, the Emperors of the East and West, and other sovereigns, as those of France and Portugal. It is without the least doubt spurious; but it is of importance, as it shows how easily men could be imposed upon during the middle ages. Though the most heterogeneous things are reported in it, I can prove that this letter is on the whole nothing but a bad copy of the wonderful letter of Alexander the Great to his mother Olympias, which we find in the work of Pseudo-Kallisthenes. In the voyages and travels of Sir John Maundeville we meet with a very extensive and amusing account of these tales.

But if that letter was spurious, repeated news and reports induced Pope Alexander III. to write a letter to Prester John. It is dated the 27th September, 1177, and signed at the Rialto in Venice. His friend and physician Philippus was charged with its safe delivery; and though this ambassador had previously been in the empire of the Korkhan, and knew much about it, we do not hear what became of Philippus and his letter. Poetry soon possessed itself of this interesting personage, and the epics and romances of the middle ages abound with descriptions of the splendour of Prester John. In later times, by a mistaken notion, Prester John was supposed to live in Africa, and to be the Abyssinian Negus. What makes the Presbyter Johannes so important to history and geography is, that the voyages which led to the discovery of the Cape of Good Hope and of the seaway to the East Indies were undertaken in search of that mysterious Prince, as can be proved by the orders given to Bartolomeo Diaz. The reason why all former inquiries with respect to Prester John led to no result may be ascribed to the circumstance that more attention was paid to the explanation of the name than to the historical facts. Thus Joseph Scaliger contends that Prester John, which is in Italian *Preste Giani*, stands for the Persian word *Prestegiani*, which (though it is no Persian word at all) should answer to the Greek *ἀποστολικός*; *Padesha prestegiani* means therefore an Apostolic or Christian king. Another scholar explained it by *Prester Chan*, or the Chan of the Adorers or Christians. Tzaga Zabus converts Presbyter Johannes into *Pretiosus Johannes* (Precious John, or John possessing precious things)—a name still to be found on old maps of Abyssinia. Cornelius a Lapide contends that *Preste* or *Prete*

is the Portuguese *Preto* (black), and that *Preto Joan* means Black John, a name for the Abyssinian Emperor. Paulus Guicius calls Prester John *Pedro Juan*, or *Peter John*; and the famous scholar Sebastian Münster, a contemporary of Luther, makes of him a *Presbyter Kohan* or *Presbyter Kohn*. According to a French explanation Presbyter Johannes is the Dalai Lama; *Preste* corresponds to Lama, and *Giani* means Dalai or Sea, World (Persian *Gehan*), so that "Dalai Lama" signifies a Priest over a large sea or empire, a sort of *Presbyter Universalis*. Joseph Stöcklein describes him as the Presbyter or Great Lama of Yunnan, the great Province near China, for Lama means in the Tatarian language Cross; and as it is a great dignity to be a Grand Cross of a European Order, so it is likewise in Asia, where the Great Lama or Grand Cross is the highest priest. The difference of opinion is still more glaring, if we remember that Samuel Lee, in his edition of the travels of Ibn Batuta, makes of him a *Ferishta Jan*, or *John the Angel*, while others regard him as *John the Slave*. The great geographer Karl Ritter, identifying Prester John with the Keraite Prince Ung Khan, says how easily could a Chinese title, as *Vang Khan* or *Vang Rex*, be altered to *Um Can, Ung Khan, Can Khan* till it became *Joan Rex*,—a proceeding somewhat similar to the derivation of *fox* from *alopex*.

Otto of Freisingen connects Prester John with the Three Holy Kings. He says that he was a descendant of the Magi. It is perhaps not generally known that in later times it was believed that the Magi came from Eastern Asia, as we read, *e. g.*, in the Oriental history of the Armenian Prince Hayton and in other chronicles. In the legends of the Three Kings, it is stated that Melchior came from Nubia, Balthasar from Saba, and Caspar was king of Tharsis. These names occur first, as far as I know, in Bede; for it is difficult to prove that the chronicle of Flavius Dexter, a friend of St. Jerome, which also contains these names, was really written at that time and was not a later work. These names now seem to me to indicate the countries from which the Magi were supposed to have come; Melchior is called the king of Nubia, or the king of the Nile; *Malchi jeor* is a verbal translation of the latter (*Jeor* being the Hebrew name for the Nile). Balthasar is naturally Belshazzar, and Caspar is *Cas-Bar*, the king of Central Asia, of Tharsis, or the *Casia regio*, where we have to this day Kashmir, Kashgar, &c. Thus we see that these names express the countries in which the kings are said to have reigned. It is quite different, however, with that set of names which, besides others, are mentioned by Petrus Comestor in his *Scholastica historia*, viz. Apellius, Amerus, and Damasius, —names which, in my opinion, are derived from the prophet

Isaiah (chap. viii. v. 4). Damasius is derived in this instance from Damask, Amerus from Samaria, and Apellius stands for the king of Assyria, who is explained by Tertullian and other early fathers to be the Diabolus or Apollyon.

By some German poets the legend of Prester John has also been mixed up with that of the *San-Gral.* Wolfram von Eschenbach and Albrecht von Scharffenberg contend that the San Gral went to Prester John when the West was not deemed holy enough to keep the precious treasure. In the Parcival of Wolfram, the Gral is described as a stone by which the knights o the Gral are fed, with which the Phœnix burns himself, ana whose knights, who are called Templers, defend the castle of Salvatierra.

Salvatierra, also called *Castellum Salutis,* lies in the Mancha amidst the mountains of the Sierra Morena, and was the seat of the knights from 1198 to 1210, when after a most obstinate defence the fortress was taken by the Khalif Mohammed the Green. These examples give us an insight into the mode in which historians and poets formerly were wont to amalgamate historical events with mythical traditions and personal inventions.

The history of the Kitai shows in an interesting manner how, even in half-civilized ages, the most distant nations are brought in contact with each other, and how legends may arise from misstated facts, and influence for some time the destiny of powerful realms. The Kitai gave their name to Asia; the victory of their Korkhan over Sultan Sanjar originated the famous and influential personage of Prester John, who was celebrated in prose and in verse. To find him was one of the chief objects of the French and Papal ambassadors to the Court of the Great Khan, and was in later centuries the principal causes of the voyages of the Portuguese navigators, and of their discovery both of the Cape of Good Hope and of the sea-way to the East Indies.

Discussion.

Mr. Hyde Clarke said that Dr. Oppert had given them, in his enumeration of the absurd etymologies assigned by men of learning to Prester John, a caution as to that abuse of comparative philology not uncommon in the present day, and which sought to establish ethnological relationships by the association of incompatible roots, while in his own instance he had shown the true services that philology may render to ethnology.

Mr. Clarke observed that *Kitai,* under the form of *Cathay,* had been made a popular name by our poets, and was down to the seventeenth century a well-known term. The use of colours and metals as distinctions of nations deserved comment. From what he had seen he believed the Black and White cap still distinguished tribes

and classes among the inhabitants of the Caucasus, opposite to the Kitai. He concurred with Dr. Oppert in believing that the application of the terms Manchoo, Mongol, Tongoos, and Turk must have been interchangeable in many cases, or that they are much mixed up. The languages are distinct (except some accidental identity of communicated roots), but there is a general grammatical affinity suggesting relationship. He believed they might be regarded as holding the same relationship within themselves as the more southern groups, the Tibetan (including the Caucasian), the Chinese, and Indo-Chinese.

Dr. Oppert had called attention to an interesting ethnological fact, that the Kitai having once exercised a great empire have now dwindled to 50,000 souls. Mr. Clarke considered this to be due to the fact that a race of small numerical resources had become dominant over many others; the certain result in such cases is the decline of the dominant race, if not, as in the case of the Romans, extinction. A dominant race can only be maintained by large and compact bodies of its members, as in the case of the Turks, the Magyars, and the English, but when these are diffused over greater numbers they must decline.

The following note was then read by the author:—

XI. Note *on the* Use *of the* New-Zealand Mere.

By Col. A. Lane Fox, F.S.A.

In a paper which I read last year at the United Service Institution upon "Primitive Warfare," the subject of which had reference to the origin and development of the weapons of savages and early races, I ventured an opinion that the Mere or Pattoo-Pattoo of the New Zealanders ought to be classed rather with axes or thrusting-weapons than with clubs; and that in all probability this weapon derived its origin from the stone celt which is well known to be common to those regions, as, indeed, it is to the stone period of nearly every part of the globe.

My reasons for this opinion were the following:—

First, that it is usually composed of jade or some other hard stone,—materials of which the celt is also constructed in New Zealand, Australia, New Caledonia, and the adjoining isles.

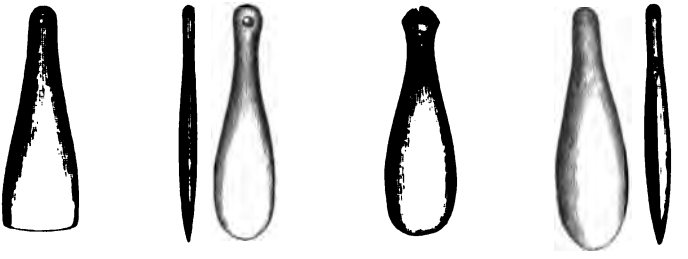
Secondly, that the Mere is not unfrequently ground to a sharp edge at the *end* like a celt, a form which would not have been given it unless it was either itself used for striking at the end, or derived from a similar implement so used.

Thirdly, that amongst the various forms of the New-Zealand Mere, all the connecting-links between it and the celt are found; one specimen in the Christy Collection (fig. 3), believed to be from New Zealand, has a straight sharp edge at the end, and could only have been used as a celt. Many others, as for example, fig. 4, in the Christy Collection, resemble celts that are

slightly rounded at the small end to receive the hand; and the ultimate perfection of the weapon with a carved knob at the small end (fig. 5) appears to be merely a development of the earlier forms.

Fourthly, that similar stone clubs are found in Ireland, one of which, from my Collection, is here given (fig. 6), and another

Fig. 3. Fig. 4. Fig. 5. Fig. 6.



is figured in the 'Ulster Journal of Archæology'*; these are evidently stone celts similarly cut at the small end to fit the hand.

Fifthly, that analogy would lead one to suppose that so peculiar a weapon as the Mere, not being the best adapted, either as to its form or composition, to be used as a hand-club, must have been derived from some other implement of traditional usage amongst the people, it being a fact capable of demonstration that nearly all the weapons of savages *have derived their form from an historical development, and are capable of being traced back through their varieties to earlier and simpler forms, with as much certainty as the various forms of animal and vegetable life.*

Some time after I had read my paper, and before it had been published in the Journal of the Institution, Sir Charles W. Dilke happened to see my collection of prehistoric antiquities, and in looking over the series of stone celts from various countries, amongst which I had included some of these Meres, according to the classification which I had adopted, he took up one of them and said to me, "Do you know the way in which the New Zealanders use this weapon? They do not strike with it like a club or sword, but use it in prodding the enemy behind the ear with the sharp end;" and he then told me that he had obtained this information from a New-Zealand chief, when travelling in New Zealand.

I afterwards mentioned the subject to Dr. Hooker, and he, having been struck by the circumstance, determined to write to New Zealand and obtain further information on this point from

* Ulster Journal of Archæology, No. 18, April 1857.

the old Maories. The result has been the following correspondence :—

Dr. Hooker to Col. Lane Fox.

"Sept. 30th, 1869.

"Dear Col. Lane Fox.—I wrote to New Zealand respecting the use of the Mere as a thrusting-weapon, and have received the enclosed answer. If you think it worth while, will you communicate it, or a copy of it, to the Ethnological Society and return me the original.

"Ever truly yours,
"Jos. Hooker."

Rev. Jas. W. Stack to Dr. Haast.

"St. Stephens, Kaiapoi,
May 17th, 1869.

"My Dear Haast,—I trust you will forgive me for leaving your kind note so long unacknowledged. With regard to Dr. Hooker's inquiry, I have obtained the necessary information for you from the old Maories. The Mere was, as he conjectures, a 'thrusting-instrument.' The warrior before delivering the thrust generally seized his enemy by the hair, and then drove the point* of the Mere either into the temple or at the angle of the jaw just below the ear, or at the back of the head. A down stroke or a blow with the sharp edge would have shattered the Mere. It was grasped with the thumb towards the blade. If I have omitted any point please let me know.

"Believe me, faithfully yours,
"James W. Stack."

"*To Dr. Haast,*
"*Canterbury, New Zealand.*"

From this letter, which entirely corroborates the information received from Sir Charles Dilke, it will be seen that the Mere is used exactly in the way that a stone celt or any other weapon of the axe-type would be used, *if held in the hand without a handle.* I am therefore confirmed in my conjecture that it must have derived its origin from the celt, and probably from a period when the celt was used in this manner, perhaps before the idea of using it in a handle had been thought of. As these weapons are known to have been handed down as heirlooms, and to be much prized by the chiefs as symbols of office, they have probably (as not unusually happens in like cases) retained their primitive character, and may therefore be regarded as belonging to the class of objects which Mr. E. B. Tylor has aptly termed "survivals." We have not far to go to find the stone or jade celt

* It should rather be the *end*, for the Mere is not pointed.—A. L. F.

actually used at the present time in the manner I have described. Fig. 7 is a drawing showing the manner in which the South Australians use their celts, grasping the small end in the hand and prodding with the broad sharp end, the fore arm of the holder itself supplying the place of a wooden handle. The drawing was kindly sent to me by Mr. Hodder Westropp, and was sketched by an eye-witness, Mr. Chas. Seymour.

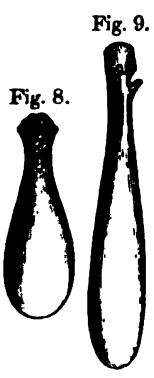
Fig. 7.

I believe that the evidence afforded by the study of weapons and implements will eventually prove to be of the utmost value as a means of tracing back the connexion of races and the sources of early culture, owing to the persistent manner in which all savages preserve their ancient types. Whilst language, having no material existence previously to the introduction of writing, is liable to constant change as the words are passed from mouth to mouth; so much so that amongst the Polynesian and Melanesian races, the Bishop of Wellington has told us, there are no fewer than 200 languages, differing from each other as much as Dutch differs from German; these implements, having been handed down from generation to generation, or having been otherwise preserved in their original forms, constitute the most enduring memorials of the ancestors of the people, and are often found to present strong family likenesses in regions remotely separated.

I have not been able to trace the Mere with certainty out of New Zealand; but it is worthy of mention that Dr. Klemm, in his work on the Weapons and Implements of Savages*, gives an illustration of a stone Mere, which he attributes to the ancient Peruvians (fig. 8). Its identity with the New-Zealand Mere is evident; but little reliance can be placed on an isolated example. Some of the small wooden clubs from British Guiana very much resemble the Mere, and those constructed of bone from Nootka Sound (fig. 9) still more closely resemble the New-Zealand weapon. I also exhibited a wooden club of the same form from New Guinea, the ornamentation upon which is so perfectly identical with that of the New-Zealand canoes as to leave no doubt of a connexion between them. Dr. Klemm also mentions some Meres from the New Hebrides; but I have not been able to verify that, and I believe it to be a mistake of the author.

Fig. 9.

Fig. 8.



* 'Werkzeuge und Waffen,' by Dr. Gustav Klemm, p. 26.

The following paper was then read by the Hon. Secretary:—

XII. *On certain* Prehistoric Remains *discovered in* New Zealand, *and on the* Nature *of the* Deposits *in which they occurred.* By Dr. Julius Haast, F.R.S.

The title of these notes might be considered scarcely appropriate if the term *prehistoric* were applied exclusively to works of art discovered in countries which, like those of Europe and Asia, possess historical records of ancient date on which dependence may be placed. New Zealand, having been inhabited by European settlers only for the last thirty or forty years, and having been before that time exclusively the abode of savages, has no such history; and therefore the term is here used in a geological sense to designate remains of human workmanship found in beds of quaternary formation, the age of which may be coeval with strata of the northern hemisphere, in which similar objects have been discovered. These deposits are, moreover, of so curious a nature that a description of their mode of formation may not be without interest even to the European geologist.

But before entering upon this subject I may perhaps be permitted to glance at the traditions of the native population of these islands in reference to their origin: these are, however, of a very contradictory character. According to the generally accepted traditions of the natives, which are apparently well sustained by the genealogies of many tribes in several parts of these islands, the ancestors of the Maori race arrived here in a few large canoes, about five hundred years ago, from an island called Hawaiki, situated in a northerly direction from New Zealand. Increasing rapidly, they spread in all directions in the Northern Island where they first landed; they then crossed Cook's Straits and peopled also the Southern Island. Considering the natural productions of New Zealand, the comparative scarcity of animal and vegetable substances available for the sustenance of human life, and the savage and warlike character of the Maories, I do not think that in so comparatively short a time these few immigrants could have grown into so numerous a population as was found here when New Zealand was first visited by Europeans. The native population was then estimated at several hundred thousands.

The same traditions state also that the immigrants found the islands uninhabited, and consequently there could have been no contest with aboriginal inhabitants. But the fact that the Maories are a mixed race, in which Malayan, Papuan, and (in a minor degree) Mongolian blood are apparently blended, seems to forbid such an assumption, although its advocates suggest the possibility that the present inhabitants of New Zealand

might, during their migration, have mixed freely with other races*.

Other inquirers state that these accounts are erroneous, and that, according to other and more reliable traditions, the present native inhabitants in New Zealand are a mixed race; that the original Papuan population intermarried with the more civilized newcomers from some island or islands in the north-east Pacific ocean; and that all traces of the original language of the former have been lost.

These contradictory accounts are foreign to the scope of these notes, and I do not propose to discuss them except in so far as they may affect the question of the relative age of flint or stone implements found in New Zealand; but I may at once state my conviction that these islands have been inhabited much longer than the current traditions of the so-called Hawaiki immigrants would suggest.

I hope, when publishing hereafter the results of my excavations of Dinornis remains, to prove convincingly that these species have been extinct much longer than has been generally admitted. I shall then also show more fully that the Maories have not even a tradition about them, and that the huge birds had doubtless disappeared long before the race which at present inhabits these islands arrived here, or that the Moa has been so long extinct that every record of it has been lost.

Several of my friends (amongst them the Rev. James Stack, of Kaiapoi, Mr. A. Mackay, Native Commissioner in this island, and several other gentlemen well acquainted with the natives) have at my request made careful inquiries on the subject, and all without exception have found, in sifting the Maori traditions, that beyond the fact that the Moa was a bird and that its feathers resembled those of the Kiwi or Apteryx, the natives did not possess any information about it.

* I extract the following passage from a letter from my friend the Rev. James Stack, of Kaiapoi, of whom I made inquiries on the subject:—"The subject of your inquiry is one in which I have taken some interest, but the result of my investigations leads me to very different conclusions from those of Mr. Taylor and others. From inquiries here and in the north I am persuaded that there is not a shadow of evidence to prove the existence of an aboriginal race in New Zealand when the Maories arrived five hundred years ago.

"The existence of such a race at the Chathams, coupled with the fact that great diversities of expression are noticeable amongst the Maories, may suggest the probability of their having found the islands preoccupied. But Maori traditions are all against the supposition.

"If any race inhabited these islands prior to the Maori occupation of them, that race was extinct and left no visible trace of its existence. The variety of features existing amongst the native race I attribute to their intermingling with Papuans, Malays, and Mongolians in their progress to these islands.

The Maories, moreover, attribute its extinction to a great fire, called the Fire of Tamatea, which they assert swept the Canterbury plains about five hundred years ago, the smouldering remains of which may, as they think, be still seen in the Rakaia Gorge. These so-called smouldering remains are, however, seams of lignite in combustion, and this fact alone proves the legendary character of their traditions. The proverb *he Moa kai hau* ("a wind-eating Moa") is the only trace which the Rev. J. Stack could find of any allusion in the sayings of the ancient inhabitants to the existence and habits of these huge birds. If it be true, as I have been informed, that it is a favourite habit of the African Ostrich to stand with its beak wide open towards the wind, such a coincidence in the habits of two allied huge terrestrial birds would certainly be very curious, and would clearly show that, although all other traces have been lost, the proverbial saying has survived, and moreover it would compel us to believe in its correctness.

Concerning the traditions on this subject in the North Island, the Rev. W. Colenso, writing in 1842, showed convincingly that no value attached to the native accounts; in fact it seems to me evident that the present native race, unable otherwise to account for the huge remains of the Moa found sometimes washed out from the postpliocene alluvium, and at other times scattered about on the open plains, took refuge in miraculous legends.

On comparing the Moa-bones with those of other living species of birds, they found, undoubtedly, that in their principal characteristics they most resembled those of the Kiwi or Apteryx, which were sometimes mixed with them; and this fact may account for the tradition concerning the similarity of the feathers. In drawing a conclusion from our present knowledge of the subject, there is the greatest probability that at the time the Maories arrived, the race which hunted the Moa was either extinct or had dwindled down to a small remnant living in the interior of the South Island.

The new comers must, moreover, have been greatly advanced in comparison with the original inhabitants, as they were able to build canoes and make implements for the purposes of agriculture.

The unpolished stone implements found in the Moa-ovens *

* I shall call the race which was contemporary with the Dinornis, and in whose cooking-places or ovens the remains of those huge birds were found, Moa-hunters. These Moa-hunters, like the present native race, dug shallow pits in the ground in which they cooked their food by means of heated stones, on which water was poured in order to generate steam. In several localities in this island unusually large ovens of this description have been discovered, in or near which split and sometimes charred Moa-bones are found, together with chips of stone used as knives.

resemble, if we judge from the way they are manufactured, rather those of the Amiens beds than the true Maori implements, which are highly finished and polished. Those which are found in old burial-grounds, pahs, battle-fields, and sometimes even deep below the ground are all of the latter character, and are quite unlike the primitive stone implements of the Moa-hunter.

I also wish to point out that the stone implements I am about to describe, notwithstanding their great age, resemble more closely in their form and polish the Maori implements than those of the Moa-hunter. May not this be an additional proof that the different species of Dinornis have been extinct for ages? There is at the same time no doubt in my mind that the extinction of the Moa was principally caused by the agency of man, either directly by being used as food, or indirectly by being driven from their genial feeding-places amongst the grass and scrub of the plains and low hills into the dense forest or the mountain-regions, where the food necessary for their subsistence and the conditions needful for their reproduction could not be obtained.

Comparing the degree of advancement of New Zealand at the time of its colonization with that of Europe, we are led to conclude that it was then as far advanced as Europe had been in the neolithic age, while the Bruce-Bay stone implements hereafter to be described, and still more the chipped and unpolished stone implements of the Moa-hunter, represent the far more remote time of the palæolithic period of the mother country. But another explanation might be offered from the few data at our command, namely, that the inhabitants of the coast, being immigrants from more advanced countries, already used polished stone implements, whilst the older inhabitants of the country living in the interior, whither they had followed the Dinornis, were still in a more primitive state of civilization. And is it not possible that in Europe also similar conditions may have been in operation? so that two different races may have existed contemporaneously—a primitive one in the forest fastnesses and near the lakes in central Europe, and a more advanced one in the coast regions or along the banks of great rivers; the newcomers having either forcibly taken possession of the country, or found it deserted as no longer offering good hunting-grounds to its first inhabitants.

In a paper printed in the Journal of the Geological Society of London*, I have treated of the glacial deposits at the west coast of this island, and shown that many morainic accumula-

* Vol. xxiii. 1867, p. 342.

tions not only reached the shores of, but also entered into the sea, where they still form bold headlands. Many of them exhibit all the characteristics of lateral or medial, and others of terminal moraines. In the small sketch-map accompanying the paper referred to, I have marked in general outlines how far these remarkable moraines reached and where they formed the principal headlands. Among them are two conspicuous bluffs called the Makowiho and Heratanewha points, which are the two lateral moraines of an enormous glacier formerly descending from the western slopes of the southern Alps by the Makowiho and Waitaha valleys. It is evident from the present configuration of that part of the country, that when the huge glacier had retreated within the ranges, its lateral moraines stood out boldly in the sea like two walls. At that period a shallow bay existed between them, washing the western foot of the southern Alps. In this bay two rivers, the Makowiho and Waitaha (the outlets of the retreating glaciers), emptied themselves, flowing along or near the two lateral moraines, and bringing with them ample material to advance their deltas in the bay. At the same time another agency was at work obliterating that shallow bay by forming it into a lagoon. Littoral beds were deposited by marine currents travelling from south to north, assisted by the powerful north-western and north-eastern gales, which in their turn assisted, by forming a very heavy surf, to throw up a large bank of sand and shingle between the two walls, crossing from near the extremity of Makowiho point in the north to the northern side of the Heratanewha wall, about a mile from its western extremity. The two rivers continuing to deposit their shingle in the lagoon thus enclosed, soon formed shingle-beds along the two walls, reaching in time the littoral deposits, and leaving in the centre a shallow lake, which in its turn was gradually in part silted up and in part filled by decaying vegetable matter. This former lake-bed still forms a plain, several miles in breadth and length, covered with a scanty vegetation of *sphagnum*, sedges, rushes, and ferns peculiar to such marshy soil; while the surrounding sides, along the sea, along the river-beds, and on the mountain-slopes, are clothed with a high and luxuriant forest.

The small geological sketch-map (Pl. XII. fig. 1) will give, better than any description, an insight into the peculiar structure of this portion of New Zealand.

When the highly profitable gold-fields in the pliocene alluvium, and in the river-beds crossing it near Hokitika, were all taken up by diggers who had arrived in great numbers on the west coast, the rest sought paying claims in other directions, and many set to work in localities where scarcely any one would

have thought that payable ground existed. Amongst these localities were the sea-beaches, where in many instances fortunes have been made by their lucky owners. These sea-beaches were generally situated between two headlands, often several miles distant from each other, and where the slopes of the sea-bottom and of the shores were shallow. Here, after working through the beds of shingle and sand near high-water mark, layers of "black sand" are frequently found, reposing mostly on shingle-beds cemented into a conglomerate by oxide of iron. When the deposits were in such a position that the tides did not interfere with the labours of the miners, several beds were generally found below the first, often of equal or even greater richness; but owing to the impossibility of keeping the water out, these lower beds have not hitherto received that attention which they deserve. Instead of sinking lower down in their claims near the sea-shore, the miners have gone inland seeking another "lead," as it is technically termed.

During my last journey along the west coast of this island, in March and April 1868, I had an opportunity of observing how these auriferous beds were being formed, and I found that some of the diggers were, from a practical point of view, already well acquainted with their mode of formation. Thus, on one portion of the coast between Makowiho point and the mouth of the Karangarua river, called Hunt's beach, the sea-coast is very shallow and sandy. Here during fine south-westerly weather large masses of sand are accumulating in and above the tidal boundaries. At such times only light winds are blowing, and the surf is consequently of no great force; but when an occasional north-west or north-east storm rages along the coast, the masses of sand deposited during the preceding fine weather are, as it were, undergoing a process of natural sluicing. Generally the greater portion of the sand is removed, but in favourable spots, sheltered either by a slight indentation in the coast-line or by some large pieces of drifted timber, its heavier particles remain; these consist of black iron-sand (both magnetic and titaniferous oxide of iron) associated with small garnets and with gold. These black layers are often one to two inches thick, and repose upon coarse quartzose sands.

As soon as a storm has subsided, the "beachers" or "surfacers," as they are called, examine the coast-line near their houses. When they come upon one of the rich spots, the fine particles of gold being often visible to the naked eye, they at once remove the black layer of sand out of the reach of the tide, and wash it when convenient.

During their search for beach-diggings the miners reached Bruce Bay. There they found three "leads" running parallel

with the coast-line, the one nearest the sea being the shortest, the second intermediate in length, and the last and most inland one the longest. I may here observe that there were no indications whatever to guide the miner in his search, and their whole extent and general features were discovered from experience in prospecting and following the auriferous leads in both directions.

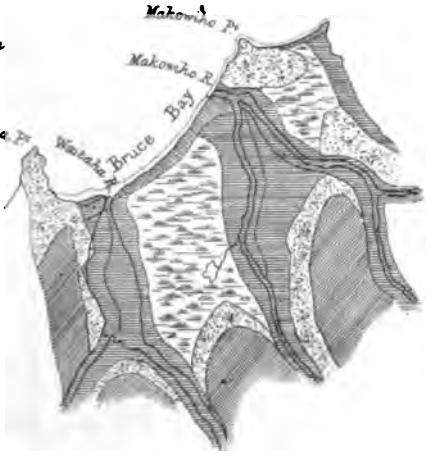
Where at this coast ancient level strips of land exist close to the sea, which are, however, often breached by the waves, we find that the usual forest vegetation grows to the water's edge: but generally the level land is of quite recent origin, as the land is gaining upon the sea, and new ground is continually formed. In localities of this nature we observe that the more we advance from high-water mark inland, the more luxuriant becomes the vegetation, exhibiting three distinct belts of peculiar growth. This is well shown in Bruce Bay (Pl. XII. fig. 2). There is generally above high-water mark a zone 50–100 feet broad, consisting of fine drift-sand usually forming small hillocks, amongst which a great mass of drift-wood is decaying, but in which no other vegetation, except a few fungi on the rotten wood, makes its appearance. Then follows a second belt, also of sand, 80–150 feet broad, in which the drift-wood has already entirely disappeared, and which is covered by vegetation peculiar to such localities, consisting of sedges, rushes, and a few plants of higher organization. The following plants grow principally in this second or "*Coprosma-acerosa* belt," as I propose to call it; namely, *Coprosma acerosa, Juncus maritimus, Desmoschœnus spiralis, Scirpus maritimus, Leptospermum scopiarum, Euphorbia glauca, Convolvulus soldanella,* and *Discaria toumatou.*

A third distinct zone follows, from 300–500 feet broad, commonly called the "scrub-belt." The main mass of its vegetation consists of *Coriaria ruscifolia, Coprosma petiolata, Coprosma Baueriana, Veronica salicifolia, Fuchsia excorticata, Griselinia littoralis, Phormium tenax,* and some more shrubby plants, generally with a dense undergrowth of ferns belonging to the genera *Asplenium, Polypodium, Lomaria,* &c.

The boundary between the first and second belt is not so distinct as that between the others, especially between the "shrub" and "forest-belt," which is generally sharply defined.

In Bruce Bay, where the ground is rather swampy, the vegetation of this last-mentioned belt consists of the following trees:—*Podocarpus dacrydioides, Podocarpus Totara, Dacrydium cupressinum, Libocedrus Doniana, Weinmannia racemosa, Metrocideros lucida.* Several species of *Coprosma, Pittosporum,* and fern-trees, as, for instance, *Cyathea Smithii* and *Dicksonia squarrosa,* grow between and below them, while the *Rhipogonum scandens,* the "supple Jack" of the colonists, interlaces the whole with its

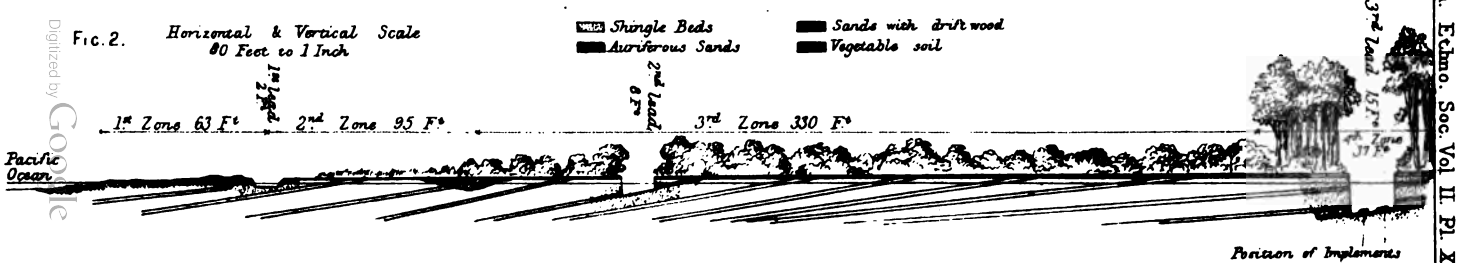
Fig. 1.
Scale 4 Miles to 1 Inch



Metamorphic
Littoral Deposits
Morainic accumulations
Swampy Ground
Alluvium

Fig. 2. Horizontal & Vertical Scale 80 Feet to 1 Inch

Shingle Beds
Auriferous Sands
Sands with drift wood
Vegetable soil



BRUCE BAY, NEW ZEALAND.

F. Weller Litho.

numerous flexible stems. Where the *Kiekie* or *Freycinetia Banksii* occurs, which is not unfrequent, this forest zone is almost impenetrable.

When I arrived in Bruce Bay the two auriferous leads situated in the beginning of the second and third belts had already been worked out, and the miners were exclusively at work on the third lead situated in the forest-belt, where they had to sink 13–15 feet before the auriferous beds were reached. After having removed the large trees growing here, sometimes 4 feet in diameter, and standing closely together upon 8–12 inches of vegetable soil, in which the roots run horizontally, the miners passed generally through the following strata before the auriferous sands were reached :—

	ft.	in.
Flattened beach-shingle mixed with black sand	4	0
Black sand containing a little gold	0	2
Quartzose and black sands alternating repeatedly with each other	1	1
Large flattened shingle with some black, iron, and quartzose sands, but not auriferous enough to pay for the extraction of the gold	6	5
Fine black sand, a little auriferous	1	0
Very coarse gravel	1	7
Auriferous black iron-sand, which is the layer of wash-dirt excavated for sluicing	0	6
	14	9

This last layer reposes upon a bed of coarse gravel, which, being cemented by an argillaceous matrix, has materially assisted to retain the fine gold in the black sand above it.

From an examination of the section (Pl. XII. fig. 2) it will be seen that a long period of time must have elapsed before such a succession of beds could be formed, because it is evident that the beaches have not been always receiving new additions, but deposits have been thrown up and again partially removed according to the prevailing winds. It is also clear that since the formation of these littoral deposits a slight upheaval of this part of the coast has taken place, the edge of the forest-belt being situated about 4 feet above the highest flood-line.

Again, there is evidence that since the formation of these beds oscillations in the relative position of land and sea have taken place, as proved by a surface-layer of wash-dirt in the *Coriaria* or third belt, overlying unconformably the more inclined first-formed strata; all of which tends to confirm my opinion that a long lapse of time was requisite for the formation of these beds, and for the growth of the dense vegetation which now covers them.

If we examine the different belts of vegetable life following

each other with such distinctness as we go inland, additional evidence is offered that considerable time was necessary to change the *Coprosma-acerosa* belt into the scrub-belt, and a still longer period had to elapse for the formation of a sufficient thickness of vegetable mould to allow the forest-trees to grow to such large dimensions; some of them which I measured were 4 feet in diameter. In the same forest many and often still larger trees are lying prostrate on the ground, and in all stages of decay; sometimes they are only indicated by long mossy ridges, so that we may safely conclude that the present forest-vegetation is not the first one, but that it was preceded by trees of the same species, and often of large dimensions, which formerly grew there.

In one of the claims in this last described forest-belt, on the bottom of the wash-dirt, reposing directly upon the argillaceous gravel, a party of miners, consisting of S. Fiddean, J. Sawyer, and T. Harrison, found a stone chisel (Pl. XIII. fig. 2) and a sharpening-stone (Pl. XIII. fig. 1) lying close to each other; the former was broken, having been accidentally struck by the pick when the miners were loosening the wash-dirt. The stone chisel is made of a dark greenish chert, and is partly polished; the sharpening-stone is made of a coarse greyish sandstone, which I found *in situ* about ten miles south of this locality, near the mouth of the river Piringa.

The two stone implements were found a few days before my arrival, and it was quite accidentally in looking at the claim that I heard of their discovery. They are now in the Canterbury Museum, New Zealand.

I measured carefully the distance from high-water mark to the exact spot where they were discovered, and found it to be 525 feet, crossing the different belts as follows:—

	feet.
First, or drift-wood belt	63
Second, or *Coprosma-acerosa* belt	95
Third, or *Coriaria* belt	330
Fourth, or White-pine belt	37
	525

The beds through which the miners had been working were quite undisturbed, and some very large trees had been growing just above that portion of their claim near the centre of which these stone implements had been found.

Owing to the dense forest covering the ground everywhere on the west coast of this island, these beaches are generally used for travelling, the favourable time of the receding tides being selected. I can easily imagine, therefore, how these tools may have been

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Fig. 1.

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Fig. 2.

STONE IMPLEMENTS FROM BRUCE BAY, NEW ZEALAND.

E. Weller, Litho.

Journ. Ethno. Soc. Vol. II. Pl. XIII.

left behind. When travelling with Maories along that coast I have, during a rest of a few moments, seen them repeatedly pull out a piece of greenstone and polish or cut it until the *mot d'ordre* to proceed was again given by me. In the same way the owner of these implements may have set to work, and when starting again either forgotten them or left them behind when surprised by an enemy.

The character of these implements shows that the people inhabiting or visiting this island at that remote period were much more advanced in civilization than the Moa-hunters, whose tools consisted only of chipped pieces of sandstone, flint, and similar siliceous rocks without any attempt at polish. I am not acquainted with the rate of growth of our New-Zealand forest-trees, but have no doubt that by far the greater portion of them grow very slowly, especially when compared with Australian, or even some European and North-American trees.

A fair criterion by which to judge is offered in our New-Zealand gardens, where the native trees, which are raised with great difficulty, grow only a few feet in six or eight years, whilst the introduced trees planted as seed or seedlings at the same time as the endemic vegetation, form in that time conspicuous trees often 20–30 feet high.

To sum up the evidence we at present possess as to prehistoric remains in New Zealand, I may state that the most primitive implements hitherto discovered are those found in or near Moa-ovens. They are simply chipped from boulders and blocks of siliceous rocks. In the Manuherikia valley, in the Province of Otago, where many Moa-ovens have been discovered, an old workshop has been found where a great many chips and blocks thrown away as useless are still lying together, making us well acquainted with the mode in which those primitive Moa-hunters manufactured their tools. The stone implements found in Bruce Bay, and described in this paper, are more highly finished; and many others of similar characters have been obtained in the Wellington Province during the drainage of swamps and the construction of roads, often several feet below the surface, and under the roots of trees of enormous size. Others were occasionally found in the Canterbury plains during the operations of ditching and deep ploughing, but all these implements are more or less polished, and resemble in many respects those of the present native population. I wish to point out, however, that, although these tools are much more perfect than those found in the Moa-ovens, I am not able to say which are of the greater antiquity. It may be possible that after the interval of a great lapse of time various races arrived in New Zealand who possessed a higher degree of civilization than the original in-

habitants. Moreover, the latter were perhaps living only in the interior, whither they had followed the retreating Dinornis. In several islands in the Pacific and Indian oceans two distinct races are now living—the more civilized near the coast, and the original and inferior race near the mountains. In order to arrive at a solution of this question it will, however, be necessary for competent observers to study the approximate age and position of the Moa-ovens in this and the Otago Province much more closely than has been done hitherto.

EXPLANATION OF PLATES XII. AND XIII.

Plate XII.

Fig. 1. Geological map of Bruce Bay, New Zealand. Scale 4 miles to 1 inch.
2. Section from N.N.W. to S.S.E. across the deposits in Bruce Bay, showing the four belts of vegetation, and the three auriferous "leads": in the most inland lead the stone implements were found. Scale, horizontal and vertical, 80 feet to 1 inch.

Plate XIII.

Fig. 1. Sharpening-stone found in Bruce Bay. Half size.
2. Stone chisel found in Bruce Bay, showing both front and side view. Half size.

Discussion.

Mr. Bonwick thought that the question of relative antiquity of the implements could be settled by geology. If that third inland auriferous deposit had been brought along the beach by currents, then, in spite of the argument of a change of vegetation on the spot, the formation would be comparatively recent; but as the sunken pit bore much of the likeness of an ordinary digging, the whole would give a greater antiquity. The map furthermore indicated moraines near the sea, marking the former far more considerable elevation of the country around that formation; while the metamorphic rocks, the source of gold, are placed above the deposit, as though it had been brought down from the mountain-ranges in the ordinary way, and not in from the sea.

Mr. Hyde Clarke called attention to the question of the ethnological capacity for extension within a limited period. Dr. Haast doubted whether 500 years, or 15 generations, would be sufficient for three canoesfull to supply the alleged population of several hundred thousands. Mr. Clarke thought the instance of Lower Canada worthy of investigation. The French population at the conquest by General Wolf was 30,000, and without immigration in a century it had increased twenty or thirtyfold. Supposing the 30,000 had been obtained by natural increase instead of by immigration, then 1000 or 1500 a century before would at the same rate produce 30,000, and a century before that three boatloads might be progenitors in three centuries of the existing French Canadian population.

ORDINARY MEETING, Jan. 25th, 1870.

PROFESSOR HUXLEY, LL.D., F.R.S., *President, in the Chair.*

New Members.—Lord ROSEHILL; J. W. BARNES, Esq.; WALTER MORRISON, Esq., M.P.; and ROBERT LUCAS NASH, Esq.

Dr. HOOKER, C.B., exhibited a collection of figures in unburnt clay modelled by a native Zulu, and sent to this country by J. Sanderson, Esq.

Col. LANE FOX exhibited two stone mullers, one from Tahiti, and the other from the West Indies, together with a drawing of a similar muller from New York.

The following paper was then read by the author:—

XIII. *On the* ORIGIN *of the* TASMANIANS GEOLOGICALLY CONSIDERED. By JAMES BONWICK, Esq., F.R.G.S.

(Abridged.)

THE "Origin of the Tasmanians" has at this moment a painful interest. The last man of the race has departed: an old woman is the sole survivor of the island tribes.

The people were recognized as among the lowest of the human form, and the most isolated and peculiar of the family of man. Black and woolly-haired, they seemed allied to Africans seven thousand miles away, while their manners and general *physique* connected them with their Australian neighbours. How came they where the early voyagers found them?

Linguistic analogies, identity of customs, and assimilation of habits of thought associate them with others scattered over vast areas; but grave difficulties beset our way in seeking a common origin for races so remotely situated from each other, and almost all of whom may be reputed consistent *landsmen*.

In pleading, therefore, as I shall have to do, for the prior existence of a continent with which these several peoples could have been associated, I am conscious of placing myself in antagonism to popular and established theories, and of confronting those who would make the Aborigines literally "Men of the Soil,"—beginning an existence as a race in the country where they are now observed.

Assuming sufficient time, it may be demonstrated that the Papuan race, which we see at so many isolated spots, were formerly more associated geographically, and that they could have had one common ancestry. Prof. Huxley sees reason to connect the Tasmanian and his neighbours with the very old prehistoric folk of Europe. "I shall be inclined," says he, "to look among the Papuan races of New Guinea and New Holland for the nearest allies of men to whom the Shell-Mounds once belonged."

The migration took place at a period when civilization had made little advance; and not only prior to the institution of agriculture, but before the domestication of cattle.

It is in the highest degree probable that the site of the sunken continent whence the various black races surrounding the Indian Ocean, and extending into the Pacific and Southern Oceans, may have radiated was the source of the Australian vegetation. Dr. Hooker, in his valuable work on the Flora of the South, has afforded us some remarkable data for this conception. He indirectly supports the continental theory by showing how very inadequate the powers of currents of air and water are as propagators of species. In accounting for the absence of certain forms in New Zealand, after that region was isolated from New Holland, he demonstrates that it "is still more incompatible with the theory of extensive migrations by oceanic or aërial currents. This absence is most conspicuous in the cases of *Eucalypti* and almost every other genus of *Myrtaceæ*, of the whole immense genus of *Acacia*, and of its numerous Australian congeners." The Blackfellows could no more cross the sea than could the gum-tree.

But he proceeds to the origin of that flora. He found 273 genera of North Australia allied to those of India; and that, as the proportion of peculiarity increased while going south-eastwards, the maximum of home plants was obtained in the south-western part of Australia. He sees "a greater specific difference between two quarters of Australia, south-east and south-west, than between Australia and the rest of the globe; and that the most marked characteristics of the flora are concentrated at that point most remote from any other region of the globe."

But that quarter would be the one nearest the sunken continent; to which, therefore, we trace the flora of Australia. Dr. Hooker is led also to the old continent by the thought that "the many bonds of affinity between the three Southern Floras (the Antarctic, Australian, and South African) indicate that these have had a common origin, that the period of their divergence antedates the creation of the principal existing generic forms of each."

The extension of the country of the Blackfellows was necessary to account for its vegetation, as the same botanical authority is convinced that facts prove "not only the antiquity of the flora, but that it was developed in a *much larger area than it now occupies*;" and he elsewhere says, "the antecedents of the peculiar Australian flora may have inhabited an area to the westward of the present Australian continent, and that the curious analogies which the latter presents with the South-African flora, and which are so much more conspicuous in the

south-west quarter, may be connected with such a prior state of things."

Dr. Hooker declares that one-eighth of the plants of South America may be found in New Zealand, while the Polynesian flora generally has much sympathy with that continent. One-tenth of the New-Zealand vegetation is common to Australia and South America. The *Oxalis Magellanica* is found in New Zealand, Tasmania, and South America, while the *Edwardsia grandiflora* is detected in the first and third of these regions; and yet the President of the Linnæan Society has affirmed that "the *seeds of neither could stand exposure to the salt-water, and they are too heavy to be borne on the air.*" Mr. Andrew Murray says "South America was most probably united to Australia, if we may draw any inference from the presence of allied forms of life common to both."

The botany of South Africa is much like that of Australia, there being, according to Dr. Hooker, 280 genera of 1000, or nearly thirty per cent., identical. The wonderful egg of Madagascar, 14 inches long, proves that the land must have extended far beyond the present narrow limits when the parent of such an egg existed, and that most probably toward the east and north end, as Mr. Wallace believes Madagascar has not been connected with the African mainland since the Miocene period, at least. Mr. Wake gives especial prominence to the island in his theory of continental extension.

We may, then, conclude with Mr. Murray that "a complete circlet of land formerly crowned the southern temperate regions, as now does the northern."

Mr. Pritchard admits that "an archipelago was originally formed by the disruption of an ancient continent through the invasion of the equatorial current." D'Urville wrote of that old continent. The learned Mr. Logan, of Singapore, has these remarks:—"Asia cannot be severed, in a physical or geological view, from the great insular region which lies to the southward of it." He has shown the continuity of geological formations from Malaya across the Strait to Singapore, and onward to islands southward and eastward. Mr. Oxley finds the four great families of *Casuarina, Myrtaceæ, Melaleuceæ,* and *Proteaceæ* represented in India. The Australian flora, according to Dr. Hooker, terminates with the *Casuarina* on the eastern side of the Bay of Bengal, and the *Stylidium* on the western. "In many cases," writes Sir J. E. Tennant, "the faunas of Ceylon and of Australasia seem more similar than those of Ceylon and Hindustan." But Mr. Murray adds, "Both their faunas and floras have to a considerable extent an Australian character." The traditions of Ceylon point to a time when the

country extended far southward. The Arabs still speak of the Gate of Tears, which opened to let in the floods that tore their land from Africa. The South-Australian blacks even now point to the West as the source of Babydom. Prof. Owen thinks that "the Andaman Islands, like the Nicobar, Java, Sumatra, and Ceylon, may have been parts of some former tract of dry land distinct from, and perhaps preexistent to, that neighbouring and more northern continent." Prof. Huxley considers that the Australioid and Negroid, of his ethnological nomenclature, were in existence when there was land communication between Australia and the Deccan on the one hand, and South Africa, Malacca, and New Guinea on the other.

New Guinea has so many similarities with its greater neighbour that we seem ready to regard the two in the likeness of Dover and Calais, and with New Guinea may be brought into connexion with Australia, the Melanesian group of New Hebrides, Solomon Isles, New Britain, New Ireland, New Caledonia, &c. Marsupialia still exist in the New Hebrides. The Rev. John Inglis, Presbyterian Missionary, is disposed to connect some of those with New Zealand, though regarding New-Caledonian botany as kindred to that of New South Wales. Dr. Hooker, however, classes the plants of New Hebrides and New Caledonia with those of New Zealand and New Holland. Dr. Sclater classes the birds of Polynesia with those of Australia. Mr. Murray sees that the only mammals of Polynesia "belong to an order also found in Australia, the Bats;" he observes great affinity of genera in birds of Australia and Papua, and Dr. Günther noticed the same with reptiles and batrachians.

The geological history of New Zealand has some strong connexion with that of New Holland. For example, the Coal-field of Eastern Australia, one of the largest in the world, seems one with that of New Zealand on the western side; whilst the gold-fields of New Zealand are similar to those of Australia.

The existence of huge birds, like the Dinornis or Moa, is not at all in accordance with the theory of an insular history. New Zealand must, in all probability, have been then much greater in extent. Although the Emu now strides over the plains of Australia, and is of kindred family to the wingless birds so comparatively recently roaming over the fern-land, yet the latter country may have stretched far eastward and northward, as well as westward.

A most important additional evidence has been brought by a recent mail from Australia. We learn that the diggers of the Peak Downs Gold-field, Queensland, found what is pronounced by Mr. Gerard Krefft, the Curator of the Sydney Museum, to be the right femur of a monster bird, allied to the Moa!

It may properly be asked, Why seek to prove the connexion of New Zealand with the Australian shores, when no correspondence of human race is known? The Blacks of New Guinea and Australia are similar; but the inhabitants of New Zealand are Polynesian, not Papuan.

The Maori confesses himself a stranger, an immigrant; he has traditions of the canoes that brought his forefathers to the foreign coast. But in those very tales are stray references to the aboriginal inhabitants, most of whom the savage visitors were said to have devoured. Five hundred years only are assumed by the one great authority, the able and benevolent friend of the coloured races, Sir George Grey, as the limit of the residence of the Maories. Who were there before them? Several travellers have spoken of the presence of two distinct races; in spite of intermarriage, the dark skin, crisp hair, thick lip of the one would indicate a Papuan character.

The islands to the south and east of New Zealand present some interesting features that help out the theory. It is sufficient now to allude to the Chatham Isles of the east; here the volcanic element comes out in strong force, and furnishes us, doubtless, with a key to the enigma of the present isolation of the place. But the ethnological remains are more convincing than in the parent island: Broughton and Dieffenbach are clear in their testimony that the inhabitants were dark, with crisp hair, and with all the other peculiarities of a people wholly distinct from the Maories.

There needs no argument to affirm the former connexion of Tasmania with South-eastern Australia; the granite of the former is led to the granite of the latter by a succession of ocean granite-steps,—the isles of Bass's Strait. Raised beaches in the Straits show other changes. Wilson's Promontory has a flora peculiarly Tasmanian. Even the distinctive *Devil* (the *Dasyurus*) has been discovered, with other remains of extinct Australian life, in a cave of Mount Macedon, in Victoria; while both Devil and Tiger (*Thylacinus*) have been seen among the osseous curiosities of Wellington Cave, New South Wales, along with monster Kangaroos and huge marsupial oxen. Its Ornithorhynchus is seen in South-eastern Australia. By its isolation it retained some original inhabitants a little longer than the continent did.

In proceeding to the specific object of the paper, the tracing of the progress of the tribes geologically, I must assume the now generally accepted belief of the allied character, at least, of the dark race of the Indian hills, of Malaya, of Cochin China, of the Andaman, and of the Papuan Isles proper, with the Aborigines of New Holland and Van Diemen's Land. But, as it is well known that the natives of those two last-named countries

have peculiarities, especially of hair, distinguishing them from one another, I would endeavour to indicate the probable pathway of the woolly-haired Tasmanians in contradistinction to that of the kindred, but more flowing-haired, men of the continent.

Mr. Logan, who had so many opportunities at Singapore of noticing a variety of races, teaches this respecting the two in question:—"The spiral-haired Papuans of South New Guinea and Torres Strait are often more Africo-Semitic and South Indian in their physiognomy than the Australians, while the latter have the fine hair of the South-Indian and some Mid-African nations, and a linguistic formation which resembles the South Indian more than any other in the world."

To raise the sunken continent, so as to connect the woolly-haired men of the Southern Isle with the crisp-haired Hill-men of India and Malaya, the Veddas of Ceylon, the corkscrew-ringlet men of New Guinea, the Blacks of New Caledonia, and the Vazimbas of Madagascar, we may be obliged to go back through the Pleistocene to the Tertiary, and even advance considerably into the latter. But it should be borne in mind that geologists place the Australian flora with the Oolitic age of Europe; and Mr. Huxley has prepared us for enlarged conceptions of anthropology by asking, "Was the oldest *Homo sapiens* Pliocene or Miocene, or yet more ancient?" At any rate, if unprovided with this extent of time, we see no other way of deliverance from the dilemma than that of the polygenestic theory of separate creations of distinct species of man at various epochs. No sea-migration idea, no climatic change, no intermarriages can account for White and Black, for English and Tasmanians, during the limited space of six, or even twenty, thousand years.

The so-called Oriental Negroes, having the crisp and woolly hair, though found in New Guinea on the north and Tasmania on the south, have left some representatives on the mainland of Australia. Cape York, with the Murray Islands, show this peculiarity. Mr. Earl has this striking report of Coburg peninsula, to the north-west,—"The aboriginal inhabitants of this part of Australia very closely resemble the Papuans of New Guinea, or, which is almost the same thing, the aborignes of Van Diemen's Land." Mr. Oldfield, the naturalist, has something similar to relate of a part of Western Australia. "The tribes," says he, "inhabiting the country from Murchison River to Sharks' Bay possess more of the characteristics of the Negro family than the aborigines of any part of Australia."

Although the Tasmanians can be shown to be, excepting in their hair, so much like their continental neighbours,—although they live in the same manner, have similar customs, and cherish the same superstitions,—yet they evidently form two distinct

streams of population. The interesting question to arrive at is, whether the former took the same track as the New Hollanders, and whether they were first or last on the field of their present locality.

The Australians, as a rule, are physically different from the Tasmanians; but the fact of some being found with, at least, Tasmanian tendencies, and these at three corners of the continent furthest removed from Van Diemen's Land, may throw some light upon the former distribution of the people. They would thus appear to have come somewhat upon each other's track at one period. Had they approached, it would have been without doubt to come into collision. In two places where the curly-haired people remain on the mainland, they are in comparatively inaccessible retreats, and in not too favourable a country, thus furnishing as little opportunity as temptation for the Australians proper to dislodge them. It is just possible that the crisp-haired race had been thrust outward on all sides by those who possessed the rivers and the interior, as we find them all round the Australian continent.

Mr. Logan is of opinion, chiefly on linguistic grounds, that the Australian was a prior migration. I should feel disposed to think it more probable that the Tasmanian and his kindred were first, from their being discovered over a larger area, and at so many distant, isolated spots. The New Hollander finds his allies in India; but the Tasmanian has his in Africa, Ceylon, India, Malaya, the Indian archipelago, and far onward in the Pacific. When a comparison is made between the two, it is usually to the advantage of the former, in point of civilization, as though he had been more recently disconnected from the parent, or less separated from his fellow tribes, than the other.

Australia is admitted by naturalists to be one, at least, of the most ancient parts of the world. As its fossil mammalia have been found identical in family with the present forms, and these latter are pronounced to be more ancient than others, it may reasonably be assumed that the land is of a greater relative antiquity, and especially possesses the least changed developments of life.

Again, if, as can be proved by references to both flora and fauna, Northern Australia has no unknown types of life, it must be more recent than other parts of the New-Holland continent. As South Australia, according to Dr. Hooker, has such deficiency of peculiar plants, and, as asserted by Mr. Murray, has only four peculiar species of mammals out of twenty-eight, it would surely be inferior in geological age to South-western Australia, where the specific ones are as 28 to 39. Pursuing the argument, Tasmania with part of Victoria and New South Wales would

rank high in term of years, as the land holds 41 peculiar species out of 60. Of Tasmania alone, twelve species of its twenty marsupials are peculiar to itself.

Geology substantiates the position of the naturalists. The main chains of South-eastern Australia, with Tasmania, have reared their bold fronts from very early times, forming, with the angle of South-western Australia, the original islands of the Australian seas.

Following the guidance of such observations, there seems no occasion to halt in our supposition that the inhabitants of the older portion, Tasmania, were older than those of most, if not all, of Australia.

At the time of the existence of the former continent southward of India, tribes would pass onward and outward. In all probability the Hottentots of Africa and the woolly-haired Papuans were the first to retire, followed soon by the Eastern Africans; for Mr. Huxley has pronounced the similarity of the three. The Hill-men of India &c., preserving so much of the mental characteristics of the Tasmanians, may have then passed into their present homes. The New Hollander, who is conjectured to have more of the South-Indian development than the Tasmanian, may have proceeded later from the northern side of the old continent, through or near the country then inhabited by the Dravidians, and so have subsequently passed overland into New Holland on the western side. As, probably, a broad sea separated Eastern from Western Australia, their possession of the whole land was a work of time.

The curly-headed Papuans, with their strange African type, had a wider range, as I have said, being now found east, west, and north of the site of their supposed original seat. As the more ancient, they would have had a longer time to ramble. They are not found in Borneo and Java, as the flora and fauna of those islands indicate a more Indian character, and that of a more recent period than the time of the great dispersion. From their presence in Papua proper, round to New Caledonia, and most probably in New Zealand, the subsidence of the South-western Pacific land took place subsequently to their arrival. The New-Zealand flora may date after that period. They were in Tasmania when that country had connexion both with New Zealand on the one hand, and with the southern prolongation of Western Australia on the other.

As the Rev. E. Woods assumed that the Murray country of South Australia and part of Victoria was formed in warm, deep, and tranquil waters, the current, doubtless, brought the material from Northern Australia when partly a coralline sea. This would make the land between Tasmania and Western Australia in early

days run southerly, so as to leave space for the deep South-Australian Bay. Tasmania, being then part of Eastern Australia, the natives may be presumed to have passed upwards along the cordillera there, as they had extended further eastward and northward. It is true that, with the exception, as has been stated, of some remnants of their blood at Melville Island, Cape York, and Sharks' Bay, no Papuan tribe of crisp curly hair exists on the main continent. They had been extirpated by the subsequent migration of Australians, who had less of the African and more of the Mongolian characteristics. The disconnexion of New Guinea, New Caledonia, and Tasmania from the mainland preserved in those three islands the integrity of the woolly-haired and aboriginal people, while the continent retained its own homogeneous population.

May I be pardoned the indulgence of further speculation concerning the lost continent, or continents, to the south? Could such possibly have been the birthplace of our race?

It is somewhat singular that the most peculiar languages are found with the Chinese, Hottentots, Australians, and Tasmanians; these are all believed to be among the most ancient of human tribes, and they are flung around the lost continent. When Prof. Owen examined the curious Andamaners, he was unable to class them with existing peoples, and was compelled to range them as, "*The representatives of an old race belonging to a former continent that had almost disappeared.*" The Andamaners are the same as the Negritos; and of the latter Mr. Murray informs us, "The Negritos of the Philippine Islands cannot be separated from the other Papuan Blacks." The latter, therefore, of New Guinea, Australia, and Tasmania, may, as to origin, belong to the continent that has "almost disappeared."

Assuming, then, that these races belonged to that lost land, to what other conclusions are we led? If the volcanic band, extending over so large an arc, from Arabia to the Philippines, or to Melanesia, were the means of the gradual submergence of the southern continent between Africa and Australia, and if it were connected with those movements of India, which foot by foot had elevated the Himalayas, declared by Owen to be "the site of one of the latest of the greatest systems of upheaving forces that resulted in the formation of new continents," the submergence of that southern region must have commenced at a period when most parts of Europe and Asia were under the ocean, and its former human inhabitants must have existed before the primitive men of the caves of France, or the wild hunters of Kent's Cavern. While man is known to have lived with Mammoths, Rhinoceroses, and Cave Lions in Europe, these very

animals are acknowledged to be of a less ancient type than those associated with the Tasmanians.

Why, then, should it be thought merely a wild conjecture to contemplate the lost continent (the early home of the Andaman, Hottentot, and Australian races) as one of the earliest scenes, if not actually the first scene of man's existence here?

DISCUSSION.

Dr. HOOKER, C.B., made some remarks on the floras of the southern hemisphere.

The PRESIDENT showed that the conditions which affect the distribution of plants and of animals are not the same. If, for example, an island were separated from the coast of Australia by only a few miles of sea, that island might become covered with Australian plants, while the arm of sea, although extremely narrow, would form an effectual barrier to the passage of any terrestrial mammal. But, if the distribution of land-animals be compared with that of man, it will be found that the argument tells in the other direction; for man is a being capable of using artificial means to effect his distribution.

It is well known that the fauna of Australia is closely akin to that of New Guinea and the neighbouring islands. Thus the genus *Casuarius* is found in Australia, the New Hebrides, New Guinea, and as far westward as "Wallace's line." Facts such as these tend to prove that New Guinea has recently been connected with Australia.

Turning to New Zealand, it is found that the fauna is extremely different from that of Australia. In fact, New Zealand constitutes a distinct province; it has no emus, no cassowaries, and none of those types of mammals which would certainly be found had land-communication existed between New Zealand and Australia. The barrier of sea between the two may have been extremely narrow, but there could not have been absolute contact. A similar argument might be applied to the islands north-west of Australia, and would tend to show that no direct communication could have extended between Borneo, Sumatra, New Guinea, and Australia.

The type of the Australian man is entirely distinct from that of the Tasmanian. The speaker had seen the Australian at Cape York, at Port Essington, on the south-east coast, and in Victoria. Everywhere the native presents similar characters, being distinguished especially by his dark skin, heavy brow, and *smooth* hair, never crisp or woolly. It is true that a Negrito type may be found at Cape York and in the adjacent islands in Torres Strait; but this is evidently due to a Papuan race which, having come to Australia from New Guinea, has brought its civilization, and introduced the use of the bow and arrow and the construction of canoes.

Although the speaker had not had an opportunity of seeing the Tasmanians, there is evidence that they are extremely like the people of New Caledonia; and these resemble the inhabitants of the Louisiade Islands, whom he had often seen, and who are extremely

different from the Australians. The Tasmanian had no throwing-stick, and neither in language nor in appearance did he resemble the Australian.

It seemed, therefore, physically impossible that the Tasmanian could have come from Australia, and apparently the only way of accounting for the presence of the Tasmanian was to assume his migration from New Caledonia and the neighbouring islands. It would appear that at one time a low negrito type spread eastwards, and reached Tasmania not by means of direct and uninterrupted land-communication between New Caledonia and Tasmania, but rather by means of broken land in the form of a chain of islands now submerged, similar to that which at present extends between New Caledonia and New Guinea.

The following paper was then read by the Hon. Secretary:—

XIV. *On a* Frontier-line *of* Ethnology *and* Geology.

By H. H. Howorth, Esq.

Buckle reduced many problems of history to questions depending on fixed laws. Fanciful and crotchetty sometimes no doubt, we cannot but follow him with approval in many of his speculations. He first taught as a system that man is the creature of the physical surroundings in which he finds himself, that his life is only the subject of choice within very narrow limits, and that even these limits depend a good deal on his culture, and while very appreciable in a philosopher, are almost absent in the savage. If we confine this remark to one subject only, namely, the migrations of different races, we shall not be slow to accept it.

A very superficial survey of ethnology is sufficient to satisfy any inquirer that its grand divisions coincide remarkably with the great zoological and botanical provinces. I am, of course, excluding at present the vast colonizations of different parts of the earth which have taken place since the 16th century. Neglecting these, we find Australia (that remnant of one of the most ancient land-horizons in geology, with a fauna and flora of a very primitive type) occupied by the humblest and most degraded type of man. The forests and hills of India, and *parts* of South Africa, which form another province, are inhabited by a black race which connects the Australian with the purer negro. Central and South America, including Mexico, have another type, as they form another province; China and Indo-China another; Southern Asia and the Mediterranean border-land another; Northern Europe, Siberia, and North America yet another. I now wish to call attention to the

effects of the invasion of one ethnological province by a race belonging to another—perhaps, rather, the coincident and accompanying circumstances than the effects. The readiest materials at our command for the purpose are furnished by the wide-spread migration, in recent times, of that race collectively known as Indo-European or Iranian. It is a trite and undeniable fact that this migration has been accompanied by a very great change in the fauna and flora of the country to which it has tended. A portion of the ancient fauna and flora has been driven out or extinguished, and a portion of the rest is fighting a losing battle. The victors are the invaders,—a new fauna and a new flora, brought with them by the invading race, and apparently as superior in vigour to the ancient fauna and flora as the new race of men is to the old. It is not sufficiently considered that such changes may not be the effects of man's migration at all, save in that he is the immediate instrument of their being brought about, but that they are the results of an invariable law to which man is as subject as the lower animals, and which has held good in all geologic time, namely, that the fauna and flora, including the higher and the humbler classes, change together. The fact is no less true of other races than the Indo-European. Indeed I hold it to be a general law, that where the man of one ethnological province bodily invades and drives out the former inhabitants, he is merely the forerunner of a great change in the fauna and flora of the new country,—such a change as in geology would mark the advent of a new period; and that, in fact, such a new period in geology is being at this moment inaugurated in every country where the Indo-European race is occupying the soil; and further (but I am rather forestalling), that this new life-period is coincident with new climatic and other conditions, not the mere handiwork of man, but the necessary unfolding of a fresh leaf in the history of the world, of which the creatures more immediately dependent on man, and the plants and animals more necessary to his existence and pleasure, are to form the palæontological *differentiæ*. I wish to apply this reasoning, which, so far as I know, is new, to a more limited area of inquiry.

Siberia and North America form perhaps one of the best defined provinces we have, zoologically and botanically. In these respects it coincides almost exactly with the fauna and flora of the prehistoric period*. The *Megaceros* hardly differs from the Moose, or the *Felis spelæa* from the Mandchurian Tiger; and the rest of the animals are equally related. It is, in fact,

* I use the word "prehistoric" as Mr. Boyd Dawkins uses it, to represent the period intervening between the pleistocene deposits and the purely historical ones.

the yearly diminishing but still vast remnant of the world of yesterday, or rather of *our* world of yesterday. In climate and conditions and products we may there study that world just as it was with us. The boundary line of this province on the south follows, as is natural enough, an isothermal line, which girdles the northern hemisphere along the same parallel of latitude, except at one point. It is well known that the isothermals of Western Europe have a very abnormal course. Twisted from the horizontal direction they maintain across the Atlantic, they turn gradually as they approach Europe, and on the coast of Norway pass almost due north, and enclosing a finger-like projection, they return again as rapidly through Central Russia. If we ignore the European emigrants to America, and the as recent Russian emigrants to Siberia, and fix upon the beginning of the 16th century when neither of these events had occurred, we shall be startled to find what a decided boundary line this isothermal is in ethnology, as well as in zoology and botany even, after the generalization we commenced with. North of it we find races whose physical resemblance is unmistakable,—Ugrians, Samoiedes, Gilyaks, Kamskatki, and North-American Indians. In America the ethnological boundary is not so well defined, perhaps, more because we have not yet discriminated, as we shall do some time, the various divisions of the American tribes, than because of the want of a real frontier. In Asia and Europe the case is different.

In Asia the great succession of deserts that extend from the Caspian to the Khingan mountains are inhabited by mixed races whose history points a curious moral. They are all distinct from the races north of these deserts, and their history I have epitomized in a series of papers I am writing for this Society. In Europe the contrast is still greater.

South of the great frontier line are the races whose fame is wide spread, under the name of Indo-Europeans,—races stretching from the Hindu-Kush to the Atlantic, and forming a powerful ingredient in the blood of the Hindoos. Most of the intervening races who inhabit the Asiatic deserts are compounded of these Iranians, the Chinese, and the original occupants of Siberia, whom one cannot call by a better name than Ugrians. Our evidence goes to show that the Tungus, the Mongols, and the Turks all originated in such a mixture, and that they chiefly occupy ground once held by the same Ugrians, of whom relics and wrecks are found in every corner of NorthernAsia. The Ugrian race, then, is the race identified with those climatic and other conditions which in geology constituted the prehistoric period.

If we complete the isothermal line we have mentioned along

its normal course, and make it traverse Europe at the same latitude that it crosses Asia, we shall enclose between it and the present isothermal the European area characterized by remains of the prehistoric fauna. This enclosed area is also one of infinite interest to the ethnologist. During the last 2000 years (a period well within the reach of close criticism) we find that amidst the ceaseless and confusing emigrations that have occurred in this area, there has been a constant move in one direction at least,—a gradual encroachment by the Celtic, Germanic, and Slavic races upon the humbler races on their frontiers, and these latter invariably of the Ugrian family. The Basques in Spain are now penned in a small corner of their ancient patrimony in the time of the Romans. The Fins and Laps have been pushed back in Scandinavia to a very small portion of their ancient holding. In Livonia, in Esthonia, and in three-fourths of European Russia the Ugrians were, even in the 11th century, the preponderating population. Proofs are now accumulating that before the Christian era this process of displacement was taking place even at a greater rate, the area to be occupied having been much more fertile and inviting. I have attempted to show, in a paper read before the British Association, that a very great element in the Celtic language is Ugrian, and I believe the same to be true of the Latin and Greek. The German-speaking race can, I believe, be shown to have occupied Central Europe since the 3rd century B.C., the Celts and the Slaves to have arrived since the 9th, and the Indo-European element of Italy and Greece since the 10th or 11th. If this be so, then we get a very recent date comparatively for the period when the Basques in Spain and the Fins in Sweden, now mere wrecks and waifs of the original population, were close neighbours; and one homogeneous people occupied, if not a ring round the world, at least one reaching from Britain to Kamskatka, when Europe was overrun by fishermen and hunters, such as we find in Siberia, where we ought to go if we are to study the religion, the manners, and government of the so-called stone-folk. If the result of our ethnological inquiry be to discover so recent an occupation of Western and Central Europe by the Ugrian races, what about the palæontological and botanical evidence? During the last 2000 years huge forests have disappeared from France, Germany, and Britain, and have been replaced by cultivated land in some instances, in others by bogs and heath. At a not remotely earlier day, Denmark and Prussia and Ireland were similarly covered. The gradual extinction of the bear, the wolf, the beaver, the elk, the reindeer, and the urus in Western Europe can all be dated in various areas. We hear of the reindeer, the urus, and the elk

in Germany in the days of Cæsar, and the reindeer is mentioned in Caithness by the Norse Saga writers. The urus survives in Lithuania, and has only disappeared from Transylvania within a century. Eastern Germany still has in its forests some of the ancient animals, and, as we approach the Siberian area, they increase in numbers: their course of extinction has followed that of the Ugrian races. As we have the Basques still remaining in Spain, so do we find a few bears and wolves, and a lynx or two in the Pyrenæan mountains and the larger forests of the peninsula. Man more readily and quickly occupies a new area, the animals take a longer time to replace one another, and the plants a longer time still; but the story is equally true of all three classes. This change in the fauna and flora of a country is preceded by a change in climatic and other conditions. We cannot read the accounts given by the ancients of Thrace, of the northern shores of the Euxine, of the Hercynian forest, and of Gaul, without seeing at once what a rigorous climate there was in those areas formerly as compared with that climate now-a-days. Among the remains of the stone-folk found in Switzerland are bunches of reindeer moss, which will grow only in a very severe climate. To my mind, the disappearance of the reindeer was caused chiefly by the disappearance of this its food, just as the elk was extinguished in Ireland when the forests in which it is alone at home were demolished. The whole evidence goes to show that the isothermal lines in Europe have been gradually twisted further to the north. We have been told that this is due to the forests having been cut down, and to other minor influences of man's occupation; but this is a ridiculously inadequate cause; nor would it account for the facts in Norway, where the ancient forests remain, nor for Switzerland, where the same holds good. There is only one adequate cause,—a cause which has been a good deal pooh-poohed of late years, namely, the *Gulf-stream*, or some body of equatorial water drifting northward. We have been told that no such stream exists beyond the mid-Atlantic, and that it there is gradually absorbed and dies away; but the existence and influence of the stream has, to my mind, been triumphantly established in the communication made by Admiral Isbister to Sir R. I. Murchison, Bart., and even better by the dredging-expeditions of Dr. Carpenter. The presence of West-Indian fruits on the coasts of Iceland and the open fiords of Norway in winter can have no other explanation; nor the belt of warm sea-bottom, so clearly distinguished by its fauna from the surrounding cold waters in the North Atlantic. I have not the slightest doubt that the flexion of the European isothermal is caused mainly by the presence of this stream. If this be so,

then the reasoning I have endeavoured to lay before you in this paper would tend to prove that the gradual advent of such a stream may be traced from no earlier period than about the 12th century B.C., when the Ugrian race and its associated animals and plants began to give way to the Indo-Europeans, and when the isothermals of Europe began to be twisted towards the north; and we thus get an approximate date for one revolution in geology which is susceptible of being more accurately gauged as our evidence increases.

That the Gulf-stream is a very new influence it is not difficult to believe. Apparently, after it reaches the banks of Newfoundland, it follows the line of least resistance, that is, of the deepest water; for we must never forget that the Gulf-stream is an actual river of warm water padded round on every side by cold. This line of least resistance, which it follows on its way to the Pole, makes it skirt the Bahama banks on the north, and come almost due west to the Cape-Verde islands. Now these Cape-Verde islands, in common with the Canaries and other Atlantic islands, are subject to constant earthquakes; the sea-bottom is never long quiescent, but constantly altering its level. If this be the case on the southern frontier of the Gulf-stream, we can well believe, from the evidence we have collected about the coasts of France, Holland, and Britain, that the bed of the North-west Atlantic is also constantly altering its level. It has long been said that the ice-fringe of the Greenland coasts, and the pack in Baffin's Bay, is now much greater than it used to be, while the climate of Greenland itself is apparently becoming more rigorous every year. It may be that in all this we have evidence that the Gulf-stream formerly made its way to the pole on the western rather than the eastern side of the Atlantic, and left Greenland on its right hand rather than its left, as it does at present. If the Gulf-stream be held to be an inadequate cause, the same results would follow from the distortion of some other body of warm water from its normal course towards the pole by the upheaval or sinking of portions of the Atlantic sea-bed. Either one or the other seems to me to be necessary to explain the facts. The advent of this body of warm water has introduced two new sets of deposits,—one subaqueous, that now being correlated by Dr. Carpenter with the ancient chalk, and the other terrestrial.

In concluding this very disconnected paper, I cannot avoid one somewhat romantic moral. If my reasoning be sustained, is it not wondrous strange that the area where these latest geological changes are in progress is also the area where man's culture is most developed, and where the focus of the moral world also exists? Can it be that we have in this correlation an example

of a law of progress, by which the moral empire of mankind moves in unison with the spread of a geological and physical wave of progress?

Mr. G. M. Atkinson exhibited a collection of grotesque figures carved in teak-wood, obtained by Captain Edge, R.N., from the Nicobar Islands in 1867; and read the following notes:—

XV. Notes *on the* Nicobar Islanders.

By G. M. Atkinson, Esq.*

In July 1859 Captain Mackenzie first visited these islands, in command of a barque called the 'Aallotar.' On the first day of his visit about one hundred of the natives came off to the ship in canoes. These were made from trees hollowed partly by fire and partly by the axe; they were from 10 feet to 30 feet in length, and contained on an average from 6 to 8 men each. After the natives came on board, the pipe of peace was lighted by the interpreter, and passed from mouth to mouth among the chiefs, who washed it down with arrack. The goods for barter were then exhibited—axes, iron pots, rice, calico, glass beads, bangles, &c.; and the tariff was arranged, so many cocoa-nuts for each article.

On the following days it was judged prudent to allow only twelve of the natives on board the ship at one time. Military duty was kept up on board; sentinels were stationed on deck; armed men were posted on the tops; guns were all loaded; and one of the cannon was discharged at sunset and at eight o'clock in the morning, until urgently requested by the natives to stop the practice on account of the fright which the noise caused to the women and children.

The chiefs were known as Captain Jack, Captain Tom, &c., names assumed from previous intercourse with Europeans. Although they had no perceptible mark of distinction, they always regulated the barter. No women ever came to trade. This was looked on as a cause of suspicion, as no dependence was to be placed on their professions of friendship, but the interpreter said that if the women came there would be no fear of hostility.

Noncowry and Trincutte are the largest of the Nicobar Islands; they are very hilly, and probably volcanic. Captain Mackenzie noticed blue slate-like rocks. They are densely

* From information given to me by Captain James Mackenzie.

covered with tropical vegetation, even to the water's edge. The rise and fall of tide is about six feet, and the soundings very deep. The islands produce fine timber, mangroves, iron-bark, cocoa-nut and betel-nut trees: the grass is in some places upwards of six feet in height. The crew cut down a poon tree, 26 inches in diameter at base, 70 feet long from root to the first branch, and perhaps 90 feet in total length. The huts are built like bee-hives, circular or octagonal, and elevated on poles about 10 feet high. Access to the huts is gained by a rung ladder, up and down which the native dogs run with facility. This ladder is drawn up on the approach of an enemy or suspicious-looking folk, and the bottom of the huts have open spaces, through which the spear may be used. The huts are all close to the margin of the shore, and are shaded by cocoa-nut trees: they are thatched with cocoa-nut or banana-leaves, and terminate each in a little cone or ball. Their height inside is perhaps about six feet.

The only apology for dress was a string or narrow ribbon-like strip of red or blue cloth round the waist, passing between the legs and tied in a knot behind, the ends hanging down to the heels (Pl. XIV. fig. 1). The women, as seen through the glass on shore, wore a little mat apron. On procuring any article of clothing it was immediately put on: one strutted about, to the great delight of the rest, in an old black hat. They would not, however, receive in barter any article that was cracked or had a hole in it.

Captain Mackenzie was invited to a feast by the chiefs. He left the ship about eleven o'clock at night, and all the boat's crew were fully armed. On landing they found that the feast had commenced: men, women, and children were dancing and singing to the music of a tum-tum, sometimes going round hand in hand, then jumping up and down separately, but still preserving a circle about 15 feet in diameter. There was nothing within the circle. Several parties were thus engaged. Apparently a pig had been killed, and sections of the flesh, fat, and blood in circles had been cut off and placed round their necks like a necklace. It was a most filthy spectacle. They drank toddy (the juice of the cocoa-nut palm) out of cups made from the shell of the cocoa-nut very nicely carved.

This dance-festival was held in the centre of the enclosure of huts. Torches made from a resinous substance, the product of some of the trees, were burning all round. These torches are also used when spearing fish by night with rods, having a barbed end of iron-wood. Even the children are exceedingly expert at this description of fishing, and will pierce with unerring accu-

racy a fish quite indiscernible to a European. Captain Mackenzie stopped about a quarter of an hour (a most anxious time), and then respectfully retired.

Their weapon is a spear and paddle (Pl. XIV. fig. 2), measuring about five feet long, and made of iron-wood. It is always carried in the right hand. While climbing up the ship's side, it was passed through the girdle on the back.

The only evidence of religion observed was that outside the encampment of huts were placed small sticks about five feet in height, each cleft at the top into three parts, and containing in the cleft the youngest and sweetest cocoa-nut (Pl. XIV. fig. 3). Under each nut was placed a spark of fire in a small reed-like tube, and a little tobacco in the form of either a suspended cigar or a pipe, and, it is thought, also a few grains of rice. This was offered to appease an evil spirit. The interpreters spoke to the natives in what was judged to be the Malay language.

While loading, information was received that a white woman was captive on the island, and my friend made efforts to rescue her. Before daybreak he went in with his crew fully armed. They entered the hut which was pointed out as her prison, but it was empty; and a second time he went to the back of the island, but had no better success. He thinks that information of his movements was given by the rascally interpreters. While pursuing the search on shore, two Calcutta-built copper-fastened boats were found, carefully hidden under leaves. From certain European chests, clothing, &c. it was evident that many ships had been captured and plundered. On the second voyage the interpreter got into difficulties amongst the natives, was chased to the boat, and had to swim for his life, crying out to the officer in charge to fire; but as the natives did not attempt to follow, the officer did not think it necessary. The supercargo, on reaching the ship, immediately ordered the vessel to leave, fearing that an attack would be made by the natives.

In consequence of their propensities for plunder, the authorities at Singapore were compelled, in July 1867, to despatch an expedition to the islands. The wooden figures which I had the pleasure of exhibiting to the meeting, and one of which is represented in Pl. XIV. figs. 4 & 5, were taken during this expedition by Captain Edge, R.N., Commander of H.M.S. 'Satellite.' The following memorandum accompanied these figures: — "Reports having reached the authorities at Singapore that several vessels had from time to time been attacked by the savages upon these islands, and their crews barbarously murdered, it was determined to despatch an expedition to that spot, and accordingly, in July 1867, H.M.S. 'Wasp,' Captain Bedingfield, R.N., and H.M.S.

'Satellite,' Captain Edge, R.N., proceeded thither. The savages fled on the approach of the vessels of war; and upon landing at Enounga, one of the largest of the villages, Captain Edge discovered these figures in their huts, and upon his return to Singapore he gave them to Major M'Nair, R.A., for presentation to a museum."

Figs. 4 and 5 (Pl. XIV.) represent the front and side view of the most characteristic of the figures. The original is made of teak-wood, and is 3 feet 4 inches high, and 14 inches broad. It has short legs and long arms, and the back is armed with the form of the shell of a tortoise for a shield. The eyes are formed of pieces of pearl shell, and the pupils of some gummy substance. The face and front of the hood are painted red, and the teeth white, while a stripe of white surrounds the mouth. The dress is a bundle of tropical grass worn round the neck. One arm is lost. The imitative power of the natives is shown by the representation of one of the Indian deities, an abomination made of teak, 8 feet high: the sceptre and spear in the hands are wanting. They have also made a figure of a lady in European dress, to them very fascinating, and several most comical imitations of Europeans, soldiers and sailors, with red jackets and round black hats. Two pieces of board (one with a procession of natives meeting Europeans, the other with a number of different fishes) show the character of native art in another direction.

The natives, as shown by the photographs of the three captured, are of a very low type. Their stature is from 5 feet to 5 feet 6 inches.

Several of the figures and the photographs are now in the Christy Collection of the British Museum, and the others have been sent to the Science and Art Museum in Edinburgh.

EXPLANATION OF PLATE XIV.

Fig. 1. Form of dress worn by the male natives of the Nicobar Islands.
2. Implement used as both spear and paddle.
3. Cocoa-nut in cleft stick, with fire below; probably an emblem of religion.
4. Figure in teak-wood, with eyes of mother-of-pearl, 3 feet 4 inches high. Taken from the Nicobar Islands by Captain Edge, R.N., and now in the Christy Collection.
5. Side view of fig. 4.

Fig. 3.

Fig. 5.

Fig. 4.

Fig. 1.

Fig. 2.

1870

IDOL &c. FROM THE NICOBAR ISLANDS

Ordinary Meeting, Feb. 8th, 1870.

A. Campbell, Esq., M.D., *Vice-President, in the Chair.*

New Members.—Sir Charles Wentworth Dilke, Bart., M.P.; Rev. A. S. Farrar, D.D.; Morton Coates Fisher, Esq.; Francis Kerridge Munton, Esq., F.R.G.S.; and F. Beresford Wright, Esq.

The following paper was read by the author:—

XVI. *On the* Discovery *of* Flint *and* Chert *under a* Submerged Forest *in* West Somerset. By W. Boyd Dawkins, Esq., M.A., F.R.S., F.G.S.

The submarine forest exposed between the tide-marks on the coast of West Somerset has long been known. That portion of it visible at Porlock was described in 1839 by Sir Henry de la Beche *, and more recently by Mr. Godwin-Austen in an essay read before the Geological Society in 1865. It was shown by the latter to be rooted on "an angular detritus," and to be overlaid by the following deposits:—

1. A blue freshwater-mud deposit, resulting, probably, from the depression of the land.
2. A surface of plant-growth (*Iris*).
3. A marine silt with *Scrobicularia piperata.*
4. Shingle that forms a ridge which is at the present time encroaching on the level water-meadows behind.

The physical changes manifested by the section he interprets thus:—The accumulation of angular detritus, in which the trees are rooted, belongs to subaërial conditions, which were in operation while the boulder-clay of the centre and north of Britain was falling from the melting icebergs. "It is a condition of surface presented everywhere by that portion (*i. e.* the west of England and of Europe) which was not submerged during the great subaqueous depression of the northern hemisphere. In geological history it belongs to the subaërial phenomena of the glacial period, and represents the whole of the variable conditions of that long interval of time." This was followed by the epoch of the growth of the forest, and of the accumulation of vegetable matter. The overlying blue clay (no. 1) marks the time during which the trees were killed; the surface of marsh-growth (no. 2), covered with *Iris*, marks the epoch when the trees fell; the *Scrobicularia*-clay (no. 3) indicates a depression below the sea-level; and, lastly, the clay was elevated and the shingle thrown up on its surface to form the barrier at high-water mark.

* Geol. Report on Cornwall, Devon, and West Somerset.

Mr. Godwin-Austen's valuable essay recalled to mind a worked flint that I had found in the angular detritus in 1861. On its reexamination I found that it had been chipped by the hand of man. In the autumn of 1869, the Rev. H. H. Winwood and myself resolved to verify the discovery by a thorough examination of the forest-bed. On digging through the layer of undisturbed vegetable matter, we met with ample traces of man's handiwork in flint and chert chippings, and in one very well-formed flake which, apparently, had never been used. They were imbedded in the upper ferruginous portion of the angular detritus, and evidently had been dropped upon the surface-soil of the period, and not transported by water. On searching the shingle we found only one water-worn flint-pebble, which, possibly, may have been washed out of the angular detritus; it is therefore probable that the presence of flint and chert in that neighbourhood is owing to their transport by man.

Encouraged by these results we resolved to explore the submarine forest in the nearest bay to the east close to Minehead. It there consists of oak, ash, alder, and hazel, which grow on a blue clay, full of rootlets, that thickens considerably seawards. The blue clay in its lower part is full of angular fragments of Devonian rocks, which, as at Porlock, constitute a land-wash and not a shingle. At the point between tides, where the angular fragments began to appear, the flint chippings were found. The exact spot where we dug was to the east of the little stream that enters the sea between Minehead and Warren farm, and close to a large stump that is generally exposed at one-third tides, about 200 yards from the shore and 50 from a line of posts for nets. The splinters, which, as at Porlock, clearly had been struck off by the hand of man in the manufacture of some tool, consisted of flint and chert, the latter of which was derived from the greensand of Blackdown, on the borders of Wiltshire; they were imbedded in a ferruginous band as at Porlock, and occurred as deep as one foot from the surface of the bed. We dug in several other spots without finding any other traces of man's presence.

In both these localities it is clear that man had been living on the old land-surface, and that the remains of his handiwork had been dropped in the angular detritus which Mr. Godwin-Austen believes to be glacial. If the latter were accumulated under subaërial conditions, during the great depression of land in the northern hemisphere, the traces of man contained in it must be of a like antiquity. But I cannot admit that the premises warrant any such conclusion. The angular detritus at Porlock and Minehead may have been the result of the action of snow and ice during hard winters at any time. The hills that over-

hang both those localities are very precipitous, and therefore the accumulation of angular detritus might naturally be expected in the valleys. It is, indeed, the result of the natural disintegration of the Devonian rocks, under temperate rather than arctic conditions, and at the present day in that area constitutes the surface-soil. It therefore by no means follows that man lived on the land in the south of England during the glacial submergence of the north; but that some time during the accumulation of the detritus, and before the deposit of the blue freshwater clay, he occupied the district, very possibly during the time when the forest still overshadowed the valley now submerged beneath the Bristol Channel, and certainly not later than that remote period.

These fragments of submerged forest are mere scraps, spared by the waves, of an ancient growth of oak, ash, and yew that is found everywhere in the Somersetshire levels, underneath the peat or alluvium. At Porlock Quay, on the west, it dips under the freshwater and marine strata, that have been described, at high-water mark, and is stripped of its superjacent deposits from the line of half-tide down to low water. Opposite the precipitous headland of North Hill it has not yet been found. At Minehead it reappears under the same conditions as at Porlock, and thence it is represented in an easterly direction by several patches, visible at extreme low water, as far as Stolford, where the angular detritus rests on the Liassic reefs. Then it passes under the alluvium of Stert Point, at the mouth of the river Parret, to join the large forest that lies buried in the basins of the Axe, the Tone, the Parret, and the Yeo. At Weston-super-Mare it can be seen under the alluvium. Throughout this wide area the trees have been utterly destroyed by the growth of peat, or by the deposits of the floods, except at a few isolated spots, which stand at a higher level than usual, in the great flats extending between the Polden Hills and the Quantocks. One of these oases, a little distance to the west of Middlezoy, is termed the Oaks, because those trees form a marked contrast to the prevailing elms and willows of the district. In the neighbouring ditches that gradually cut into the peat and then into silt, prostrate oak trees are very abundant. As we approach the river Parret the silt gradually increases in thickness until, at Borough Bridge, the forest is struck at a depth of 18 feet below the present surface, or about the same distance below the line of high-water mark in the river.

The destruction of the forest seems to have been brought about by the stagnation of water consequent on the deposit of silt in the rivers, by which their beds were raised until the surrounding district became flooded; then the peat grew and

gradually changed the surface into a spongy morass, in which the trees died, and, as the latter decayed, they were blown down, the lines of their trunks pointing away from the prevalent winds. But while this was going on, the rivers were depositing silt in quantities greatest at the line where their currents impinged on the slack water, and gradually reaching a minimum in passing away from their courses; and in this way the fertile alluvium of the vales of Taunton, Bridgewater, Highbridge, and Weston-super-Mare was deposited, while around Shapwick the peat comes up to the surface, and attains a depth of at least 16 feet.

The conditions, therefore, under which the forest at Porlock Quay and Minehead was destroyed are not merely confined to those isolated spots, but are constant over the whole of the Somerset levels. If, then, we can approximately fix the date of the destruction of the forest, we have a clue to the antiquity of the traces of man found in the land-surface underneath. And this we are able to do by the discoveries made by the late Mr. Stradling at the bottom of the peat, in the great marsh that extends from Highbridge to Glastonbury. From time to time, between the years 1830 and 1851, he obtained sundry flints, celts, and spear-heads of the neolithic type, a bronze celt, and three paddles from the top of the subturbary marl. A large canoe also, formed out of an immense oak, and known as "Squire Phippen's big ship," made its appearance in dry seasons, and eventually was broken up for firewood by the cottagers. It is clear, therefore, that at least as early as the neolithic age the forest beneath the turbary had been destroyed, and its area occupied by a lake and possibly also by peat. The atest date, therefore, which we can assign to the traces of man in the submerged land-surface at Porlock and Minehead is an early stage in the neolithic period. Possibly, even like the remains of *Rhinoceros tichorhinus* dug out of a similar deposit underneath a forest that underlies Taunton Gaol, they may be of Quaternary or Postglacial age.

I have brought this note before the Ethnological Society because, so far as I know, no cases are on record of the occurrence of traces of man underneath any submarine forest on the shores of Britain. They do not add to our knowledge of primeval man, or extend his range further than we already know into the past; they merely prove that he dwelt in the district probably before and possibly during the growth of the forest, and before those physical changes began to be felt by which its destruction and submergence were brought about,—changes of great magnitude and probably of long duration.

DISCUSSION.

Dr. NICHOLAS said that Mr. Boyd Dawkins's interesting analysis of this sea-coast section suggested several points of inquiry bearing on the antiquity of man. One question was as to the time it might take, under given conditions, to amass the several beds. The rapidity of the growth of peat was scarcely subject to any rule of calculation; but it was matter of observation that in one man's lifetime considerable changes of the surface of marsh-lands, through accumulation of flood-deposits and vegetation, often took place. Groves of trees within a comparatively short time disappeared through too great a saturation of the ground with wet, or other causes, and the trunks of these were soon covered over with moss and peat, and by the next generation might be discovered a foot or more under ground. He himself knew a place on the sea-coast where, in twenty years, the shingle bar gathered by the waves had considerably grown in height, and the little valley to the interior had perceptibly, through the causes alluded to, had its surface raised. The mere existence of these accumulated layers, therefore, did not argue necessarily any very great antiquity. But then they had to deal with another fact, viz. the finding of those flint implements in these deposits; and it was necessary, in order to determine how long it took to accumulate the strata from the point where the flints were found upwards, to have some definite idea as to the period when the formation of such implements ceased in this island. Were they sure that none such were formed within historic times? The same kind of weapons were known to be still formed and used by savage or half-civilized nations; and it was just possible that such rude contrivances continued long in use by the less cultured portions of even civilized communities long after bronze and even iron instruments had been introduced.

Mr. BOYD DAWKINS said in reply, that implements of stone were used in Britain gun-flints and "strike-a-lights" being put out of the question) far later than was generally believed. He had discovered flakes both in the cinder-heaps of the Wealden Ironworks, and in a Romano-British Cemetery at Hardham, in Sussex. A club or axe armed with stone was even used at the Battle of Senlac. A cargo of stones to be used as missiles formed an important part of a Viking's equipment.

The ASSISTANT-SECRETARY then exhibited and described a stone hammer-head found by Mr. R. Mouat in the ancient workings of the copper-mine of Ruy Gomes, in the Province of Alemtejo, Portugal. The specimen is now in the Museum of Practical Geology.

The CHAIRMAN then read a Note introductory to a paper by the Rev. R. J. Mapleton on the prehistoric remains in the neighbourhood of the Crinan canal, Argyllshire.

He said that his attention was first directed to the occurrence

of these remains by Sir James Simpson, of Edinburgh, when on board the 'Iona' steamer last autumn, in going up Loch Fyne. The tract of country in which they are found is peculiar; it is situated between Loch Fyne and Loch Crinan on the one hand, and between the former and the head of Loch Awe on the other. Loch Crinan and Loch Fyne, both salt-water lochs or inlets of the sea, are united by the Crinan canal, which is nine miles long, and by which navigation is carried on to the west coast of Argyllshire. The country between the two lochs is very level and productive, and although it is not thickly peopled in the present day, it may have maintained a heavier population in olden times. The tract lying between Lochs Fyne and Ford at the head of Loch Awe, which is a freshwater loch 30 miles long, and is estimated to cover 52,000 acres, is also comparatively rich and productive. It is in the vicinity of Kilmartin in this tract that the greatest number of upright stones with carvings are met with.

The Rev. Mr. Mapleton, of Duntroon, having been indicated as the best authority on the antiquities of this district, Dr. Campbell had applied to him for a paper on this subject, and he had kindly forwarded the following communication.

The following paper was then read:—

XVII. REPORT *on* PREHISTORIC REMAINS *in the Neighbourhood of the* CRINAN CANAL, ARGYLLSHIRE. By the Rev. R. J. MAPLETON.

IN attempting to give some account of the remains of the ancient inhabitants of this district, I think that perhaps it will be the better plan to divide the subject into various heads, so as to be able more readily to mark any differences that may occur. I shall therefore offer some remarks upon—1. Petroglyphs; 2. Menhirs; 3. Cairns and other sepulchral remains; and 4. Residences.

1. *Petroglyphs.*—There are four distinct groups of these still existing in the glen that extends from Lochgilphead to the village of Kilmartin,—two on each side of the glen. I may mention that it is the opinion of good geologists that Loch Awe at one time emptied itself at this south end, instead of at the north end, as at present. There are evident signs that, at one time, a strong and rapid river ran through the glen: thus the glen would have been of more importance then than now. The chief peculiarity in these specimens is that the markings are all circular, none are square. A fifth group was accidentally destroyed a few years ago in making a road, and I have heard of a sixth, which I have been unable to find, as it is overgrown

with grass and moss. Thus six distinct groups at least have existed in this neighbourhood, three on each side of the glen; they are all situated upon the ice-worn crowns of rock, and engraven upon the solid stone. No remains of camps have as yet been ascertained, but the glen is one mass of sepulchral remains. These petroglyphs therefore would seem to be connected with burials or religion rather than with war, especially as several of the menhirs are sculptured with "pits" or "cups," some of which are surrounded by the circle, exactly similar to a marking that I saw upon a stone among the Carthaginian remains in the British Museum.

The only variation from the circle is, first, a kind of horse-shoe pattern; and, secondly, a kidney-shaped pattern, formed by a line drawn into a kind of spiral at each end. The number of concentric circles varies from one to nine, whereas on the menhirs only one circle is to be found; and, as is common in the markings in other districts, several are connected together by a groove.

The number of figures in the groups varies from nine or ten (excluding the pits or cups) to thirty-nine. Near Lochgilphead are three groups at least, but so close to each other that I reckon them as one. In all cases, menhirs and sepulchral remains are not far off.

2. *Menhirs.*—Very great numbers of these interesting hoary stones are found in various localities about this district, and many more existed a few years ago. It is said that at one time an avenue of them extended from Lochgilphead, just below the largest group of petroglyphs, up to the spot near Kilmartin where there is a range of cairns. Several pairs of these are to be seen in this route, till we arrive at a field, in the very midst of burials, where seven are now standing. These seven do not form part of a circle, but are arranged in three patches, four in one patch, two in another, and one by itself; they are very high and broad, and two of them are marked with pits and circles. The one standing by itself is perforated, such as are often called "Odin stones." Not far from these is another patch, if possible, more surrounded with burials. Some of these also have the cup- and circle-markings. No menhirs have yet been found with the symbols so common on the east coast, viz. the "spectacles," the "mirror," &c.; neither have any Ogham inscriptions as yet been discovered.

3. *Cairns and Burials.*—There are several forms or modes in which the cists &c. have been made: some are found in large cairns, some are situated above and some below the surface. In only two instances have I found unmistakable evidence of unburnt bodies; but several cists have been so much

disturbed at an early period that it is hard to say what was the original use.

(*a*) The first form that I shall describe is one in which the body had been placed unburnt; and it seems to me to be the oldest form, unless the chambered sepulchre should be the oldest. The common forms, made of four slabs, with a cover, are found in various stages of neatness and perfection, and some associated with well-made bronze implements. Some of these also are found in the edges of large cairns, containing either the "sepulchre" or the "boulder" cist, so that they were in use at a later date than the others, though there does not seem to be proof as to whether they might not have been used before. In the "boulder" cist, the grave is placed just below the surface of the natural soil; it is dug out of the ground. The sides and two ends are formed of large boulders set in clay, and the shape is a long oval. The grave is covered with a large, heavy, rough slab, in one instance 9 feet long, and 4 feet 7 inches wide; in another 14 feet long, 8 feet wide, and 1 foot 3 inches in its thickest part. The first of these two cists was in the centre of a large cairn, which still shows evidence of having been 110 feet in diameter, and is still 13 feet 6 inches high. There was not the slightest trace of burnt bones or of charcoal; but a thin layer of clay, which covered the boulders at the bottom, was very unctuous and discoloured, and it was clear that the body, bones, and flesh had all melted away. No implement of any kind, and no chip of flint could be discovered, except a broken urn of red half-baked pottery, roughly but highly ornamented, which had fallen to pieces through the damp. At the S.W. corner of this cairn was found an ordinary cist, containing urn and necklace, and surrounded by a double circle of stones, which most clearly was built after the other, as there were wallings and props between the stones of the circle, towards the interior of the cairn, to preserve the cist from the pressure on that side.

The other example of this form of cist at present occupies the edge of the cairn, in which another cist is situated in the centre, as the cairn now stands; but a great deal of the cairn on that side has been removed to make dykes, and so many cairns have been altogether taken away, that very probably it was the primary burial. The interior of this grave is 7 feet 6 inches long, 3 feet 2 inches wide, 3 feet 6 inches high. It had been disturbed long ago; for it contained several deposits of burnt bones, most carelessly and negligently placed, separated from each other by small rough fragments of stone. Here were deposits of perhaps eight or ten bodies. The cist is so exactly similar to the one above described, that we must suppose that at first it was constructed for one body unburnt.

(*b*) *Chambered Sepulchre.*—Two examples of this form of burial are still existing, about two miles apart, but I have a suspicion that two others were destroyed not long ago. Both are built on a very similar plan. Both were covered with a large cairn, one of which we can trace to have been at least 134 feet in diameter, with a circle of great stones just within its edge. The sepulchre itself is dug some 3 or 4 feet into the ground, but part of the building is above ground, as the interior of one is 8 feet 3 inches high, of the other 10 feet. The style of building is similar, though differing in some slight respects. The walls are formed of rough slabs of various sizes; in one they are placed horizontally, like a rough wall; in the other they are upright, and the spaces filled in with other pieces. Each is covered in by three or four large slabs. The entrance to each is at the N.E. end, and is formed in one by two upright stones slightly converging, so as to narrow the entrance; in the other by two upright stones, not converging, but placed a few feet apart, so as to admit a passage, and yet be readily blocked up by a slab, by way of a door. The interiors are very similar, being about 15 or 16 feet long, and divided into three compartments; or perhaps we might say that one of them has four, as there is a small compartment by the side of the passage near the door. The compartments are formed by large slabs running across the tomb, which appear to have been placed there at first, as in one of the tombs they are regularly built into the rough wall, and seem necessary for the support of the fabric.

One of the tombs had undergone very great disturbance and alteration. The compartments were filled up with stones and rubbish, among which were found the fragments of two urns, one of the usual form and material, the other of a black pottery and unusual shape, and very tender from age and damp. On the top of one of the compartments, a small cist of the usual construction had been built, which probably had contained the red urn whose fragments we found. This is another proof that the ordinary cist was in use later than the chambered tomb. At the very bottom of the compartments we found deposits of burnt bone, flint blocks, and chips, and some very delicate well-made arrow-heads of flint that I think were made for use, not for show; there was also one well-made flint scraper. There can be no doubt that the tomb was built for burial after cremation, and probably for a family or tribe.

The same may be said of the other tomb. Among the rubbish was found a portion of a very large urn, flint chips, and blocks; and in the natural soil at the bottom were found several deposits of burnt bones, some in the corners, and some in the

middle. A great deal of charcoal was there, and the sand was reddened by fire, and in some places almost run together. Several fine flint scrapers were found of various shapes (knife-shaped, round, oval, leaf-shaped, oblong), all evidently made for use. This part had never been disturbed. These two tombs seem to have been made for family burial, and not for a single interment, especially as some of the flint implements were found fixed to the wall by clay, just above the deposit of bones, like a slab or tombstone of the present day.

(*c*) Another form of cist is that made of four side-slabs and a cover, on the ground or just above it. These vary somewhat in size, but the average is about 3 feet 6 inches × 2 feet 4 inches, and 1 foot 9 inches deep. The largest is 6 feet 4 inches × 3 feet 1 inch, and 4 feet 4 inches deep; the smallest, 1 foot 6 inches × 1 foot 3 inches × 1 foot 3 inches.

They are found in different situations, some being in the centre of a cairn, with a circle of stones round them, some on the outside of a cairn that contains other cists, some standing in circles formed by a rampart of earth (and in these cases several cists are in the same circle), and some standing in sand-banks, with a cover just below the surface. These are associated with flint, urns, &c., but no bronze, except that in one cairn, where we obtained three cists, each of different construction, we found among the stones a "hone-stone," as it is called, which might seem to imply bronze, though close to it was a stone axe of hard green-stone. In this cairn we found three cists,—one, a small one, near the outside, contained a fine urn; the second was the "boulder" cist, described above, with a cover 14 feet long; and the third, occupying the present centre of the cairn, was raised a few feet from the ground. This cist is remarkable from its containing the remains of two bodies. On opening the cist, we found on the surface an urn of the same make and pattern as that in the small cist, and burnt bone. A rough pavement seemed to form the bottom of the grave; but on removing it we found the remains of an unburnt body buried in clay. The bones of the leg and some of those of the arms were perfect. The skull was quite gone, except one tooth. The bones were of the consistence of butter or new cheese, and seemed almost to melt between the thumb and finger. The clay was unctuous and discoloured. From their size I should judge the bones to be those of a full-grown and rather tall man.

In the cairn where the other "boulder" cist occurs, a cist was discovered at the S.E. end, surrounded by a double circle. This contained a very beautiful urn, of the ordinary material, but better baked and larger than usual, with four small ears or

handles, having a hole through them, as though for the passage of a string for the purpose of suspension. Several beads and two blocks of polished jet, forming part of a necklace, were lying over the urn, which was sunk in the soil up to its rim. It did not contain bones. Several cists have been found just below the surface of the soil, placed by themselves, of the ordinary type, and containing urns.

(*d*) Another form of making or, rather, "placing" the cist is when a cist of ordinary size and build is placed some 2 or 3 feet below the surface, in a sand or gravel bank. In two of these, that I did not see, but was told of by a man who opened the cist while trenching the ground for a plantation, bronze was found. The man took a bronze dagger, with six rivets still in the handle, but was forced to replace it in the cist by his wife, who feared that the ghost of the buried man would haunt him.

(*e*) There is another slightly different form, viz. that in which the two side-slabs have rough grooves in them, to admit the two end-slabs. Bronze was found in these; a dagger and part of another are still in the house of a farmer in this neighbourhood.

Perhaps I ought to add that burials are found occasionally on tops of hills. I examined one hill that had a small cairn on the top, that was disturbed a few years ago to make a seat, and at that time "something" was found and taken away. I rather suspect that this "something" was an urn.

I found the remains of an ordinary cist, *i. e.* there were slabs that seemed as though they had been used for that purpose; but I found also two burials in a rough kind of cist, formed by a corner of the rock, and supplemented by two slabs to form the square; both contained burnt bone. I have reason to believe that burials still exist on other hill-tops. A few I know to have been destroyed. The labour of carrying the boulders and slabs up these hills must have been very great; but for what reason the cists were placed in such situations I know not, unless the spot was sacred from having been used for burial-fires. As the glen contains such a number of burials of all forms, and probably of many ages, the hill-top could not have been selected simply for security's sake. No sculpture has been found in the cists, except in one instance, where a lozenge-shaped pattern was found cut in the cist-cover.

(*f*) On the moss, and throughout the hills, are several small circles of stones. These contain burials, but I have not found "cists." In one I found a sling-stone, in another a large block of flint; in another there was a perfect burial, consisting of burnt bone, hastily and rather imperfectly burnt, deposited in a very small heap of stones, together with *sphagnum* and other bog-plants, charred and burnt.

4. *Residences.*—I have not seen any "Picts' houses," nor have I heard of any; but we have crannogs, duns, vitrified forts, one brough, one cave-dwelling, and two or three flint-manufactories.

(*a*) *Crannogs.*—I have reason to believe that crannogs have existed in most of the lochs, even in those of very small extent; but they have not anywhere, that I know, assumed the form of villages, but are simply separate, solitary dwellings or forts. They seem to have been built in various ways, according to the nature of their position and the material that was most readily to be obtained. In two that I have examined, the structure differed from that of those described by Mr. John Stewart, Secretary to the S. A. of Scotland, which appears to be the general form in the Lowlands. In one case the structure was entirely of stone, in the other of wood, or rather trunks of trees placed alternately upon each other. The stone structure* was formed by walling, placed between projecting points of rock, and the interior filled in with stones, giving the whole building the appearance of a cairn under water. The walls were examined by divers, whom I employed for the purpose. They represented the walls to be most beautifully laid, more regular and strong than any dry walling or dykes at the present day. No mortar or cement was used, and the stones bore no marks of tools. At ordinary levels, the present top of the cairn is from 1 foot 6 inches to 2 feet below the surface of the water. I have never seen the top of the cairn above water in the driest season. The loch itself is about one mile and a half in length, and about a quarter in width. The wall varies in height, according to the rock on which it is built; one portion is 8 feet high, another 6 feet, and another 4 feet 6 inches.

Near to the cairn the divers brought up some charred and broken deer-bone, and a very beautiful paddle, shaped like an arrow-head; but the exceeding depth of mud prevents the hope of finding other things.

The crannog† made of logs is situated in a much flatter part of the country, where stone is not so readily obtained. I could only dig down to the depth of three layers of logs, but I could feel them nearly 12 feet down, by means of an iron rod. Some of the trunks were 40 feet long and 4 feet 6 inches in circumference. We found two or three fire-places on the surface of the crannog, with a great deal of charcoal, and several charred hazel-nuts.

Both the crannogs agreed in having a rampart of sharpened

* In Loch Kielziebar, 1½ mile from Bellanoch, on the Crinan Canal.

† In Loch Arisaig, now nearly drained; but the crannog still exists, and can be easily examined.

stakes round them. We fished up several pieces from the mud round the stone building, and nearly all the stakes are *in situ* round the log structure; they are arranged about 3 feet distant from the crannog, and other logs ran horizontally round the ends of these, and were fastened by grooves at the corners. In Loch Awe there are several cairns under water, which I feel sure are crannogs. In one that is some distance down the loch, the timbers are visible at low water.

Altogether, in this district, I think that stone buildings were the rule, as in most lochs there are islands and cairns under water, which are most clearly artificial, and have not been made for ornament.

(*b*) *Duns.*—Rough forts, built of stone without mortar, mostly (if not entirely) circular, are very common, generally situated on the top of some marked eminence commanding the smaller glens among the hills. I have never heard of any implement being found near any of them; and they have been so much disturbed and robbed of their stones, that it is hard to ascertain anything beyond their extent.

(*c*) One *Vitrified Fort* exists close to this place and very near the sea; it occupies an eminence that probably was once almost surrounded by the sea, perhaps at the time of the 40-foot beach. It was simply a wall enclosing the crown of the hill, occupying a space of 40 yards in diameter. The stones are very strongly run together, and apparently cemented by some vitrified substance.

Another specimen that I examined, not far from Ardnamurchan, was a long triangular building enclosing a long narrow neck of hill, not far from the sea. Its length is 342 feet, the width 33 feet, and the wall in some places is 8 feet high, and 6 feet 9 inches thick; within the enclosed space are two small round hollows or pits, surrounded by a vitrified wall.

(*d*) We have one *brough* situated on *low* ground, close to the sea; it is not more than one mile from a Dun up the little glen; the building stands at the end of a bay or sea loch; the walls are 7 or 8 feet thick, very strong, built without mortar; one of the chambers in the wall is still in existence, and there are appearances of where another may have been. We partly examined the floor near the chamber, and found great quantities of deer-, cow-, and pig-bones among sand, but nothing to show the time when these were placed there. I am informed that broughs are more common towards the east or north-east of Scotland, and were once considered peculiar to that side of the island.

(*e*) In a sea-cave just above the level of the 25-foot beach, a few years ago, we discovered the remains (or part of the re-

mains) of a family of nine persons, of various ages, as was evident from the characters of the teeth &c. The rock overhead had fallen in and filled the cave, and thus killed the family. Bones of red deer and shells of various sorts were found inside and just outside the cave. A flat round stone, charred and reddened, was found imbedded in charcoal and ash, and near this the burnt leg-bone of a red deer. The family must have occupied the cave for a long time; no vestige of metal or pottery could be found. The only implements were two flint scrapers and a block of flint; a third scraper was afterwards brought to me by a workman, but as I did not see it taken out, I cannot vouch for it. The cave is not more than 200 yards from the vitrified fort. The only perfect skull was pronounced in London to be a genuine Celtic skull.

(*f*) Perhaps under the head of *Residences* should be placed a flint manufactory that was discovered in the moss not far from the large groups of Petroglyphs. I did not see it; but we have some flakes of flint and flint scrapers that came from it: as far as I can learn, it was a small pit, narrower at the bottom than the top; the remains of an oak-stump was close to it. I did not hear of any tool being found there; and as the place was discovered by a labourer, who appropriated the flint to strike fire for his pipe, there may have been all the requisite tools.

The flint was in large flakes, very like the flint that is brought over here from Ireland; the flakes had been prepared and carefully broken off from the mass, with the view of making scrapers and other implements; they were long, narrow, and thin. Several implements were found in various stages of perfection; I believe the quantity found was very great. If this spot had been examined by some one who understood the matter, it would have been a most interesting discovery.

Several deposits of flint have been found in various spots, though I believe without signs of a dwelling; several dozens of rough pieces, of the size and shape to make scrapers, were found in draining a deep moss. Another lot was found in the hills; but unfortunately I never hear of these things till a short time afterwards, and then I am not able to ascertain the exact spot. As we have no flint anywhere about here, the flakes must have been imported ready for use.

I have very little to say about the implements that have been preserved from this locality, as most of them were taken away some years ago.

The flint implements seem to be of two characters; first, those made carefully and for use, and, secondly, those imperfectly made and found in the more ordinary cists. A few articles that have been found elsewhere than in cists are usually elabo-

rately made. In the cists, those found in the chambered sepulchres were beautifully finished; the arrow-heads were exceedingly fine and delicate and of somewhat different shapes. The scrapers from the other chambered tomb were also very well made and of various shapes, so that I cannot suppose that "shape" had any thing to do with the period of deposit. The people seemed to have used any likely bit of flint; for we have found pieces of flint of no regular shape, but yet nicely chipped on the edges, and bearing marks of having been used. Those in the commoner cists are very rough, and seem to have been made for the occasion, for form's sake, hardly fit for use.

I should mention that *unburnt* cows' teeth are nearly always found in the cists, and in such positions as to show that they were placed there at the time of burial; they are not found among burnt bones of animals, as if a part of a funeral feast, but as a part of the ceremonial.

A lump of white quartz is another article nearly always found; the people here still use this for striking fire when flint cannot be obtained. The frequency of this gave us the impression of its being also a part of the ceremonial, perhaps an emblem of fire.

The urns do not vary much. One type is the commonest, in shape somewhat like an old-fashioned finger-glass; they are better baked and in better preservation than most of those found by Canon Greenwell. The roughest and the unusual shapes are found in solitary cists, without cairns, and one from a rough cist in a circle of earth.

Discussion.

Dr. Nicholas observed that the *menhirs* (long stones) described in the paper differed from those which he had examined in Brittany in one very striking respect; for, judging from the transverse sections given on the diagram-board, they had evidently been formed by human labour into a regular shape; and it was difficult even to imagine the amount of labour it required, with such tools as were then in use, and the hard materials to work upon, to bring those great masses of rock into any regular form. The menhirs of Brittany (he referred especially to that wonderful assemblage of them at and near Carnac) had been erected as they were found, as great boulders or masses of dislocated rock. No effort had been made to give them any uniformity of shape. But he observed on many of them certain striæ, which were not the effects of the action of glaciers or icebergs, but seemed to be the work of human hands. It was observable that this paper confirmed the conclusions of Dr. Lukis as to the sepulchral character of most of these gigantic monuments; but this was by no means inconsistent with the idea that they had also a religious significance.

ORDINARY MEETING, Feb. 22nd, 1870.

PROFESSOR HUXLEY, LL.D., F.R.S., *President, in the Chair.*

New Member.—EDWARD BACKHOUSE, Esq.

The following note was read by the author:—

XVIII. SUPPLEMENTARY REMARKS *to a* NOTE *on an* ANCIENT CHINESE CALVA. By GEORGE BUSK, Esq., F.R.S.

SINCE my former communication was read* I have been favoured through Mr. Mummery with some additional information on the subject of these prepared skulls from China, derived from Mr. W. Lockhart and Mr. Swinhoe, both authorities of the greatest weight in matters connected with Chinese customs.

In a letter to Mr. Mummery, Mr. Lockhart observes that he has been informed by his friend Mr. Wylie that the frontal letter is the Tibetan character for the vowel sound *a* as in *father*, and that it is also used as a numeral for thirty. The trefoil symbol he regards probably as an emblem of the Buddhist Trinity. Mr. Wylie is of opinion that the skull is of Mongol origin, and was taken from a lama temple near Peking.

Mr. Lockhart himself is acquainted only with the *lamas* among the Mongols and Tibetans at Peking; and says that the cadets of the families of the Mongol Princes are often made into *Lamas* or Priests, and retained at Peking in monasteries at the public expense as hostages for the fealty of the other members of the family.

As Mr. Wylie's opinion, above cited, appeared to cast some doubt upon the statement that the gold-mounted calva had been taken at the sack of the Summer Palace, I endeavoured to ascertain from Mr. Lockhart the probable grounds upon which it was founded, and he was good enough to procure from Mr. Swinhoe the following interesting particulars.

Mr. Swinhoe writes, "that when the British army was lying off the North Wall of Peking, the military train were housed in the 'Hih-Sze' (a Lama Temple). I went there," he says, "and saw in the inner shrine *two* of the gold-mounted *calvariæ* in question. Each was a skull of itself, without the lower jaw and the teeth of the upper. The skull was cut in two, so that the crown lifted off; and both the upper and lower portions of the skull thus divided were lined with gold. This temple was a purely Tibetian one, where the priests spoke no Chinese, and I could get no information from them. It was full of designs of skulls and bones on hanging cloths ranged round the Central Hall, and was filled with 'Avenging Gods;' and I was of the

* Journ. Ethn. Soc. vol. ii. p. 73.

opinion that the skulls were those of enemies slain by the Tibetans. The *calvariæ*, so far as I could learn, were used for pouring libations into the fire which was kept burning before the shrine*. I heard of other *calvariæ* being found in other parts of the same temple; but I myself only saw the two above mentioned. As soon was it as discovered that they were lined with the precious metal they became objects of theft and concealment, so that there was no seeing any more of them. I did not hear of any having been found in the 'Yuen-ming-yuen.' The gold-mounted ones would probably be the skulls of prominent enemies, whilst those lined with copper might be those of inferior chieftains."

From the above description of the two gold-mounted skulls seen by Mr. Swinhoe in the Buddhist temple, it would appear scarcely probable that either of them could have been that which was exhibited on the last occasion, and which consisted solely of the *calva* or upper portion of the skull. Consequently, if Mr. Swinhoe in his, perhaps hurried, view was not deceived in what he saw of the mounted skulls, and did not mistake the gold lid or cover for a second portion of the *calvaria*, it would appear that the Tibetan or Chinese Buddhists are in the habit of preparing skulls in two different manners. But it seems to me, in the absence of further evidence to the contrary, more probable that Mr. Swinhoe may have been deceived, and that the specimen exhibited in 1862 was in all probability one of those seen by him in the temple of "Hih-Sze."

Mr. Lockhart has also been kind enough to afford me the opportunity for exhibiting a second *calva* prepared in the same way as the former, and like that, as I am informed, mounted on a tripod stand and furnished with a lid. There is, however, this important difference, that the lining and rest of the mountings are of copper instead of gold, and that neither the metal nor the bone is sculptured. The skull itself in the present instance is rather larger and considerably thicker, and with stronger muscular impressions than the former one, but otherwise of the same shape and proportions.

The following paper was then read by the Assistant-Secretary:—

XIX. *On* Discoveries *in* Recent Deposits *in* Yorkshire. By C. Monkman, Esq.

The following paper contains a record of discoveries of the later prehistoric period in Yorkshire. The districts, lying

* This is in curious accordance with what Livy states respecting the *Boii*.

wide, are taken in separate sections, viz.—I. The Kelsea-Hill Clay; II. The York Sands; and, III. The Vale of Pickering.

I. *The Kelsea-Hill Clay.*

The discovery of "struck-off" flints, since 1864 (some of which show chipping and sign of use), in the clay of Kelsea Hill (then supposed to be the postglacial "Hessle" clay), in the East Riding of Yorkshire, has lately aroused considerable attention. The occurrence of the flint flakes and tools in this early clay was first observed by Mr. J. R. Mortimer, of Fimber; but it was not until midsummer of 1868 that a systematic search was instituted. In December of the same year I accompanied Mr. Mortimer to the place, and we were rewarded by the discovery of "hand-struck" flints, protruding from the clay at various depths. One implement was half of a "finger-flint" or "flaking-tool," chipped finely along the edges, and smoothed at the end by use (Pl. XV. fig. 1). This was picked down from the face of the clay cliff by Mr. Mortimer, who, as well as I, saw it protruding at a depth of fully five feet from the surface. This is the best chipped tool yet found, the remainder being cores, one of which shows seventeen facets (fig. 2); and struck-off flakes of all shapes, from the most delicate to the coarsest, some of which latter have been worked into "scrapers" (figs. 3, 4, 5). It is to be regretted that Kelsea Hill, near Keyingham, in Holderness, where the flints are found, is fast disappearing, the North-Eastern Railway Company's ballast-pit being there. The flints have become rare, the main yielding site having been already taken away.

The "Hessle clay," of which the flint-yielding deposit at Kelsea Hill was at first supposed to be a part, is so named from the evidence furnished at Hessle on the Humber, near Hull, of the overlap and unconformity of this clay to the true boulder-clay of Holderness; and the world is indebted to Mr. Searles V. Wood, jun., F.G.S., and the Rev. J. L. Rome, F.G.S., for the knowledge of its existence as a separate and distinct deposit, and of its position, relative to the glacial series, as a postglacial formation *.

The fact that the flint-bearing clay of Kelsea Hill was not a member of the Hessle-clay series, which clay caps the hill, was completely made out on the occasion of the visit of Sir Charles Lyell, Bart., to the East Riding, in the spring of 1869. Previously the Rev. J. L. Rome had paid a hurried visit to the pit, in company with Mr. Symonds; and the aspect of the cliff suggested a suspicion that the stiff, flint-yielding clay which remained on the west side of the pit was quite different from

* See paper in Quart. Journ. Geol. Soc. Lond. vol. xxiv.

the true Hessle-clay capping on the face of the pit which looks south. The latter had the unfailing characteristics of the Hessle clay,—the blue or ash-coloured fracture, and the pyramidal-shaped blocks into which it breaks. The former wanted these; and a more leisurely visit and examination confirmed the suspicion that the flint-yielding clay represents a very different condition of things from that represented by the Hessle clay, and may belong to any part of the later prehistoric epoch. Mr. Rome called the attention of Sir Charles Lyell to the difference in the two clays, who entirely agreed that, while one was the true Hessle clay, the other was not (fig. 6). How, then, was the flint-bearing clay to be accounted for? Sir Charles Lyell and Mr. Rome concur in this answer: they think the flint-bearing clay to be a wash from old Kelsea Hill, which has now (from railway needs) disappeared, the top of which used to be as high as the vane of Keyingham church-steeple on the opposite hill. In recent times, and traditionally, old Kelsea Hill was a place of popular resort, where feasts and games were held. It would probably have similar attractions in the later prehistoric times*; and on its green slopes, or on the wave-like ridges at its foot (such a one as now, in part, remains on the western side of the pit, where Mr. Mortimer and I made our discoveries), the old flint-using folks played their games and chipped their flints. In the course of a lengthened period these chippings, and with them occasional worked flints, were covered by the derivative clay, formed by the washings of the Hessle clay proper on the hill-top; and, instead of their being of that enormous age first supposed, they may be in reality no older than the flints from the York sands, or from the Ryedale fluviatile beds, afterwards to be mentioned. Thus the opinion expressed at the time by Mr. John Evans, "that the sands and clays at York and Kelsea are either of very recent age, as compared with the old river-gravels, or that the implements found in them are not of the same age as the beds," is fully borne out. The implements from Kelsea are, as Mr. Evans further observed, "identical in character with the stone implements found on the surface, and which probably remained in use, at all events, as late as 3000 years ago, if not to considerably later times." The flints are certainly *not* insertions; they are found at all depths, without any regard to the law of gravitation.

II. *The York Sands.*

A large find of flint implements occurred in the York sands in the autumn of 1868, while the men of the North-Eastern

* The Rev. William Greenwell suggests that the place may have been used for defensive purposes, and so contain signs of occupation.

Railway Company were excavating, on the east of the line, for the erection of new gas-works about one mile north of York. Unfortunately I did not hear of the discovery till the end of the year, by which time, if recent reports are to be relied on, most of the implements had become dispersed, and, except in one case, cannot now be traced. Fortunately the resident engineer, Mr. Thomas Cabry, had secured part of the find, and these he presented to me. They are one stone adze (Pl. XV. fig. 7), one fine flint hatchet (fig. 11), four oval flint knives or spear-heads (figs. 8, 9, 10, 12), and two flint flakes (figs. 13, 14). The implements were described to me by the Rev. J. L. Rome, who first saw them and the place, as having come out of the undisturbed sands of the postglacial Ouse, of the wide-river period; and thus, as their type is neolithic, there arose an archæological puzzle to solve. On visiting the place with Mr. Sharpe, an engineer in Mr. Cabry's department, who had charge of the works, and in whose presence part of the find took place, I found the bank had been removed for some distance beyond the point where the implements were deposited; but the remaining face showed that the sand-beds contained horizontal bands of marly clay, indicating a still-water deposition, in one of which bands the implements were imbedded, about five feet above the present railway level, and therefore from nine to ten feet below the former surface (fig. 15.) Singularly, the whole of the flints were close together, as if carefully deposited in one heap, it being, however, stated that no sign of disturbance was visible in the overlying beds of loamy clay and sand. Had the implements been of a palæolithic type, their presence there, as having been contemporaneously deposited with the sands, could have been understood. Subsequently the Rev. Canon Greenwell, the Rev. J. Robertson, Mr. G. W. Slater, and Mr. Sharpe accompanied me to the place, and we were met there by the "ganger" (or foreman of the workmen when the find was made), who gave his version, differing only slightly from that of Mr. Sharpe. So far as the evidence went, we could not make out that any sign of disturbance had been noticed, nor had any discoloration of the upper sand, or the presence of other manufactured articles than the flints (which would have shown a later insertion in the beds), been observed. The ganger particularly remembered that, at the time, there was a patch of rough gravel near the top, which did not show any sign of having been broken through.

The difficulty of receiving the alleged contemporaneousness of the deposit of the sands and implements is this:—first, the implements are neolithic in type, the axes being ground and polished, and are therefore without precedent as belonging to the

deposits of the wide-river period; secondly, they are not in any degree water-worn, but are, on the contrary, beautifully fresh and sharp, and have evidently never been in use (one of the knives has lost its point), which facts, taken in connexion with their being found together, indicate an insertion subsequent to the sand-bed deposition; and, thirdly, no archæologist or geologist saw the implements *in situ*.

The nature of the sands is described by Mr. Rome. "The beds," says that gentleman, "are *not drift* in any sense of the word, there being no trace of drifted materials of any kind. When I first saw the section from the railway-train, I thought it had a 'Hessle clay' aspect; and it was this impression which led me to visit the place, and to the discovery of the implements in the engineer's office. The actual inspection of the section showed me at once that the deposit did not belong to the series of the Hessle beds (deposited when the vale of York was an inland sea), but to a much later period, when that old post-glacial sea-bed had become dry land and the present river system had become established. In the absence of freshwater shells it may seem presumptuous to express a positive opinion; but I think there can be little doubt that the hill through which the railway cuts is a sand-bank of the later prehistoric Ouse, which was much larger and broader than the historic and present river of that name." Mr. Sharpe has kindly obtained for me the measurements, which give the height of the find above the present river-level at 26 feet, and the distance from the river 396 yards, the intervening distance being of similar sand-hills, and the flat, low-lying fluviatile clay of the Ouse.

When the implements were given to me by Mr. Cabry, I was under the impression that I had received the whole of the find, Mr. Rome restoring one, which he had taken (the broken one) in order to make the collection complete. I have since discovered that my flints represent only one-half of what are *now known* to have come from the sand-bed, and but a very small part of what we are now asked to believe were found. I learned that Mr. Ed. Allen, of York, possessed flints from this same sand-bed, and that gentleman has permitted me to see them and to take outlines. His collection is all of flint, and contains two axes (one a very fine specimen of a ground implement), three spear-heads or knives, two chipped scrapers, and eleven large flakes; but they are not equal in beauty, as a whole, to those in my possession, though fully as perfect, and quite unused. Mr. Allen has obtained a somewhat different version of the find from the men, and the new statement is so remarkable that I will record it in his own words. In a letter, under date Nov. 15, 1869, Mr. Allen writes: — "Thomas

Chapman, foreman of the workmen, and Martin Hughes, labourer, who were present when the discovery was made, inform me that the flints were found in a sand-bed buried about six or seven feet below the surface, and lying in a space of not more than two feet in diameter. *There were from fourteen to twenty axe-heads, many spear-heads, and at least a bushel of flakes**. Most of the axes and spear-heads were sent to Mr. Cabry's office. The flakes were not thought of any value, and were removed along with the sand, and used as ballast for the line. No other flints were found in the neighbourhood, although the sand was excavated to some depth, and removed for several hundred yards. Chapman, the foreman, states positively that there was a layer of gravel over the flints, which was not found in any other part, and he has no doubt that it was used to fill up the hole in which the flints were deposited" †. Mr. Allen further informs me that he obtained most of his specimens from the man, Martin Hughes, who was working next to the man who made the discovery, and also suggests that the deposit was the hoard of a manufacturer of, or dealer in flint weapons.

I may remark that, in conjunction with Mr. Charles Cabry, I have tried to discover the whereabouts of the remaining axes and spear-heads *said* to have gone to the engineer's office, but, beyond those in my possession, none can be traced. Mr. Allen's collection and mine represent only *four* axes out of "14 or 20," only *seven* of the "many spear-heads" are accounted for, and but *thirteen* out of the "bushel of flakes" have been obtained. It seems likely that the flints I received from Mr. Cabry were magnified into the incredible number mentioned by the men, and that Mr. Allen's collection and mine really include the whole find—important enough, certainly.

There is another fact of interest in connexion with the York sands. Mr. James Cook, of Holgate Lane, York (a gentleman who has devoted a long life to the collection of antiquities), in the year 1847 picked up a fine stone axe from the sand-bed adjoining the Ouse at York, near where the Scarborough Railway crosses that river. The axe had been buried in the sand, but had been thrown out in excavation for railway works, and therefore no further details could be obtained. The place where Mr. Cook's axe was found and the site of the gas-works' discovery are, perhaps, a mile apart, but the beds are in every respect similar deposits.

* This statement has recently been read to the members of the Yorkshire Philosophical Society.

† This version differs in some measure from the information given to my friends and to me, when inquiring on the spot.

III. *The Vale of Pickering.*

Lying between the Wolds and the Howardian Hills on the south, and the North Riding Moors on the north, is the large basin known as the Vale of Pickering, tapering almost to a point at Helmsley on the west, and at Filey on the east, being thirty miles in length. A line of eight miles, drawn north and south, from Pickering to Malton, where the vale is the widest, divides the basin into two nearly equal parts, the western half, to Helmsley, being drained by the Rye and its tributaries, and from this called "Ryedale," and the eastern half being drained by the Upper Derwent and its tributaries, and so called the "Derwent valley." These rivers run (in opposite directions) to near Malton, and, uniting, drain the greatest part of North-Eastern Yorkshire. Even now these rivers and their contributaries are subject to high floodings, and swell, from comparatively small streams, to large rivers, some of a quarter to half a mile in width. A high flood is estimated to submerge 32 square miles*, and this land is known in Ryedale as "ings," and in the Derwent valley as "carrs." The same names are given to flat tracts, out of reach of flood now, but which, within the human period, have been the beds of large streams, when in fact the Vale of Pickering was little less than one vast lake. These low-lying, flat tracts have now from 3 to 5 feet of fluviatile deposits, locally known as the "river-clay," which in the western and higher parts of Ryedale are really clay derived from the glacial deposits, but which as Malton is approached become peaty and fibrous, and in going eastward up the Derwent from Malton, getting more and more so until near Filey, where they are lacustrine peat, pure and simple, and of unknown depth. Belting the wolds and moors are beds of sand, indicating the shore of the Vale of Pickering in the wide-river period; and in the heart of the vale, in the Ryedale half particularly, are numerous prominences of glacial date, to which the Saxon name of "Holm," indicating the land among the waters, is yet applied. It is around these holms, and along the flat, ancient river-deposits, that the earlier stone antiquities of the district have been found. On the hills, the surface soil in parts abounds with them, but in the valley they are met with at depths varying with the thickness of the clayey accumulations, from 3 ft. to 5 ft. being mostly the rule. Some are found among the gravel of the ancient river-bed, others are midway in the fluviatile clay deposit, and some are almost at the surface and turn up with the plough; in short, they are discovered at all depths, and have, like the Kelsea-Hill flints, been lost or deposited at widely

* Malton Messenger's Leader, Feb. 2, 1867.

differing dates. The frequency with which remains of the later stone period have been met with during the past six years (since they have been looked for, and the labourers have been educated to recognize their forms and value) is surprising. The district seems full of the relics of the ancient people who inhabited the hills, and came down into the valleys on hunting or other expeditions. The axes, when found, have often the signs of violent use upon them; but in some instances they have been dug out quite perfect, and in two or three cases of unusually large size, and of peculiar form. They present widely different appearances. Some are chipped out roughly, and ground to a cutting edge, with the least amount of expended labour to answer the intended use; others, on the contrary, are ground over their whole surface, and to the greatest exactness of form. They are all of the stones of the neighbourhood, gathered from the denuded slopes, or extracted from the boulder-clay, and therefore show a great variety of the early rocks. According to the position in which they are found their surfaces are affected. Some, in sand or clay, retain their polish as if made yesterday; others, from limestone gravel, are thickly coated with lime accretions; and when from a ferruginous band, the weapons are stained of a deep Indian-red tint. Singularly no flint axe has yet been found in Ryedale or in the Derwent valley, the nearest approach being a lump of flint from the peat at Flixton, near Filey, which is in my possession (Pl. XVI. fig. 8).

It is to the spirit of agricultural improvement now going on that we are mainly indebted for the knowledge of the early occupation of Ryedale, and for the discoveries of the weapons. During the last six years more than a dozen stone axes have passed through my hands, which have been found at various depths, and in most instances in land-drainage works. In some cases the implements or weapons have been found as far back as twenty years ago, and have been retained as "curious stones" and modern "rockwork" ornaments. "The Ryedale axes" (for Ryedale has been most prolific) are principally in the collections of the Rev. William Greenwell, Mr. John Evans, the Rev. J. L. Rome, and myself. A stray one or two has got into the hands of the curiosity hunter.

From Slingsby, in Ryedale, there is a lateral valley, known as the Vale of Mowbray, which is connected with the great plain of York. This lesser vale has the same geological character; and the subsidiary valleys of the Howardian Hills have all deposits of the ancient wide-river horizon, and have yielded sparingly similar manufactured remains. This valley is sepa-

rated from Ryedale by the spur of the Hambletons, known as "Caulkless," on which flint implements and ancient earthworks are found.

The first event which led me to regard the extensive fluviatile deposits of the district as weapon- and implement-yielding areas, was the discovery, early in 1866, during drainage operations on the banks of the Rye, near Ryton, of a very good hammer-stone, about 2 feet deep in the clay (Pl. XVI. fig. 9). This is a pebble of a flat egg-shape, about 5 in. long and 3¼ in. wide, and 1⅞ in. thick, pierced for the handle with great care. Nothing further turned up until 1867, when the group of drainers removed to the Sleights' Farm, in the neighbourhood of Newsham Bridge, further up the Rye. Here the Rev. J. Robertson was nearest to the work, and had the pleasure of finding several "used" stones (rubbers or pounders) and five well-worked flints, all of a red colour (figs. 2–6). Singularly, he had not the good fortune to obtain an axe. The flints were from 3½ to 4 ft. in the clay, and comprise a remarkably fine lozenge-shaped javelin-head, about 2⅛ in. long (fig. 4), a leaf-shaped arrow-point (fig. 5), and three arrow-points of the triangular form (figs. 2, 3, 6), two having hollowed bases (figs. 2, 6). During that year, and indeed during each winter since, stone axes and other forms of weapon have been obtained from the drainers and labourers in the vale, either found in the excavations or left unobserved upon the land. One of the latter class, a fine lime-coated gouge of greenstone (fig. 10), was so picked up by Mr. T. E. Satterthwaite (Earl Carlisle's agent), at Ganthorpe bottoms, near Castle Howard, and has been presented to the Rev. William Greenwell. Of the many others which I have succeeded in obtaining, the best specimens are those now known as the "Normanby axe" (fig. 11), red in colour, 8 in. in length, found in the bed of the river Severn in 1864; the "Gilling axe" (fig. 12), 8 in. long, of a drab colour, found in peaty clay, 4 ft. deep, in 1868; and the "Ness axe," 10 in. long, found in the clay near the Rye bank (fig. 13.) The sections of the two last named are square, or oblong-square, a novel feature, which has led to their being engraved for Mr. Evans's forthcoming book on stone implements. There is one more tool worthy of particular mention, viz. a pierced stone axe, 6½ in. long, found at Sackleton bottoms in 1869 (fig. 14). All the four relics particularized are in the collection of Mr. Greenwell. The remainder of the axes found in Upper Ryedale are of the ordinary form, and mostly of small size. There is an exception, however, in a very fine three-edged cutting implement, evidently for some domestic use, possibly a knife for skinning, found near Harome, which is also in Mr. Greenwell's

collection (fig. 15)*. No flint axes have yet been found in the recent clays of Upper Ryedale; but in the valley of the Derwent proper, below the confluence of the Rye and Derwent, from the brickfield at Norton, near Malton (now closed), in the angle formed by the intersection of the Thirsk and the Scarborough railways, I have obtained two dark flint axes, found between 3 and 4 feet deep (figs. 16, 17). One is over 6 in. long, and is a very fine specimen. The two were found together, and have probably been formed from the same block of flint. At a corresponding depth, but on the opposite side of the river, two bone pins (figs. 18, 19) and two flint "scrapers" were found. These were 2 to 3 feet in the undisturbed clay, which, however, was overlain by 3 to 4 feet of *débris* from the Roman camp at Malton, which abounds in fragments of Roman pottery, and has yielded some burials of Roman date†. Going eastward into the peat country of the Upper Derwent, the finds have not been so numerous. They are not deserving of special notice, beyond the fact that the axes from the peat are in very fine preservation. I have a beautiful one from Scampston (fig. 20), which has for some years been in the hands of Mr. J. R. Mortimer, of Fimber. The flakes are of a red colour when made of pure flint, but some are of a peculiar cherty stone (figs. 1, 7). The main finds of stone implements have been made at Ganthorpe, Sackleton, Gilling, Harome, Coxwold, Ryton, Kirby-Misperton, Newsham Bridge, Ness, Norton, Scampston, and Flixton; but there are others not easily traced.

There have been two discoveries of human remains in the clay, one at Kirby-Misperton, the other at Malton. The former occurred at Kirby-Misperton in July 1866, while cleansing the lake in the park. The skeleton was wonderfully perfect, and much vivianitized; it was that of a strong-made man. The body had evidently been contracted, and was lying on the left side, with the head to the east, and was about 3 feet below the surface. The skull (a most perfect one) is dolichocephalic in type; $7\frac{6}{16}$ in. greatest length, $5\frac{5}{16}$ in. breadth, and $5\frac{12}{16}$ in. height. The cephalic index gives breadth to length ·72, height ·78. The skull is without any marked peculiarity, and differs in no way from the ordinary Teutonic head, or from many of those

* Since this paper was in type I have procured another curious skinner from the same district, which is in Mr. Greenwell's collection. It may be described as an oblong axe or chopper, the longest side being ground to a most perfect cutting-edge of considerable length. On one face is a depression, and on the opposite face are two depressions, fitting the thumb and two first fingers of the right hand. Mr. Evans will engrave the implement.

† The skulls are in Mr. Greenwell's collection.

from the circular tumuli of the district. The latter instance occurred at Malton in April 1866. In throwing a new viaduct across the Derwent, the North-Eastern Railway Company made three attempts to reach the Kimmeridge clay beneath the bed of the river east of Malton. At a depth of 10 feet of clay (fluviatile) and 3 ft. of sand a human skeleton was found, the skull being typeless. The only clue as to date lay in the fact that in an adjoining coffer-dam, at about the same depth, an unornamented and very rudely made earthen vessel was found, fashioned like British, but burnt as hard as Roman ware. The third struggle against the water brought to light a pair of bone pins (doubtless belonging to the skeleton) made from the fibula of a red deer, and at a depth of 18 feet underlying the human skeleton were found the antlers of a red deer, some vertebræ, and a femoral bone. These were by the side of an immense oak tree, which had been overturned in the direction of the present stream. The relics were all sent to the Rev. W. Greenwell.

A recent discovery of consequence, as tending to show the lake-like nature of Ryedale in the early human period, is that of a boat or canoe on the farm of South Holm. This was struck by the plough in the summer of 1869 while furrow-draining. The highest part was more than a foot below the surface, and the lowest more than 5 feet into the fluviatile clay. The boat, on being dug out, was "snigged" off to a stick-heap, and has been partly destroyed. It is formed from a log of oak, 7 ft. in length, and 3 ft. in diameter; the hollowed part is 5 ft. by 2 ft. 6 in., and 1 ft. 4 in. deep. The relic is in my possession. Subsequently, in the same district, in deepening the Slingsby beck, a large hammer-stone was found; it is carefully drilled from each side (fig. 21). The implement is in my collection.

The latest finds of interest were during the last three months of 1869. The Malton Board of Health drove a deep cutting (for drainage) through the main street of Old Malton; this, for a long distance, was below the river-bed, and showed that the Derwent at the place was once fully fifty yards wider than at present. In throwing out the old river-bed, surprising quantities of vivianitized bones of the horse, ox, dog, sheep, pig, and some birds were found, but, singularly, all detached. In no case was anything approaching a skeleton found. The only traces of human occupation met with were two bone pins and half of a horse's shoe of iron. The section of the cutting exhibited the singular fact that, since the period when these bones &c. were deposited, the river had piled up more than 15 feet of alternating beds of sands and clays—the clays retaining the footprints of oxen and sheep very distinctly, the impressions

having been filled up and preserved by the succeeding deposits of sand.

EXPLANATION OF PLATES XV. AND XVI.

PLATE XV.

Fig. 1. Half of a finger-flint from the Kelsea-hill clay. ½ size.
2. Flint core, with 17 facets, from ditto. ½ size.
3, 4, 5. Flint scrapers, from ditto. ½ size.
6. Sketch-section of Kelsea Hill.
7. Stone adze, from the York sands. ¼ size.
8, 9, 10. Flint spear-heads, from ditto. ¼ size.
11. Flint hatchet, from ditto. ¼ size.
12. Flint spear-head, from ditto. ¼ size.
13, 14. Flint flakes, from ditto. ¼ size.
15. Section of the railway-cutting in the York sands.

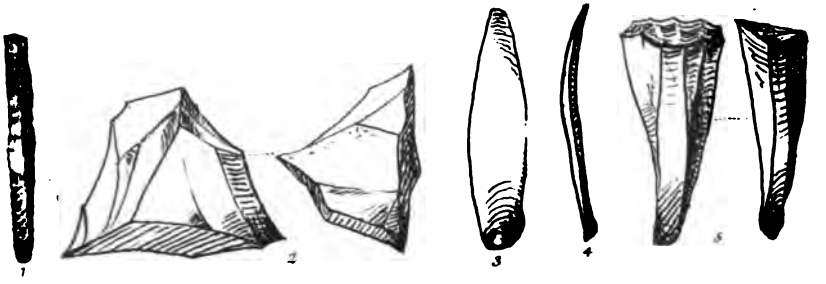
PLATE XVI.

N.B. All the specimens figured in this Plate are from the river-clay of the Vale of Pickering, Yorkshire.

Fig. 1. Flake of cherty stone, from the Upper Derwent. ½ size.
2 to 6. Worked flints, from Newsham Bridge, River Rye. ½ size.
7. Flake of cherty stone, from the Upper Derwent. ½ size.
8. Flint from peat at Flixton, near Filey. ½ size.
9. Hammer-stone, from the banks of the Rye, near Ryton. ¼ size.
10. Gouge of greenstone, from Ganthorpe bottoms. ¼ size.
11. The Normanby axe. ¼ size.
12. The Gilling axe. ¼ size.
13. The Ness axe. ¼ size.
14. Perforated stone axe, from Sackleton bottoms. ¼ size.
15. Triangular implement, possibly a skinning knife, from near Harome. ¼ size.
16, 17. Flint axes, from Norton, near Malton, valley of the Derwent. ¼ size.
18, 19. Bone pins, from Ryedale. ¼ size.
20. Stone axe, from Scampston. ¼ size.
21. Hammer-stone, from Slingsby beck. ¼ size.

DISCUSSION.

Mr. J. W. FLOWER observed that, of the several implements exhibited, there was not one that could possibly be attributed to the palæolithic or drift type. With regard to those which had been described as found lying together under a solid mass of gravel, they were in all probability a hoard, or part of a hoard, deposited for the purpose of concealment by the maker or seller. Two of the implements appeared to him to be of uncommon form, if not altogether unknown elsewhere in England. The large polished axe, squared at the sides (Pl. XVI. fig. 13), differed decidedly from the forms usually found in England, and approached closely to, although not identical with, those met with in Denmark and Sweden. The bevelled or gouge-shaped axe in red stone, which had been perforated to receive a handle (Pl. XVI. fig. 14), appeared to him to be perfectly new. The oval disk-like flints, with a cutting-edge all round, were larger and



Flints from Kelsea Hill Clay. ½ Size

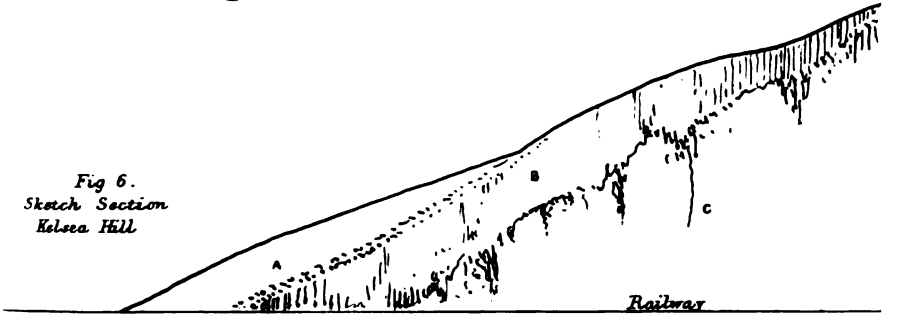
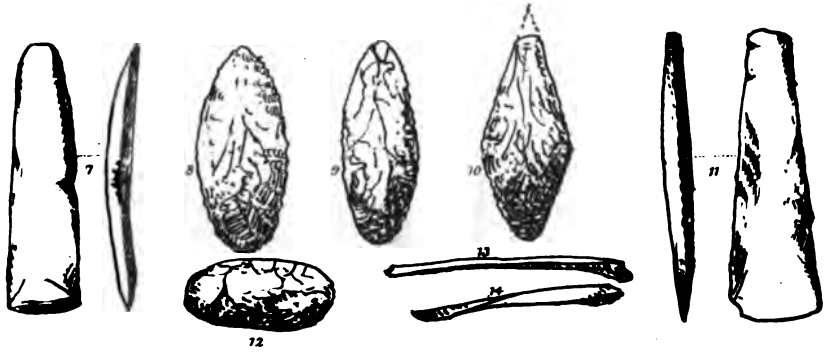


Fig 6. Sketch Section Kelsea Hill

A. *Flint yielding Clay* B. *Hessle Clay* C. *Sands & Boulders*



Flints from York Sand Beds ½ Size. (N° 7 Stone)

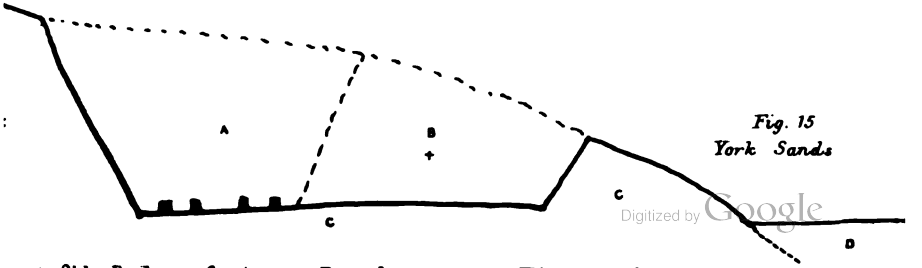
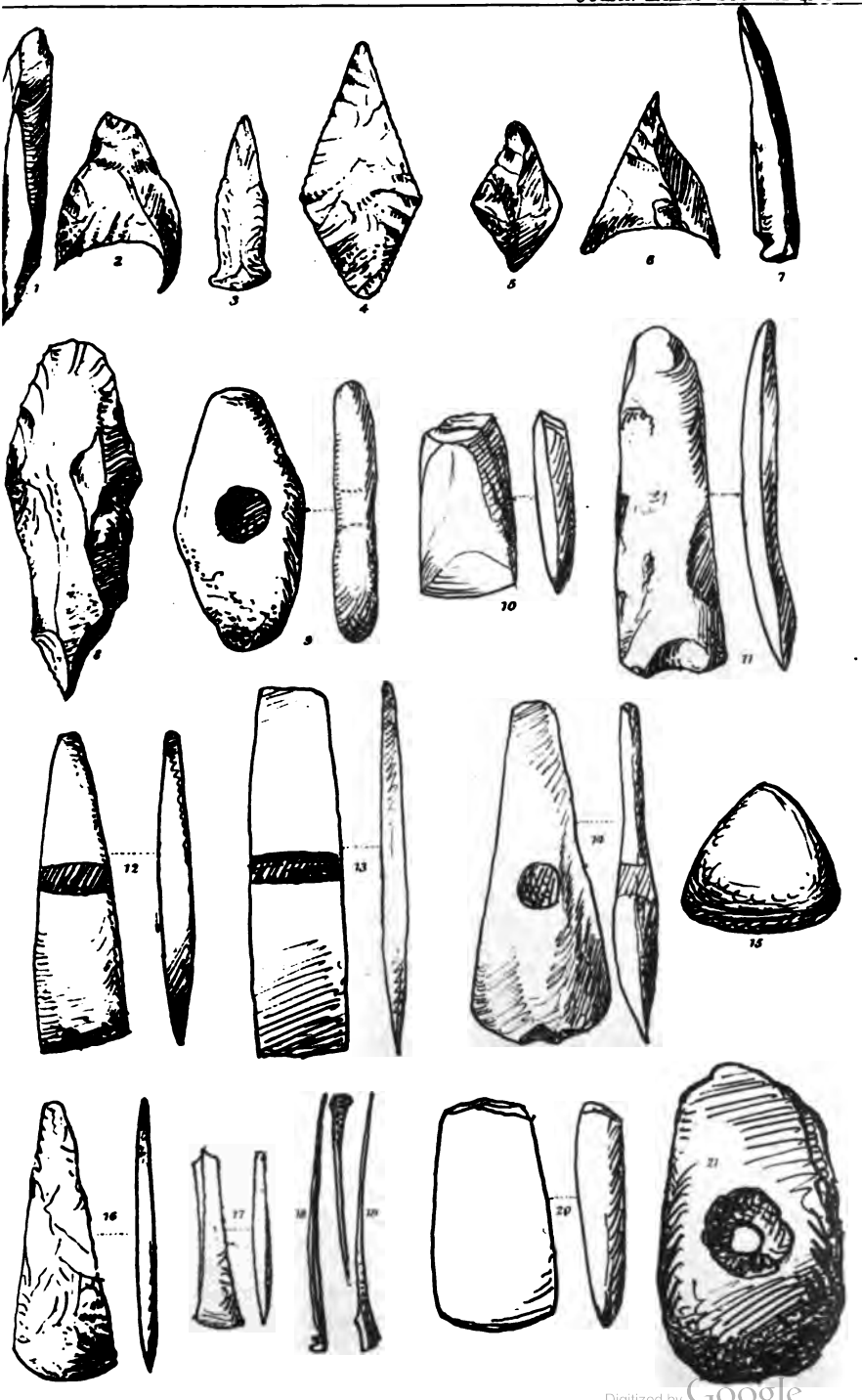


Fig. 15 York Sands

A. *Old Railway Cutting.* B. *Recently removed. Flints found at + +* C. *Sand.*



Figs. 1 to 7 ½ Size. Figs. 8 to 21 ¼ Size. The whole are from the River Clay of the Vale of Pickering. C.M.

better than were often met with. They were probably used for shaping or cutting the skins for dresses, after they had been cleansed and prepared by the flint scrapers; and, indeed, they might be said to bear a rude and distant resemblance to implements used for the like purpose by leather-cutters in our own times.

The Rev. J. L. Rome remarked that as none of the persons present on the occasion of discovering the neolithic implements in beds of the wide-river period were scientific observers, it was open to doubt whether the implements were there from original deposition or from subsequent disturbance of the beds. The supposed discovery of chipped flints in the Hessle clay of Kelsea Hill by the author and Mr. Mortimer would, if real, have been excessively interesting, because it would have carried back the human epoch much further than any reliable geologist, even of the most advanced school, in such matters, had furnished geological grounds for thinking probable. That, however, was no valid reason for rejecting the supposed discovery by Messrs. Monkman and Mortimer, because we ought to follow the truth whithersoever it leads us. Mr. Rome, however, detected, on his first visit to Kelsea Hill afterwards, that a much later wash accumulated at the western foot of the now-vanished hill had been confounded with the Hessle clay. It was a great satisfaction to Mr. Rome that in April of last year Sir C. Lyell should have visited Kelsea Hill, and should have recognized the entire distinction between the true Hessle clay and the later wash out of it, in which the chipped flints were found.

Mr. Rome also alluded to the correlation between the Kelsea-Hill beds and the Postglacial *Cyrenæ* beds of the Thames valley, which had been suggested by Mr. Wood and himself, and further alluded to Mr. Wood's views on the elevation and denudation of the Weald as an event subsequent to the formation of the Thames gravel-beds. Could this view be substantiated, the archæological interest excited by Mr. Monkman's supposed discovery of flints in the Hessle clay would be revived on other grounds; for Colonel Lane Fox is said to have discovered worked flints in the Thames beds, which, according to Messrs. Wood and Rome, are the equivalents in age of the Hessle-clay series.

Dr. Nicholas thought that the statements of navvies as to the exact position where the implements were found ought to be received with great caution by scientific men, especially when such descriptions were made in any measure the basis of calculations respecting the age of their deposit. But even allowing that these implements had been actually found at the rumoured depth, he wished to point out that a great thickness of gravel might be accumulated in a short space of time. Places could be mentioned where, through extraordinary floods, the channels of rivers had in a day or two been changed from one part of a valley to another, and the old bed had been filled up and totally obliterated with much more than ten feet of gravel, at the bottom of which articles might be found which conceivably had only been made a year before.

The following paper was then read by the Assistant-Secretary :—

XX. *On the* NATIVES *of* NAGA, *in* LUZON, PHILIPPINE ISLANDS. By Dr. JAGOR*.

NAGA is the capital of South Camarines, the see of a bishop, and the seat of the provincial government. In official documents it is called *Nueva Carceres*, a name given in honour of its founder (1578), General Don F. de Sande, who was born at Carceres, in Spain. Formerly Naga was the capital of all that part of Luzon which lies east of Jayabes, and which, as the population increased, was divided into the three provinces of North and South Camarines and Albay. The divisions between these governmental districts are drawn rather arbitrarily, especially that between Albay and South Camarines; while the entire region has well-defined geographical limits, and is still spoken of as a whole under the name of Camarines.

It is inhabited by a race of Bicol Indians who differ in language and in other respects from their neighbours, the Tagals, in the west, and from the Bisayas in the south and east. They are limited to this district, and to the islands in the immediate neighbourhood. As a rule they are inferior to the Tagals, both physically and intellectually, while they are superior to the inhabitants of the eastern Bisaya Isles.

Bicol is spoken only in the two Camarines, and Albay in Luzon, and in the islands of Alabate, Burdas, Ticao, Catanduanes, and the small neighbouring isles. It is found in greatest purity among the natives of the volcano of Isarog and its immediate neighbourhood. Passing thence to the west, it becomes gradually more like Tagal, so that even in Mambulao it contains more Tagal than Bicol words; while to the east it gradually passes into Bisaya.

It will be sufficient to give the prevailing features in the life of the Bicol Indians, as most of these are common also to the Tagals and the Bisayas.

On the commencement of the rainy season the rice-culture is undertaken. In South Camarines the sowing of the rice in beds begins in June or July, according to the commencement of the rain; but in fields that are artificially irrigated, it is begun earlier, in order that the rice may ripen at a time when the stock in the country is but small, and consequently the price high. Although the fields artificially treated might well furnish two crops annually, they are sown only once; they are neither

* Translated and abridged from the German manuscript by the Assistant-Secretary.

manured nor ploughed, but the mud brought down from the mountains by floods in the rainy season serves the purpose of manure.

Some peculiar points connected with the harvest deserve notice. The rice which first ripens is cut at the rate of ten per cent.; that is to say, the reaper takes the tenth bundle for his labour. At this period rice is very scarce; there is often poverty, and labour is cheap. But as more fields become ripe, the value of labour increases, and the wages of the mower accordingly rises to 20, 30, 40, or even 50 per cent.

Besides rice, batates, or sweet potatoes, are cultivated. These grow readily, and as the runners, on striking root, form tubers, they furnish an inexhaustible supply to the possessor during the whole year.

After the rice-harvest, buffaloes, horses, and oxen are turned into the fields. During the growth of the rice they remain in the *gogonales**, or steppes, which are formed where cleared places are left for the culture of mountain-rice. The Indian does not fodder his cattle, but leaves them to starve if they cannot find support for themselves. In the wet season, it not unfrequently happens that a buffalo, while drawing a load, falls down dead from sheer hunger.

According to Morga†, there was neither horse nor ass in the island until introduced by the Spaniards from China and New Spain. Horses were also imported from Japan, and, although not swift, they were strong; they had large heads, thick manes, and somewhat resembled Frise horses.

The cattle are small and well-flavoured, but the Indians prefer buffalo-meat to beef. They eat meat, however, only on festive occasions, and commonly subsist on fish, crustaceans, mollusks, and wild plants, with rice.

The old race of sheep introduced long ago by the Spaniards thrive well and breed freely; but it is said that those brought from Shanghai and Australia do not thrive. In Manilla, mutton is to be had daily; but in the interior, especially in the eastern provinces, it can rarely be obtained, although sheep-breeding might be carried on without difficulty almost anywhere, and in many parts to great advantage. In the larger districts, where many Europeans dwell, an ox is slaughtered daily, or at least periodically; but in more insignificant localities there is no animal food but that of fowls.

Pork is eaten by the Europeans only when the pig is home-fed. In order to prevent it from straying, the pig is commonly put into a cage made of bamboo, or into a wide-meshed cylin-

* *Gogo* is the name of a cane from 7 to 8 feet high (*Saccharum*, sp.).

† Morga, 'Sucesos de las Islas Filipinas,' Mexico, 1609, p. 130.

drical basket, and is killed when it grows too big for this habitation. The pigs of the natives are too disgusting in their habits to be eaten by Europeans.

The province exports about twice as much rice as it consumes. This is sent chiefly to the western provinces of Albay, which is not fitted for the growth of rice, but produces only abaca, or Indian hemp. A part goes to North Camarines, which is very mountainous and not fertile.

The exports of the province consist principally of rice and abaca, whilst the imports are limited to the few products introduced by the Chinese merchants. Nearly all the traders are Chinese; but the total capital invested in their shops certainly does not amount to 200,000 dollars. In other parts of the province, there are no Chinese traders, and the inhabitants must be supplied from Naga.

All the land belongs to the state, but is let out gratuitously to any one who will cultivate it. The usufruct goes to the children of the tenant, and only reverts when the land has lain unused for two years; it is then at the disposal of the authorities to grant it in favour of anyone else.

Each family possesses its own house. Usually it is built by the young husband with the aid of his friends. In many places it does not cost more than four or five dollars. When necessary, he can repair it himself, without expense, with no other tool than his forest-knife (*bolo*), and no other materials than bamboos, palm-leaves, and Spanish reeds.

A handsome house built of planks, for the family of a *cabeza*, may cost about 100 dollars. The property of such a family, including fixtures, furniture, ornaments, &c., may be worth from 100 to 1000 dollars; some are valued at even 10,000, and the richest in the whole province is estimated at 40,000.

The Indian eats three meals daily,—one at 7 o'clock in the morning, another at 2 in the afternoon, and the third at 7 or 8 in the evening. The strongest workmen will consume at each meal a chupa of rice, but ordinary individuals only half a chupa at breakfast, an entire chupa at mid-day, and half a chupa in the evening; making in all two chupas*. The average retail price is 3 cuartos for 2 chupas†.

For each meal the requisite quantity of rice is pounded in a wooden mortar by a woman. The rice is only half cooked, at least according to our notions; but it appears that this is always the case where rice forms an essential article of diet.

For seasoning the Indian uses salt and a good deal of Spanish pepper (*Capsicum*), which is grown everywhere. His luxuries are

* 8 chupas = 3 litres. † 160 cuartos = 1 dollar.

buyo and cigars. A cigar costs 1 cuarto, and a buyo 0·1 cuarto. Buyo is the form in which betel is used in the Philippines. A leaf of betel-pepper (*Chavica betel*) is spread over with lime, and rolled together from both sides towards the middle, one end of the roll being stuck into the other so as to form a ring, in which is inserted a flat piece of areca-nut of corresponding size. The cigars are rarely used for smoking, but are cut into pieces and chewed with the buyo. Women also consume both tobacco and buyo, but usually only to a very moderate extent. They do not colour the teeth black, as the Malays do, but the young and handsome women constantly polish them with the husk of the areca-nut, the fibres of which lie parallel and close together, so as to form, on perpendicular section, an excellent tooth-brush. They wash several times daily, and in cleanliness far excel the great majority of Europeans*.

Probably every Indian keeps a fighting-cock, and even if he has nothing to eat he manages to find money enough for this.

An earthen vessel, costing about three or four cuartos, serves for all purposes of cooking. The poor have no other vessel, but the richer have cast-iron pans and earthen vessels with covers. The fire-place in a small house consists of a flat box, often an old cigar-box, filled with sand and containing three stones to serve as a tripod; but in the larger houses the fire-place has more the form of a bedstead. In small households the water is stored in stout bamboos. Everybody possesses a *bolo*, or forest-knife—a universal instrument, which the Indian carries in a wooden sheath of his own make, and slings round his waist by a cord made of some bast-fibres carelessly twisted together. A rice-mortar (a hollowed wooden block) and a grinder, together with a basket, form all the household implements of a poor family. Sometimes there is a large snail-shell, with a rush-wick, to serve as a lamp.

The wages of an ordinary labourer for working from 6 to 12 o'clock and from 2 to 6, is 1 real and no food. The women usually do no field-work; but they plant-out the rice and help to get it in, and in both these cases they have the same wages as men would receive. Workers in wood and stone earn 1½ real per day.

In the old *pueblos* there are schools. The teachers are paid by the Government, and usually receive 2 dollars per month,

* In my 'Reisenkizzen' (p. 120) I have remarked that in the Malay Archipelago Europeans are never troubled with the vermin of the natives. This is especially the case in the Philippines, where the natives (particularly the women) although they take great care with their hair, are often infested, while the Spaniards, although often neglectful, are probably never thus visited.

without either board or lodging. In larger pueblos the wages rise to 3½ dollars; but an assistant has to be paid out of this sum. Reading and writing are taught; copies are set in Spanish, and the teacher is supposed to speak only Spanish to his scholars, but he often does not understand it himself: hence Spanish is known almost only to those Indians who have lived in the service of Europeans.

On an average one-half of the children go to school, commonly from seven to ten years of age; they learn to read, and a few also to write a little, but they soon forget it. Only those who afterwards serve as clerks can write freely. In some parts the boys and girls are not allowed to attend the same school, and in such cases a female teacher is engaged at a salary of 1 dollar per month.

Women rarely marry before fourteen years of age. Twelve years is the lowest limit fixed by law. In the register of the church of Polangui, in Albay, I found it recorded that on the 28th January 1837, marriage was celebrated between an Indian and a female Indian of eleven years and six days, who bore the ominous name of "Hilaria Concepcion." This was done by licence of the bishop, as the girl was pregnant, but had not reached the legal age for marriage. The parents died in 1857 of an epidemic disease, but a son is still living.

In the same register I found a marriage recorded between an Indian of twenty-eight and an Indian woman of twelve years.

The women are in general well treated, and do only light work, such as sewing, weaving, and household duties. All the heavy work, with the exception of grinding rice, is performed by men.

Women remain fruitful until the fortieth year. Two women, known to me, have borne each fifteen children. Five or six births are common.

The first excrements of a new-born babe are carefully preserved, and under the name of *triaca* (*theriacum*) are regarded as a universal remedy against the bite of snakes and mad dogs. It is applied to the wound, and is also taken internally.

A large number of children die in the first two weeks after birth. There are no statistical data; but one of the first doctors in Manilla is of opinion that at least one-fifth, if not indeed a fourth, die at that period. According to him, the cause is to be attributed to the great impurity of the air, for every opening in the house is stopped up to exclude draught, for fear of injury to the mother.

Formerly this was done to exclude *Patiana*, an evil spirit who worked mischief to the woman and sought to hinder delivery. The custom is still retained, and probably the super-

stition yet lingers with many, although they do not confess it; and where this belief has died away the fear of catching cold has been introduced as a new cause for the retention of an old custom.

The disease of mimicking, called in Java *sakit-latar*, occurs also here, and is termed *mali-mali*. In Java it is supposed by many to be merely an imposition, and that those who pretend to be thus afflicted find it advantageous to deceive the newly settled Europeans. Here, however, I observed an example which could certainly not be regarded as an imposition. Cases of *amok* are also found in the Philippines.

It is one of the greatest offences to cry out to a native when he is asleep, or to awaken him quickly. They arouse one another, if necessary, with the greatest caution, and very gently. Among the Juinguianes, in North Luzon, the greatest of all curses is—"May you die sleeping!"*

XXI. *On the* Koords.

By Major Frederick Millingen, F.R.G.S.

(Read December 21st, 1869.)

Laying aside traditions and opinions which are beyond the reach of discussion, we shall find that the races mentioned in early history as being the inhabitants of the high plateau of Armenia are the Armenians, the Karduks, and the Chaldeans. Xenophon, the earliest writer whose authentic description of that region has been transmitted to us, relates, in his 'Retreat of the Ten Thousand,' how he entered the mountainous country occupied by the warlike Karduks. That the Karduks of that period are the ancestors of the race known in our days by the name of Koords, is an opinion universally adopted. If the difference existing between the modern and the ancient name could be considered as a reason strong enough to justify some objection on this point, an inquiry into the way in which the Koords are called by their Asiatic neighbours, as well as by themselves, will serve to put this question beyond doubt. Though the Turkish and Persian way of pronouncing and writing the name "Koord" is almost similar to the one adopted by western nations, we shall yet find that the Arabs, who have generally shown themselves more accurate in historical, ethnological, and literary questions, have kept that name under a form much more like to the old Greek way of spelling it,—*Kart* in the singular and *Ekrat* in the plural being the Arabic name for Koord or Koords. As for their own way of calling themselves, it is different from any

* Informe sobre el Estado de las Filipinas, i. 14.

other, although it possesses the *Kart* sound,—their national denomination being *Kartmantche*. I am at a loss to explain the meaning of *mantche* placed at the end.

The Koords belong to the Aryan race, and have a language of their own, independent of either Armenian, Persian, or Turkish. Persian, however, is very much mixed up in their idioms,—a result which is due to their close contact with a race endowed with a higher civilization. The peculiarities which I have remarked in the Koordish idiom are the following:—a predilection on the part of the Koords to shorten and contract proper names, a liberty which a Turk will never take; so that, instead of saying "Mehemet" *in extenso*, the Koord will say *Mukho*. *Hasso* likewise serves instead of *Hassam*, *Memo* instead of *Mahmud*, and so on. Another peculiarity is the Italian-like *o* termination which prevails in the Koordish idiom, as seen in the above-quoted names. The negative *no* is, I think, more extraordinary still, as the negative employed by other Oriental nations is totally different. The Koordish language contains almost as many dialects as there are tribes; and it often happens that one tribe does not understand another. The Koords of Dersim-dagh are not able to understand those of Beyazid or Suleimanieh, and *vice versâ*.

The great intercourse which the Koords have with the Persians not only makes them familiar with the language and customs of Persia, but has led them to adopt the same creed, the Koords being Shiahs like the Persians, and not Sunnites as their Osmanli masters.

The character of the Koordish race partakes, in many of its principal features, of those peculiarities which are general with nomads at large. Compelled to rove through vast tracts of territory in search of pasturage or for marauding and plunder, the Koord acquires an enterprising instinct with a spirit of restlessness, acuteness, cunning, and rapacity. In constant strife with their neighbours or with each other, they are essentially a warlike people, ever ready to attack or to meet an enemy. Unlike the chivalrous Arab, however, the Koord does not hesitate to stain his hands with the blood of the guest who has taken shelter under the folds of his tent.

Brigandage is systematically established throughout Koordistan, and is conducted in two ways,—namely, by means of sudden attacks on caravans and travellers, and by the more regular plan of forced contributions. The attacks on caravans can only be avoided by a display of strength. Commercial travellers are perhaps the only people who traverse Koordistan with little fear of being hurt, since it is to the interest of the Koord to protect them.

Forced contributions and ransoms belong to the regular form of brigandage. Whenever a chief is in want of money, or finds that he is running short of provisions, he at once has recourse to a ransom or contribution imposed on the Armenian villages of the neighbourhood. Besides these ransoms on a large scale, there exists a kind of contribution on a smaller scale which every Koord thinks himself entitled to impose whenever he finds it convenient. This consists of visits paid by the Koords to the peaceful inhabitants of the towns in order to request them to take upon themselves the trouble and cost of feeding their horses or buffaloes during the whole of the winter season. The inhabitants have no course but that of complying with this peremptory request, as they would otherwise run the risk of seeing their crops and plantations destroyed.

Amongst the many acts of brigandage of which Koords are guilty, a peculiar kind of highway-robbery must here be noted, the parallel of which has probably never been heard. The culprits are in this case young women, who set out on plundering excursions. A troup of fair bandits takes up a station at the side of the road, and there patiently waits for the arrival of the doomed traveller; as soon as the *vedettes* announce his approach, the fair troup starts off to meet the traveller, giving him the welcome with their dances. The traveller is compelled to stop, as a matter of course; and the maids then politely request him to alight from his horse. No sooner has the bewildered victim, unconscious of his fate, put foot on the ground, than he finds himself at close quarters with the whole troup, and is immediately stripped of all he has on his back. Then begins a series of dances and fascinating gestures in the style of those performed by the maids of the Lupercalic era, the object of which is to make the unfortunate traveller loose his reason and self-control. An attempt, however, on the part of the victim to reciprocate with the charms of his fair tyrants becomes instantly fatal.

These dances and the flagellations, which serve as *entr'actes*, are repeated several times, until the sufferer extenuated, with his limbs bleeding, is nearly fainting. Then the female troup decides on dragging the wretched traveller before a Court of Matrons, which holds its sittings somewhere in the neighbourhood. Once there, a case for attempting a certain transgression is brought against the pretended culprit, who not only receives a good dose of upbraiding, but is also condemned to pay the fine stipulated by the court. This fact might, for the extravagance of its nature, excite some doubts as to its accuracy; I have, however, ventured to state it on the testimony of several indivi-

duals who have happened to pass through the territory of the Bilbash tribe, whose women are addicted to this singular kind of highway-robbery. I may add that these statements are supported by one of my colleagues of the Staff, Major Daud Effendi, who has resided a long time in the province of Kerkuh, of which the Bilbash tribe is a dependency.

Koordistan is a bare country, where pasturage is the only resource which can furnish its inhabitants with the means of subsistence. The flock provides the Koord with the milk, the butter, and the *djadjk* (cheese) which form the principal ingredients of his meals. It is upon the women that the duty devolves of manufacturing the butter and the *djadjk*. Sour milk and *yaurt* are also amongst the principal ingredients of the Koordish kitchen.

The Koord seldom eats of the flesh of his flock; indeed few Koords eat meat more than three or four times during the year. The produce of the flock is too valuable; for it constitutes the wealth of the Koord, who is therefore extremely parsimonious in squandering it for the satisfaction of his own appetite. The wealthy chiefs form an exception to the general rule, their table being abundantly provided with the best of meat prepared in various ways. The wheat necessary for subsistence is bought by the Koords in the markets of the country, or is imported from Persia. After having reduced it to the state of flour by means of water-mills, the women make with it a very thin paste, which is baked in a few minutes inside the *tandur*. Wheat nicely cleaned and broken into fragments is used to make the *pilaf* called *bulgur-pilaf*, so as to distinguish it from the ordinary *pilaf* made of rice; this dish forms the principal daily food of the Koords.

In Koordistan men do literally nothing; the duties of shepherd and vedette once fulfilled, they spend their time in gossiping, smoking, intriguing, plotting, and occasionally in marauding expeditions, or in attacking one another. Full of vanity, they attach great importance to appearance, and highly prize a fanciful costume. Red morocco boots and a red mantle form the regimental outfit of a warrior. Persian and Kashmir shawls are articles to which every chief aspires; they are used as turbans, or they are twisted round the waist.

The costumes worn by the men in this part of Koordistan are of three sorts; the first is composed of a kind of morning gown, and a long gown, called *djupeh*, worn above; this dress, common all through the east, is worn by the Koords in doors, and while *en négligé* under the tent. The second costume consists of a voluminous pair of blue breeches, a small gown, the scarlet mantle, together with its lower appendix the red boots;

this is, strictly speaking, a warrior's winter costume. The third is by far the most picturesque of all, and is exclusively Koordish; this dress is composed of a short scarlet jacket with its

Fig. 10. Costume of Koords*.

hanging sleeves, a pair of trousers large and loose, offering a garb and ease the effect of which is difficult to convey by mere words. The usual red boots and the big turban, around which a variety of coloured handkerchiefs are carefully twisted, complete this elegant costume worn by the Koordish warriors during the hot season. Few costumes are more suited to the service of light cavalry than this; it possesses the required qualities of ease, elegance, and of presenting a martial aspect.

The arms used by the Koords are these:—as a defensive arm the shield made of elephant-, rhinoceros-, or buffalo-skin. This shield is small, having a diameter of only 20 inches; externally it is covered with several rows of brass buttons, which gradually rise in thickness from the circumference to the centre. The offensive arms are a short carabine with a wide open muzzle of a very old model, an old flint pistol, and scimitar of the Persian manufacture of Khorasan; some carry also a small crooked Persian dagger (*hantcher*). The best of their arms is the lance, in the handling of which the Koords excel. The Koordish lance

* From Major Millingen's 'Wild Life among the Koords,' by permission of Messrs. Hurst and Blackett.

is made of bamboo imported from India by Persian merchants; the bamboo having seven knots is considered to be the best; its length is four yards and a half; the point is of good steel, and remains almost concealed inside a ball made of long black horse-hair. The object of this ball is to frighten the horses of the enemy, and to conceal the deadly weapon.

The Koordish race, both men and women, are remarkably handsome, being far superior in this respect to the Tatar-Turks or to those of Constantinople; they are tall, powerfully built, and muscular. It is strange that among the Koords a variety of complexions is to be found; although a dark complexion with black eyes and black hair is predominant, yet light hair and blue eyes are also to be met with; chestnut is not uncommon. One peculiar feature is the fire and the power with which their optic organs are endowed. Though I have not visited the independent district situated in the centre of the Taurus chain (a region known to the Turks under the name of Dersim-dagh), yet, from the statements made to me by my fellow officers, I have ascertained that the Koordish race sheltered in that mountainous country can be looked upon as a model of physical beauty and power.

Amongst the Koords the women do every thing; they prepare the meal, wash, and milk and shear the flock; they alone are capable of weaving and dyeing the wool, and of knitting the carpets, the blankets, the tents, and the other textile fabrics of which the country boasts. I have seen women even grooming and saddling their husbands' horses!

The women wear large oriental trousers (*shalvar*) tied at the ankle, a small jacket, open in front and reaching below the knees, and a voluminous turban in the Koordish fashion. This costume, with its gay colours, displays to advantage their full round forms and sun-burnt features.

Koordish women are extremely moral, and their character partakes of a masculine firmness and decision. This is referable to the free intercourse between the sexes, which is of course at variance with the Mussulman religion. A Koordish woman is familiar with all the affairs, feuds, plans, and conspiracies of her tribe; indeed she is often the very soul and moving spirit in such matters. As enterprising and enduring as the men, the women here are always on the alert and ready to jump into the saddle.

In their ideas, manners, and habits, the Koords are a rough and half-savage people; their knowledge and ideas are very limited, and they are even destitute of those national traditions which are handed down from generation to generation. It is worthy of note that the Koords have no ancient traditions of

their own, and anecdotes relating to Persian heroes and Shahs constitute their entire stock of historic lore. The Koords do not seem to have ever taken much interest in Turkish history, and it is unquestionable that they find themselves much more at home with the Persians than with the Turks.

Buffoonery and jokes of all sorts are much in favour amongst the Koords, every chief having some buffoon, whose duty it is to keep the company merry.

Amusements are not much in vogue, the inventive powers of this people being as deficient in this direction as in others. Wrestling, stone-throwing, tournaments, dances, and buffalo-fights are their chief sports; chess is also played.

To do the Koords justice it must, however, be admitted that they are often frank enough to avow their own faults and shortcomings; they acknowledge themselves a rough and wild people and therefore consider themselves entitled to forbearance.

One of the characteristics giving to the customs of the Koords a certain European type, is the funeral ceremony performed in honour of a dead warrior or chieftain. On such an occasion special invitations are sent to the chiefs of the friendly tribes, and to all those who are related to the defunct by ties of consanguinity. At the appointed hour, every one hastens to the house whence the funeral procession is to start. A certain number of horsemen open the procession, performing before the hearse a series of tournaments and evolutions; while this goes on at the head of the procession, the hearse is carried in the middle on the shoulders of the relations and friends of the deceased. Just behind the hearse his charger follows at a slow step, carrying the empty saddle, the arms, and the war-costume of his late master. The procession is closed by a number of warriors presenting an imposing mass of cavalry. The ladies, relatives as well as friends of the deceased, wear on this occasion black veils, as a sign of mourning; at the moment the body is taken out of the house the women begin to cry and shriek wildly, while, in sign of grief, they rend their clothes and throw handfuls of earth and dust on their heads.

This funeral ceremony, which is a national institution with the Koords, is the more surprising on account of its being utterly opposed to the principles of the Koran, as well as to the prejudices of other Mussulman nations. According to them, all men are reduced by death to the same level; and hence no honour is to be paid to any one after death, whatever may have been his position while living.

XXII. *On the* WESTERLY DRIFTING *of* NOMADES, *from the Fifth to the Nineteenth Century.* By H. H. HOWORTH, Esq.—Part IV. The Circassians and White Khazars.

(Part III. was published in this volume, pp. 83–95.)

BY tracing back the various lines of migration, we have at length succeeded in eliminating from the ethnography of Europe and Southern Asia a most perplexing and, in many respects, preponderating element. We have pushed back the Turks beyond the Volga and the Oxus. Their history in that further region, which forms the typical Turkestan, I hope to trace out in a future paper. At present I must commence to make good my rash proposition, that the Petchenegs were the first Turks that crossed the Volga. I call it rash, because it is directly at issue with the conclusions of Dr. Latham, the most patient and careful of English ethnologists, and because it involves a position which, so far as I know, is entirely new.

The northern flanks of the Caucasus form, in my opinion, one of the best ethnological barometers that we possess. Its many races are the waifs and strays of invasions that have swept by and through the great marching-ground of all western invaders, the Steppes north of the Caspian Sea and the Euxine. Each body of invaders who has occupied these plains has left a portion of its race behind, which remnants have been pressed forward into the mountains by succeeding invaders. Thus if we peel the mountains, as it were, and remove the successive layers of population that occupy them, we shall have a series representing, not unfaithfully, the various tribes and races which have occupied Southern Russia.

According to Maçoudi, when the Gusses crossed the Volga, they entered the land of Kazaria. The Khazars, in the pages of Byzantine, Arabian, and Russian authorities, were the precursors of the Gusses, or Comans, and the Petchenegs. Our inquiry therefore commences with the Khazars. Who were the Khazars? One mistake by one author may divert the reasoning on a whole science into a vicious and wrong channel. No better example of this fact can be chosen than the case of the Khazars. Ebn Haoucal's Geography, which was written in 976–7, was translated into English by Sir Wm. Ouseley. His statements about the Khazari, with whom he was contemporary, are of course of the highest value. Sir Wm. Ouseley has unfortunately mistranslated the most important passage, and his mistranslation has been followed by English inquirers. Long ago, the greatest authority on this branch of Arabian literature, Fraehn, in his "De Chasaris, Excerpta ex scriptoribus Arabicis," published in the Memoirs of the St. Petersburg Academy, called

attention to and corrected this mistake; and the question has been ably discussed by Vivien St. Martin. There can no longer be the slightest doubt that Sir Wm. Ouseley gave the exact reverse of the meaning of the passage. Ebn Haoucal says the Khazars differed entirely in their language from the Turks. Ouseley made him say they were like the Turks in language. The term Turk is used by Ebn Haoucal in a more limited sense than by many of his Byzantine and Arabian contemporaries, who apply it indiscriminately to the Hungarians, Bulgarians, and to all the various Nomades of the Steppes, in an almost equivalent manner with the ancient term Scyth. Ahmed ben Fozlan also says that the Khazar tongue differs from the Persian and Turk. The Khazars, as we shall presently see, differed from the Turks entirely in their *physique*, their religion, and their manners, as they did, according to Ebn Haoucal, in their more important ethnological *differentiæ*, as in their language. If they were not Turks, what were they? I cannot believe that a race, so very important as they were for three centuries, should have been wiped out without leaving a trace behind. Let us appeal, experimentally only, to our ethnological barometer, the flanks of the Caucasus.

In a previous paper I have shown that the Nogays, and other so-called Tartar hordes of the Kuban and the Caucasus, are the descendants of the Petchenegs and Gusses. If we remove the Nogays, therefore, from our map, we shall perhaps meet with some clue. The layer of population which lies immediately beyond the Tartars is that of the Circassians. What, then, is the history of the Circassians? This question involves a very difficult answer, if we are to be guided by orthodox text-books. It is not denied that the Circassians are, and have been, as long as tradition reaches back, the masters and leaders of the Caucasian Tartars, of the Ossetes, and of their other neighbours, supplying the princely and governing caste to all the northern Caucasus. Yet we are taught to believe that these Circassians have no history, properly so called, and that we must be content to trace them, perhaps, in the Zychians &c. of the Greek writers. I cannot believe such a position to be well founded. Let us trace them back in some detail. First, we must limit the term Tscherkessian, or Circassian, to the inhabitants of the two Kabardahs, and the Circassians proper of the mountains, described in detail by Klaproth, under their various tribal names of Beslenie, Muchosch, Abasech, Kemurquáhe, or Tenurgoi, Hattiquáhe Attigoi, or Hattukai, Bsheduch, Schapschik, Shana, or Shani, and Schegakeh. I exclude entirely the Abassians, or Abkhassians, classed, I know not on what authority, by Dr. Latham with the Circassians, but most sharply distinguished

from them by Klaproth. These latter have Circassian princes, and have a few customs and words in common with their masters, otherwise they are very distinct, and are really the remnants of the occupants of the Circassian area before the arrival of the Circassians.

Having thus limited the name Circassian to the Kabardiens and the Circassians proper of the mountains, let us turn to their history. First, the Kabardiens; the name is as old as the days of Constantine Porphyrogenitus, as applied to a large division of the Circassian nation. As applied to the district now occupied by Kabardiens, it is much more recent. Their ancient seats were among the Beschtau, or Five Mountains, the most northern spurs of the Caucasus, when in the sixteenth century, in the quaint language of Klaproth's translator, "The Tscherkessians, weary of everlasting war, at length abandoned the Beschtau, or the Five Mountains, and removed nearer to the Terek, where they settled on the river Baksan, in the Russian territory. They had then at their head two princes, the brothers Kabarty-Bek, who, quarrelling on account of this change of abode, parted, and divided the Tscherkessian nation between them. The elder remained on the river Baksan, but the younger, with his followers, proceeded to the Terek, and thence afterwards arose the division of their country into the Great and Little Kabardah. The princes and usdens (nobles) of the nation professed Mohammedanism, but the mass of the people and the peasants were Christians of the Greek persuasion, and had churches and orthodox priests among them." This story of Klaproth's, obtained by him apparently from the Count Potocki, is so reasonable, and happened within such a recent period, that it may well be accepted. It is confirmed by the traditions of the Basians, who relate that they occupied the Kabardahs before the Circassians, and were driven into the mountains on the arrival of the latter. The subsequent history of the Kabardiens is easily accessible; it would not assist us in our present inquiry.

Jehosaphat Barbaro, the Venetian ambassador to the Persian court in 1474, calls the present Kabardah by that name, according to Klaproth. This somewhat antedates the arrival of the Kabardiens. It may be a mistake of Barbaro; for in 1497, in a map made by Fredutio of Ancona, found in the library of Wolfenbuttel, the name Cabardi stands somewhat west of the present Tajanrog. Here it is also found nearly two centuries earlier (about 1312) in some manuscript maps preserved at Vienna; in the latter it is spelt Cabari. The upper part of the river Belbek in the Crimea is known as the Kabarda. Lastly, Constantine Porphyrogenitus places the Cabari on an

island at the mouth of the Kuban. So much for the Kabardiens.

Since the Russian extension into the Caucasus, the Circassians of the mountains have been driven much further to the south. Many of their tribes lived formerly on the Kuban. The island of Thaman and the whole coast of the Black Sea, as far as Anapa, was in their possession. They then used to go in numerous caravans to the lakes between Kislar and Astrachan to fetch salt. Georgio Interiano, who wrote in the fifteenth century, places their northern limit at the Don. We have already said that a river in the Crimea is called Kabarda.

In that peninsula, situated between the rivers Katscha and Belbek, is a tract known as Tscherkess-Tüs, or the Plain of the Tscherkessians; there are also the ruins of a castle, called by the Tartars Tscherkess-kjermän. It is well known that the capital of the Cossacks of the Ukraine was known as Tscherkesh, a name also adopted by the Cossacks of the Don for their capital. In the Russian annals the Cossacks are frequently referred to under the name Tscherkessians. In 1500 Agatscherkess is named as a chief of the Azof Cossacks. Lastly, and perhaps most important of all, the Nogays still call the whole country between Kabardah and the Katscha, Therkestus (*vide* Pallas, i. 392). All these facts show how wide-spread and important the Tscherkessian name was in southern Russia and the plains of the Kuban, before the Mongol supremacy. But our evidence is not yet finished. The name Tscherkess has been held by Klaproth to be a Turk gloss, compounded of "Tcher," a road, and "Kesmek," to cut off, meaning a cutter-off of roads, *i. e.* a brigand. Whether this be so or not, I cannot look upon the name Tscherkess as an ancient one in the Causasus, nor can I see any evidence, save a similarity of sound, for identifying it with the Kerkites of the ancients. To the Ossetes and Mingrelians, the Tscherkessians are known as Kassack, and the Ossetes have a tradition that the Kabardiens were so called before the emigratien from the North. We thus get an explanation of the term Kasachia of Constantine Porphyrogenitus.

We also get the origin of the Cossack name. The Cossacks (although of Polish and Russian descent), and more especially the Cossacks of the Don, have many customs in common with the Circassians, and succeeded to the name as well as policy of their predecessors, the Kassacks, or, as they are called by Nestor, the Kassogi. The name Kassack appears for the first time in Cons. Por. and had apparently very limited use. We must search for the Tscherkessians under some *other* name if we are to find them in the pages of the earlier Byzantines and the Arab geographers. With both these latter the name Khazar is by far

the most important in these regions, in the eighth and two following centuries. The Caspian was known as the Chazarian Sea; the plains west of the Volga as the land of Khazaria, while the same name was more particularly applied to the Crimea. As the name Khazar gradually disappears, the name Tscherkessian predominates. They both occupied the same area, and we are led to the inevitable result that they were the same people under two names; the more so, as, especially in the case of the Crimea, the Circassians are the only race we know whose early history is compatible with their being the descendants of the Khazars, all the Turkish tribes being excluded from such a claim, as we showed in starting. This very reasonable position is abundantly corroborated by other evidence. Thus the Circassians have a tradition that they were formerly the masters of the Nogays; the Nogays, as we have shown in another paper, are chiefly the descendants of the Comans or Gusses. In the accounts we have of the earlier struggles of the Comans, we generally find them fighting in alliance with the Khazars. With the Khazars they invaded the Russian and Petchenegian territory. When Klaproth went to the Caucasus he was furnished with a long list of names of the Polowzian or Comanian invaders of Russia, preserved in the chronicles. They were always the names of leaders or chieftains: these names had been a puzzle to previous inquirers. They were clearly not Turkish; no such names are found among the Nogay hordes. Klaproth, to whose pages I refer the credulous for proofs, found that with very few exceptions these same names are still the names of princely families in Circassia, and that they are confined to the Circassians. This chain of argument seems to me to be complete, nor could a more crucial test be chosen. My only wonder is that Klaproth never fell upon the notion that the Khazars were the ancestors of the Circassians: the more so, as the fact is attested by still clearer evidence if need be, namely, the testimony of Constantine Porphyrogenitus, who mentions the Cabari as one of the tribes of the Khazars, and even as the chief tribe, to which the predominance was willingly allowed. These Cabari can be no others than the Kabardi and Kabari of later writers.

The only vestige remaining of the language of the Khazars, in the shape of a gloss, is the name of their capital, Sarkel, which, according to Constantine Porphyrogenitus, means the "white dwelling." Sarghili in Hungarian would mean "yellow place." Klaproth says that in the Vogul dialect and in western Siberian, sar, sarni, sorni, and sairan mean "white." In many Samoyede compounds the same word is found, as syr, sirr, and siri. Among them a house is called kell, kella, kuel, koual, kal; among

the Tchuvash, kil. The significance of this derivation will appear in a future paper.

The Arab geographers Ebn el Ethir and Schems-ud-din respectively connect the Khazars with the Georgians and the Armenians. This sufficiently distinguishes them from the Turks, and is no bad guess at some of their superficial relations, if they were Circassians. That the Khazars were very distinct from the Turks physically is perhaps best proved by the fact that the Russian princes and the Byzantine grandees chose their wives (one of whom was the mother of Leo the Khazar, who succeeded to the imperial throne in 758) from among them; and so common was this practice, that Constantine Porphyrogenitus, the Chesterfield of his day, severely warned his son against such a pernicious example. Here, again, we are reminded of the popularity of Circassian beauties even in our own day, and can only credulously smile when we find the Khazar brides identified with the ancestors of the repulsively ugly Nogay women.

This accumulation of facts seems to me overwhelming. On the other side we have only the dictum of Zeuss, supported by the statement that the titles in use among the Khazars, such as Bec or Beg, Khan or Khacan, &c., are Turkish. Now Bec or Beg is unquestionably found as a particle in Circassian names. Khacan or Khan is a title common to the Bulgarians, Avares, and Russians, and is the same as the Norse Hacon. Nor do I know of a tittle of evidence for making them peculiarly Turkish glosses.

That the Khazars had no Turkish blood in them I will no more affirm than I would make the same assertion of the Circassians. The Khazars were constantly in alliance with the Turkish Gusses, in the forays made by the latter upon the Russians and the Petchenegs; and further, the body-guards of the Khazarian princes were formed, as those of the Arab emirs of Transoxiana were, of Turkish mercenaries. In the case of the Khazars these were known as Larssiyes, a name very ingeniously compared by D'Ohsson with Alars, a tribe of the Kaptchaks, according to Schems-ud-din. These Turks must in both cases have corrupted the language and race materially. But such corruptions can no more make either Khazars or Circassians Turks than Anglo-Saxon corruptions make North Wales into a German-speaking province.

The name Khazar has received many etymologies. Strahlenberg made it identical with the Hungarian Huzzar or Hussar. I think it very probable the latter may be derived from the former. Chazar in Slave means an emigrant, according to Bohucz. The Persians called all the Sunnites, or followers of Ali, Chadshars; the term Chadshar, therefore, with them is equivalent to that of heretic with us, and Klaproth derives from it the

German term for heretic, "Ketzer." The Lesgs call the Jews Ghusar, which is their way of pronouncing Khazar. Ouseley translates Khazrians by Christians. The Chinese mention a western people called Kosa. Vivien St. Martin connects them with the Katiars of Herodotus and the Cotieri of Pliny, Scythian tribes. Whatever the value of these suggestions, it is more to our purpose to know that the Khazars were divided into two sections by the Arabian geographers,—the Black Khazars and the White Khazars, distinguished by very marked peculiarities, the former situated to the north of the latter. These divisions correspond, as Zeuss, Schlætzer, and Thunmann have already pointed out, to the Black and White Ughres of Nestor, the former of whom were the Hungarians or Magyars. They correspond also, as I believe, to the Black and White Huns of other writers. The White Huns, or Epthalites, of Priscus (on whom Vivien St. Martin has written an elaborate essay, which I have not been able to procure) were, as is well known, the invaders who overran Transoxiana about the sixth century, and formed a considerable power there. They were, I believe, the Khazars, who at a later date (819–820) were assisted by the Khorasmiens against the Turks of Khorassan, and converted by them to Islamism, as related by D'Ohsson from Ebn el Ethir. This identification is very important. These White Huns must have come from the Khirghiz desert. Even Dr. Latham, whose Turcophobia is so pronounced, allows that the Khirgises are, in name and in many respects, other than Turks, though their language is unquestionably Turkish. I believe with him that Khirgis, a mere form of the ancient Kergis or Kerkis, is the same word as Circassian or Tscherkessian; the more so, as the Khirgises, like the Tscherkessians, are known as Keseks or Kassaks. I believe also that the almost simultaneous invasion of Transoxiana and Europe by the Khazars was a consequence of their being driven out of their native country by Turkish invaders. That native country called Bersilia by Theophanes and others, I can find no room for anywhere, except in the Khirgiz steppe, where it is actually placed by Moses of Chorene (*vide infrà*). Before this invasion the Khazars occupied the country north and north-west of the Aral and the Caspian, and the Turks were confined to more eastern and northern regions, the Altai and the banks of the Irtysch.

We may now trace out rapidly the history of the Khazars, for which the Arabs and the Byzantines have left us abundant material. I shall not discuss the traditional and other early invasions of the Caucasus by the Khazars mentioned by the Armenian historian Moses of Chorene, and in the Georgian annals, because it is very doubtful if the exploits of some other race have not been credited to the Khazars, and because we are

going somewhat beyond our subject (already involved enough) in discussing them. I shall commence with Theophanes, who is the first Byzantine who clearly mentions them, and describes the part they took in the invasion of Persia by Heraclius in 626, when they forced the Caspian Gates, and entered Adjerbaidjan. This temporary foray was followed by a general invasion in the reign of Constantine III., between the years 642-688, when leaving the land of Berzilia, and driving the Bulgares before them, they occupied the plains east of the Don, as far as the Euxine. Batbaia, one of the princes of the Bulgares, was made tributary. The country Berzilia has been a puzzle to most geographers. Herodotus names the Katiars with a people he calls Basiliens (Royal Scyths). Pomponius Mela, Pliny, Strabo, and Ptolemy all mention them. Moses of Chorene, in the fifth century, says the Volga divides itself into sixty branches, on which is settled the Barsileen nation. We cannot be wrong in placing Berzelia in the Kirghiz steppe, east of the Volga. The relations of the Royal Scyths of Herodotus with the Circassians, through the intermediate links of the White Huns of Claudian and the Acatziri of other authors, is a promising subject, which we must postpone to another occasion.

The Khazars speedily made tributary the neighbouring Russian tribes, as appears from Nestor, and made incessant incursions into Armenia and the other appanages of the caliphs south of the Caucasus, which are detailed by D'Ohsson.

At the demand of the Khan of the Khazars, the emperor Theophilus sent engineers, in 834, to build a fortress on the Don, as a protection against the Petchenegs. This was the celebrated Sarkel, known to the Russians as Belaia Wess. Lehrberg has fixed the situation of Sarkel about seventy versts from the mouth of the Don. Another of their towns was Phanagoria or Tamatarkha. In the tenth century their territory was bounded on the south by the Caspian and the last spurs of the Caucasus; on the west by the Don, which separated them from the Petchenegs, by the Mæotis and the Cimmerian Bosphorus; on the north by the Bulgarians of Great Bulgaria on the Volga; and on the east by the Baschkirs and Gusses. Such are the limits fixed by D'Ohsson; but from the first invasion of the Khazars they must have occupied the flat country of the Crimea, which was known as Khazaria down to the times of the Genoese supremacy at Kaffa. The previous masters of the peninsula had been a remnant of the Goths. These were now driven into the mountains, where their stronghold was known as Kastron Gothia to the middle-age writers. We are told that in the reign of Constantine the sixth (780–797) the Gothic Bishop St. John Parthenites had to flee for having attempted to detach the Goths from their subjection

to the Khazars. South of the Kuban, the Alans long contested the supremacy of the Khazars, but like the Gusses and the Petchenegs they had to submit to the superior energy and perhaps culture of the Khazars. The power of these latter seems to have been effectually broken by the great Russian conqueror, Sviatoslav, who overran their country and took their capital, Sarkel. Thenceforward the Gusses seem to have gradually gained ascendancy. The Khazar nation was divided into two sections, one in the Crimea, the other pressed beyond the Kuban; the former retained the old name, came into constant contact with the Genoese, and became the ancestors of the Kabardiens, whose emigration we have already mentioned; the latter began to appear in the Russian annals under the new name of Kassogues, perhaps so called from their chief tribe, for we are told by Constantine Porphyrogenitus that one of the tribes of the Khazars was called Kosa. So late as 1226, the Khazars formed the van of the Georgian armies in their invasions of Persia. We have thus traced the history of this extraordinary race, and, I think, succeeded in proving their connexion with the Circassians. In conclusion, I would give, from Fraehn's 'Extracts de Chasaris,' a few particulars about the manners and customs &c. of the Chazars.

Ibn Fozlan, who wrote about 921, A.D., Ibn Haukal, about 976–977, Maçoudi, about 943–947, and Yakout, about 1220, are the chief authorities made use of by Fraehn. From these I take the following:—

The Khazars differed entirely from the Turks, the Persians, and the Russians in language. Their language was the same as that of the Bulgarians. In their appearance they also differed from the Turks. There were two kinds of Khazars: one, the Black Khazars, of a dark colour almost approaching that of the Indians; the other of a fair complexion, and a handsome and distinguished look (both kinds had black hair). The idolaters among the Khazars sold their children into slavery, and held it right to make one another slaves; the Christians and Jews among them held this to be wrong. Their king was a Jew; the Khazars themselves were Mahommedans, Christians, and idolaters; a few, like their king, were Jews. The soldiers were chiefly Mahommedans. According to Ibn el Asir they formerly followed the religion of their ancestors, *i.e.* idolatry. In the eighth century, and during the reign of Haroun al Raschid, the Jews were expelled from the Greek empire; finding the Khazars a tractable race, they converted them, but some time after they became subject to the Khorassan Turks. Having sought assistance from the Chorezmiens against these Turks, the latter offered their assistance conditionally on the Khazars embracing Islamism,

which most of them did. Thus does the Arabian historian relate the conversion of the Khazars.

The king of the Khazari was called Khakan, or the great Khakan; he was a mere *roi fainéant*, kept in rigid seclusion; he was shown on particular occasions, and held more the position of the Dalai Lama than that of an ordinary ruler. He had twenty-five wives and sixty concubines. These wives and concubines lived in a separate house, known as the Kubba; each one had a eunuch to wait on her.

When the king went out on horseback, he was attended by all his army, who kept off the vulgar gaze. His throne was a rich erection of gold and hangings; his commands were held so sacred that any one turning his back on any commission appointed by him had his head taken off. He was not allowed to reign more than forty years, and when that limit was reached he was strangled, or allowed to commit suicide. Occasionally, in times of dire calamity, the king was required to sacrifice himself for the people. The same story is told about him that is told of Attila, and doubtless true in both cases, that on his death a palace was built in the bed of a river, and his corpse placed inside, and the river then diverted over it, those who took part in the erection being all killed. His unknown resting-place they called Paradise. They held it safe from the attacks of men or worms. The Khacan of the Khazars was held in high esteem at Byzantium. He was addressed as the most noble and illustrious Khacan of Khazaria. Letters addressed to him were sealed with seals of the value of three solidi, while those on the letters to the most illustrious European potentates were sealed with seals of the value of two solidi only. We have said that the Khacan of the Khazars was a mere *roi fainéant*.

The real ruler (he who commanded the army, made peace and war, and was *de facto* the king, although nominally only a vicarial sovereign) was known as the Khacan-bh (Khacan bey?), or simply the Khan. Such was Ziebil, who assisted Heraclius against the Persians. Next to him was one called Kender Chakan; next to him again, another, who bore the title of Tschaŭschian. These great dignitaries alone had audience of the sacred king, the great Khacan. The body-guard of the king consisted, as we have said, of Turkish mercenaries, called Larssiyés; they were 7000 in number, all armed with bows and lances, equipped in helmets, in cuirasses, and coats of mail (compare this with the modern Circassian uniform). Russians and pagan Slaves also formed a portion of the Khazar army. Justice was administered at Itil, the capital of Khazaria, by seven judges: two Mahommedans administered the law of the Prophet, two Khazars that of the Hebrews, and two Christians that of the Gospel. The seventh

for the Slaves, the Russians, and other pagans judged by the law of nature. In difficult cases the latter consulted the Mahometan cadhis, and was ruled by their decisions. The king was in constant communication with the judges.

Security of property and ample justice, we are told by the Arab authorities, led to the settlement at Itil of a great number of merchants, as many as 10,000. Copper and silver were both found in Khazaria; but its chief wealth consisted in its being the entrepôt of a vast trade: honey, wax, the roe of the sturgeon, and furs, especially otter-skins, passed this way from Russia and Bulgaria to Persia, and no doubt the products of Persia and the East returned by the same route. Itil itself was a large city of wooden houses, containing thirty mosques and a large cathedral, with schools attached. Besides Itil, the Arabs describe three other cities of the Khazars,—Belendscher, Semender, and Chamlidsch; the Georgian chronicles have several more; but this will suffice. It will be seen, even from our meagre relation, that the Khazars were a people highly advanced in the arts, a people with an ancient civilization, with customs, such as those attaching to their king, pointing to an old history. We have brought them from beyond the Volga, we must follow them there on another occasion. It must suffice us now to have proved them to have been the ancestors of the Circassians, to have brought the latter isolated race into more close connexion with the history of Eastern Europe, and to have somewhat simplified the tangled subject of the ethnology of the Caucasus.

NOTES AND QUERIES.

Meneam.—This people of cannibals, among whom Dr. Livingstone in his last letter announced that he was about to take his course, and whom he stated to be, on native authority, notorious cannibals, are the Niam Niam or Nya Nyas, the people in the western ranges of the district of the Nile. Livingstone has either carried out that intention, or, from fear of the Nya Nyas, he has sought to return by the course of the Congo, and may thus have exposed himself to the misfortune alleged to have befallen him.—HYDE CLARKE.

Turkish "Know" and "Sow."—In Turkish *cognoscere* and *scire* are distinguished, being respectively *tanemak* and *bilmek*. *Sow* and *Sew* are represented by one verb, *dikmek*.—HYDE CLARKE.

T. M. Del.

AYMARA MAN

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XXIII. *On the* Aymara Indians *of* Bolivia *and* Peru.

By David Forbes, Esq., F.R.S., F.G.S., &c.*

(Read June 21st, 1870).

The country inhabited by the Aymara race of Indians is nearly equally divided between the two South-American republics of Bolivia and Peru, forming the most northern or, rather, north-western part of Bolivia and the southernmost of Peru.

From north to south it extends from about 15° to 20° of south latitude; but from east to west it is more difficult to define its limits with any approach to exactitude, owing to the existence of several outlying colonies of these Indians; the Aymara country proper, however, may be regarded as bounded by the two great chains of mountains called by the Spaniards the Cordilleras de la Costa, or Coast Andes, and the Cordilleras de los Andes, or High Andes, which in this part of South America traverse somewhat obliquely the provinces of Peru and Bolivia, situated between the longitudes 67° and 72° west of Greenwich. The district itself, now only sparsely, but in former times much more thickly populated by these Indians, may be estimated as about 300 English geographical miles in length, with a breadth of about 150 miles, and consequently represents a superficial area of about 45,000 square miles.

The whole of this country is situated at a great elevation, and may be looked upon as an extensive table-land, having a minimum altitude of 10,000 feet, above which again rise several more or less parallel north and south mountain ridges, whose snowy peaks frequently attain double that height, or more than 20,000 feet above the Pacific Ocean; amongst these might be mentioned the volcanic cones of Sajama and Tacora, in the

* [Special circumstances connected with this paper have led to its early publication.—Sub-Ed.]

western range, which, upon measurement, were found to be 23,014 and 22,687 feet, as also the Silurian mountains of Illampu (Sorata) and Illimani, in the most eastern chain, respectively 24,812 and 24,155 feet above the level of the sea.

This high plateau extends further both to the north and south, but upon its other two sides it terminates abruptly by rapid descents into regions but comparatively little elevated above the level of the sea, which differ very greatly from it, as well as from one another, in both climate and general geographical features. On the east side, the greatest heights of the Andes look down like precipices upon the virgin forests and the low, humid, hot valleys and plains, irrigated by copious rains, and traversed by mighty rivers, which divide the republics of Peru and Bolivia from the empire of Brazil, the change being so sudden that the traveller descending from the perpetual snows of the Andes finds himself in the course of but a few hours' journey amongst the palms and luxuriant hothouse vegetation of the tropics.

On the western side, however, the change, although seen to be equally sudden, is altogether different in character; for upon leaving behind the cold misty mountains and streams of the Aymara highlands and crossing, as it were, an almost sharply defined line, every thing in the shape of moisture vanishes; the air becomes all at once clear, dry, hot, and scorching; and the mountain-declivities and sloping plains, which extend to the Pacific Ocean, present the appearance of an arid and, in many parts, saline desert,—a rainless region, destitute of water and, consequently, of verdure, in which few living creatures are to be seen, other than the numerous lizards basking in the sun, or the occasional huanaco which has strayed down from the mountains above. Vegetation is altogether absent, or at most only represented by a few solitary cactus trunks, except only in some few favoured small valleys (like cañons) far distant from one another, in which some small rivulet or natural spring exists, furnishing the basis for a luxuriant vegetation, like an oasis in the midst of a desert.

If the latitude of this country be alone taken into consideration, and its altitude above the sea-level neglected, the climate of this high table-land will be regarded as an extremely severe one. Above 17,000 feet the mountains are covered with perpetual snow; but below this elevation the snow seldom remains for more than a few days at a time. The year may be divided into a rainy and a dry season; the rainy season, commencing in November or December, continues until April, with heavy rains and occasional snow-storms, the weather usually cold and raw, the thermometer indicating between 40° and 50° F., and not

unfrequently descending to the freezing-point, or even some few degrees below it, whilst the air is usually damp, and the mountains are enveloped in dense misty clouds.

In the dry season, from April to November, the climate is fine and rather agreeable, the thermometer in the shade ranging from 50° to 70° F.; but in the sun the air is extremely scorching, and often accompanied by winds, which are so dry and parching as to affect the face and eyes in an extraordinary degree, blistering and drying up the skin to the consistence of horn, and making it crack and peel off, so as to cause extreme irritation, and even temporary disfigurement—so much so that when travelling in the Puna region it is customary amongst the whites to protect the face by masks or veils. During this season storms of rain and wind, with thunder and lightning, often of a truly terrific nature, are very common, and frequently cause considerable loss of life to man as well as beast; these storms are often accompanied by hail of great size, and, as I have noticed, sometimes of a peculiar conical form.

Situated near the northern extremity of this district is the greatest sheet of water or inland sea of South America, called the Lake of Titicaca *, covering a superficial area of about 2500 geographical square miles, being 100 miles in length from N.W. to S.E., with an average breadth of about 25 miles, although it is some 35 miles across in its broadest part. The surface of this lake is elevated 12,850 English feet above the level of the sea; and its waters are somewhat brackish. When not agitated by the winds, I found the surface-waters almost fresh to the taste; but it was evident that in depth the lower stratum of water was much more saline.

The shores of the Lake of Titicaca still remain the home, and no doubt also were the original cradle of the Aymara race, from which neither the victories of the Incas nor the subsequent conquest by the Spaniards have succeeded in dislodging them, notwithstanding that this has been the case with so many of the other tribes of both North and South America. The Aymara † or, as they were frequently termed by older Spanish

* This name is supposed to have been derived from the Aymara words "Titi" and "Caca." "Titi" is the Aymara name for tin, the ores of which are found in large quantity on the east side of the lake at Carabuco; and "Caca," a rock. Titi is also the name for the wild cat in Aymara; and as there is a tradition amongst the Indians of the appearance at times of an enormous wild cat on the island of Titicaca, some of the old Spaniards have accepted this interpretation.

† It is believed that the name Aymara was applied to this race of Indians even before the foundation of the Inca empire (*vide* Garcilasso de la Vega, Com. Real. de las Incas, Book iii. chap. x. p. 84). The name of Colla Indians is of much later date, and is derived from their being inhabitants of

writers, the "Colla" Indians are the only race in Peru or Bolivia at all entitled to the appellation of the "Titicaca race," which term has been quite incorrectly applied by Tschudi and others to the Inca or Quechua nation, a race totally distinct in language, character, and geographical position.

Under the Inca dynasty the Aymaras, although subjugated, appear to have remained more as a tributary people, without ever being actually incorporated into the empire; and consequently they never became assimilated into the great Peruvian or Quechua-speaking nation, as was the case with the numerous Indian tribes both to the north and south of them. Even to the present day they remain more or less isolated, and in many respects almost unchanged, retaining their ancient language, and a sort of national existence more pronounced probably than any of the other Indian races now remaining under the Hispano-American rule.

Most of the Indian languages in both the Americas have become all but extinct, and gradually replaced by Spanish or English. The only ones which, in Spanish or Portuguese South America, have survived are the Quechua in Northern Peru and Southern Bolivia, the Aymara in southern Peru and Northern Bolivia, and the Guarani in Brazil and Paraguay; these three may still be said to remain the languages of the countries, being, like Hindostanee in India, generally spoken by the white inhabitants also, and alone used by them in their intercourse with their domestics and with the mixed and pure Indian population.

The history of the Aymaras calls to mind the ancient history of the Welsh, where the inhabitants of Wales, unable to oppose their more numerous invaders in the open field, retired to their mountain fortresses, and, by their dogged but patriotic character, managed not only to prevent their being absorbed into the mass of their more powerful neighbours, but to preserve their ancient language and many of their customs even down to the present day.

What little is known of the early history of this race may be stated in but a few words. According to Indian tradition, from Aymara as well as Quechua or Inca sources, the inhabitants of this country, even in or before the time of the first Inca, Manco Capac (1021–1062), possessed a degree of civilization higher than that of the Incas themselves, or probably of

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Colla-suyo, or the southern division of the Inca empire, which was divided into four grand quarters, known as the Chincha-suyo, or North; the Colla-suyo, or South; the Anti-suyo, or East; and the Cunti-suyo, or West. The term Colla Indians probably included many other Indian tribes in the south, and may be regarded as a purely geographical name.

even any other of the South-American tribes; and evidences attesting this may still be seen in the ruins of the grand temples and palaces of Tiahuanaco, on the southern shore of Lake Titicaca.

At this early period, however, every thing is involved in darkness, until Lloque Yupanki, the third of the Incas (1091–1126), in a war against the Aymaras, overran the entire district, situated on the western side of the lake of Titicaca, inhabited by these Indians, and annexed to the Inca dominion the whole of that portion of the Aymara country at present included in the republic of Peru. Although his victorious progress was stopped by the river Disaguadero, which runs southward from the Lake of Titicaca, his successor, the fourth Inca, Mayta Capac (1126–1156), continued the war, crossing the Disaguadero and taking Tiahuanaco, which at that time appears to have been the seat of government of the Aymaras, and extending his conquests southwards, over the provinces of Caquiaviri, Huarina, Larecaja, Huaichu, and Chuquiapu, now called La Paz.

The victories of the fifth and sixth Incas carried their arms still further southwards; and under the seventh Inca, Yahuar Huaccac (1249–1289), the subjugation of the Aymara-speaking or Colla Indians was completed by the conquest of Carangas, their most southern province; after which his successors on the throne extended the Peruvian empire northwards, westwards, and still further to the south, so as to annex not only the remainder of Peru and Bolivia, but, traversing the desert of Atacama, to include the greater part of Chile, as far south as the river Maule, before the arrival of the Spaniards in 1526.

With the exception only of the Aymaras, all the other Indian tribes thus brought under the rule of the Incas seem to have been quickly deprived of all traces of a separate national existence, losing even their language and adopting that of their conquerors, the Quechua or, as it was called by the Spaniards, the "Lengua general del Peru," and otherwise becoming in every respect identified with the conquering race. The Aymaras, on the contrary, never submitted tamely to their Peruvian masters, but from time to time gave them much trouble by attempts to recover their independence, which, however, always proved unsuccessful, and invariably were punished with extreme severity.

According to an old tradition, the entire population of the province of Aymaraes, after an unsuccessful revolt, were forcibly removed into exile by the Incas, and the country repopulated by Quechua-speaking colonists from a distant part of the Empire. One of the last attempts made by the Aymaras to throw off the Peruvian yoke appears to have been by the inhabitants of

the province of Carangas not many years before the arrival of the Spaniards in the reign of the twelfth Inca, Huayna Capac (1475–1525), and was only put down after much bloodshed; according to a tradition still preserved in the district, a great number of the prisoners taken in this rebellion were, after having had their throats cut, thrown into a lake, which from that time has retained the name of "Yahuar Cocha" or the Lake of Blood.

Whatever may have been the condition of the Aymaras under the Incas, it became infinitely worse after the Spaniard conquest; it is all but impossible to convey in words a true picture of the barbarous treatment which they, as well as the neighbouring Indian tribes, experienced at the hands of the Spaniards. Treated infinitely worse than slaves, they were torn from their homes and families to be driven like cattle either to the coca plantations and gold-washings in the Yungas, or hot unhealthy valleys to the east of the high Andes (where they rapidly fell victims to a climate altogether unsuited to their constitutions), or to the silver mines of Potosi, Chayanta, Oruro, &c. (where from forced labour, ill-treatment, and insufficient food they succumbed equally fast, only to be replaced by fresh supplies similarly obtained).

The statements made by some of the old writers on this subject seemed altogether incredible until a personal acquaintance with the country showed that they were not exaggerated. Everywhere proofs are seen of a former dense population: deserted villages are met with at every step; and the sides of the mountains even, in many parts up to the very line of perpetual snow, are covered with walled-in enclosures, fields, and terraces which had formerly been cultivated but now lie desert and abandoned; and the traveller who journeys day after day through such districts cannot but believe that the Aymara country, which does not now contain a population of much more than three quarters of a million, must in former times have contained several million inhabitants.

Notwithstanding the naturally submissive character of the Indians, the cruelties of the Spaniards at last drove them, in 1780, into open rebellion; the Aymaras under the Cataris, joined soon after by some of the Quechuas under Tupac Amaru, rose up against the whites and all but effected their entire extermination; as it was, more than 40,000 Spaniards perished, and the country was only saved to the crown of Spain by the arrival of an army sent from Buenos Ayres to the rescue.

The effect of this insurrection was, as might be expected, to paralyze and in great measure destroy the commerce and industries of the country, more especially the mines, to such a

degree that they have never yet recovered. Soon after, the war of South-American Independence broke out, continuing until 1826, and followed by the endless civil wars and internal dissensions in the new republic, which still continue, and have resulted in this rich country retrograding instead of advancing with the age.

In these wars, the fighting fell all but entirely to the whites and mixed races, the pure Indians looking on and abiding their time until the governing powers should have exhausted themselves: and as during this period, if not better treated, the Indians had at least been left more to themselves, they rapidly increased in numbers and became every day more confident in their own strength. In 1854 it was discovered that they had made preparations for an immediate rise; and had they done so, they must have completely overpowered the whites, had not, fortunately for the latter, a terrible epidemic (a species of typhoid fever) broken out amongst the Indians and, without attacking the whites, committed such havoc amongst them as to all but depopulate entire districts. In 1860 an attempt to rise was made on a small scale by the Aymara Indians of Tiquina, in which some horrible cruelties were committed on the unfortunate whites who fell into their hands; this rising, however, was entirely local, and was very quickly suppressed by some Bolivian troops under Colonel Flores.

There can be no doubt, however, that the Aymara Indians cherish the most deep-rooted and inveterate hatred towards their white oppressors, and console themselves with the hope that sooner or later they will be enabled to repossess themselves of the country of their ancestors.

The condition of the Aymara Indians under the Republics of Peru and Bolivia, although no doubt infinitely better than in the time of the Spaniards, is nevertheless still very deplorable. Although declared free by the constitution, they in reality are only serfs, being ill treated and imposed upon in all manner of ways* by both the civil and military authorities, as well as by the white population in general, who all combine to plunder them whenever an opportunity occurs; so that it is no wonder that the poor Indian is never happier than when he is up amongst his mountains far away from the white man.

The Aymara Indians in the country generally live in little straggling villages or clusters of houses, and are associated in what are called "Comunidades," to which the governments of the Republics have apportioned the major part of the land not

* Cortes, in his 'Ensayo sobre la historia de Bolivia,' Sucre, 1861, p. 300, says, "Los indios, a causa de su ignorancia, no saben hacer valer sus derechos, que no son mas que un nombre, y todo el mundo se cree facultado a abusar de aquella clase degradada de nuestra sociedad."

occupied by the whites, and in return impose upon the Indians an annual contribution or, as it is termed, "tributo," amounting to some 4 to 10 Bolivian dollars per annum, payable half-yearly. At the head of each of these Comunidades is an Indian (one of themselves), who has the title of Alcalde, and carries, as a mark of office, a sort of wand not unlike a thick long English carter's whip (without the lash), and like it usually decorated with numerous ferrules, or flat rings, often of silver. The Alcalde is responsible for keeping the Indians in order, and is the medium of communication with the white authorities of the district. All their internal affairs are managed amongst themselves, including the subdivision of the lands amongst the families, in which the widow always takes her share with the others. The white population are exempt from the "tributo;" and since about the year 1856, the Peruvian government, rich from their Huano deposits on the islands of the coast, have not enforced this contribution from their Indians. In Bolivia, however, it still remains one, if not the, most important item of the revenue.

The public works of a district, such as roads, bridges, churches, &c., are all executed by the compulsory and unpaid labour of the Indians in the vicinity.

The Aymara population of Bolivia and Peru together probably does not exceed three quarters of a million, if so much; but I have endeavoured to obtain as near an approximation as possible in countries where not much reliance can be placed in their statistics.

In Bolivia the entire population, as taken in the census made during the summer of 1854, of the Aymara-speaking provinces, eleven in number, was as follows:—

Name of Province.	Pure Indians (Aymara).			White and mixed races.	Total population.
	Male.	Female.	Total.		
La Paz	28,155	31,974	60,129	29,353	89,482
Omasuyos	41,206	45,547	87,753	4,565	91,318
Ingavi	33,459	32,381	65,840	5,870	71,710
Sica Sica	24,111	24,697	48,808	4,509	53,317
Muñecas	16,493	18,319	34,812	6,210	41,022
Yungas	13,082	11,641	24,723	8,802	33,525
Larecaja	10,060	10,380	20,440	6,067	26,507
Inquisivi	8,793	8,454	17,247	3,844	21,091
Oruro.....	9,483	9,822	19,305	6,249	25,554
Paria	21,907	21,115	43,022	1,330	44,352
Carangas	9,846	10,821	20,667	681	21,348
	216,595	225,151	441,746	77,480	519,226

from which it will be perceived that the total admixture of whites and half-castes is not more than 15 per cent.; and of these the large portion are in the city of La Paz, Oruro, and some of the other larger towns. Since the above census was taken, another was made in La Paz, in 1858; but up to the date of my departure from Bolivia, in 1864, nothing but the total numbers of the inhabitants of each province had been published, without particulars as to race: these were as follows:—

La Paz	99,059
Omasuyos	103,976
Ingavi	83,699
Sica Sica	57,666
Muñecas	40,872
Yungas	36,823
Larecaja	31,647
Inquisivi	19,930
Oruro	28,340
Paria	52,618
Carangas	29,973
Total	584,603

and if from this number we deduct 87,236, or the same relative proportion of whites and mixed races as were found by the former census, we shall have the pure Aymara Indians of Bolivia as about 497,367, more or less, in 1858.

In Peru the statistics of the population are far less to be depended upon than in Bolivia; for there seems to have been no census published between 1795 and 1850. In the former year the Guia de Forasteros gives the numbers of the Aymaras as follows:—

Provinces.	Pure Aymara Indians.	Half-caste Aymara Spanish.
Aymaraes	10,782	2,255
Ariquipa	5,929	4,908
Camaná	1,249	1,021
Condesuyos	12,011	4,358
Caylloma	12,872	1,417
Moquegua	17,272	2,916
Arica	12,870	1,977
	72,985	18,852

If, however, we take the census of the population of these districts taken in 1850, by Dr. Buenaventura Seoane, as follows:—

Department.	Province.	Population.	Total.
Cusco	Aymaraes	18,221	18,221.
Ariquipa ...	Cercado	50,040	121,585.
	Camaná	11,270	
	Caylloma	23,449	
	Condesuyos	21,170	
	Union	15,659	
Moquequa...	Arica	18,642	61,440.
	Cercado	32,380	
	Tarapaca	10,418	
Puno	Azángaro	54,333	245,681.
	Carabaya	22,138	
	Chucuito	35,957	
	Huancaná	56,765	
	Lampa	76,488	
			446,927.

and from this number we now deduct, as in the case of the Bolivian census, some 15 per cent., or 67,038, as belonging to mixed races and whites, we shall have the numbers of the Aymara race approximately as follows:—

Peruvian	879,884
Bolivian	497,367
or a total of.....	877,251

a number which seems to me considerably higher than the reality, more especially as regards Peru: the total number of pure Aymara Indians cannot, I imagine, be above three quarters of a million.

Under the Spanish *régime*, owing to the cruel treatment experienced, the Indian population appears to have been reduced to its minimum. After the War of Independence it recovered rapidly up to 1855, when it again became greatly reduced by the epidemic which raged for some years and in parts almost cleared away the entire inhabitants; during the last ten years, however, it has again been augmenting rapidly.

If we consider the total superficial area occupied by this nation as 45,000 square miles, as before mentioned, then the numbers above given will represent about nineteen inhabitants to the square mile. If numbers be taken into the calculation, the Aymara will be the third of the South-American races, coming after the Guarani and Quechua; but, if the superficial area of their country be alone compared, then they will probably rank

about fifth or sixth, since the tribes of the plains of Brazil and Patagonia, although much less numerous, occupy a greater area of country, owing to their nomadic habits—the very contrary of the Aymaras.

Upon my first visit to the highlands of Peru and Bolivia, I was struck with the very characteristic and peculiar appearance of the Indian population in general, as it seemed to me to differ greatly, in many respects, from that of any of the other races of South America or Polynesia with whom I had previously become acquainted. A great difference in the external proportions of the body could be remarked at a glance, especially when an Aymara Indian was seen sitting down or on horseback, and still more strikingly if by the side of a European similarly mounted: the greater part of the entire body seemed to be raised high up above the horse's back, perched up on the legs in a curious manner; and other peculiarities of outline showed themselves, which made me extremely interested in finding out how these differences could be accounted for.

A subsequent residence of some three years in the very centre of the country inhabited by the Aymara Indians, with whom I was brought into immediate and daily contact, offered excellent opportunities for studying them more closely; and, although I now perceive with regret that I could have profited much more than I did by the facilities thus afforded me, still I believe that any details relating to this very remarkable and so little known race of men cannot fail to prove interesting to ethnologists, and I now submit the following abstract of my notes made during the years from 1859 to 1863 inclusive.

The general build of the Aymara Indians may be described as massive without being large; short, thickset, beardless men, who, as far as my measurements enable me to judge, do not average above 5 feet 8 inches English, and rarely exceed 5 feet 4 inches in height; they are a somewhat large-headed, small-eyed, square-built, broad-shouldered, long-bodied, short-legged, and small-footed race, whose form is more indicative of strength than of beauty or flexibility.

The contours are, as a rule, full and rounded off, rarely, if ever, angular, the breasts being often prominent in the male as well as the female, and the whole outline conveying a somewhat effeminate impression, as is the case with many of the other South-American tribes; so that in youth the sexes are often not easily to be distinguished in appearance from one another, except by dress.

The men are generally well-formed, and sometimes even handsome; but the women, who appeared to average about 4 feet 8 inches in height, are seldom so, being usually far too

robust, as well as heavy in their movements, to possess any thing like grace; yet, occasionally, exceptions are to be met with, who, if washed and dressed up, might, even when placed alongside Europeans, be considered pleasing and good-looking. Neither men nor women, although very robust, appear ever to become corpulent; I cannot call to mind having seen a single instance of a fat person amongst the pure Indians; yet amongst the "Cholada," or half Indian half Spanish race, this is frequent enough.

Throughout the whole of the Aymara-speaking country these Indians present a remarkable uniformity as well in their habits and customs as in their outward appearance; and this seems to have been so from time immemorial, since the representations on ancient sculptures, pottery, and the little images found in the Indian graves are, in many cases, but copies of what the Indians themselves are at the present day, and in some instances not only show the exact character of the face, but also indicate the peculiarities of the relative proportions of the body as seen in the Aymaras at present.

The appearance of the face and head of what I regard as the normal Aymara of the highlands or Titicaca region may be seen (male and female) on reference to Plates XVII. & XVIII., which represent very correctly an Aymara man and woman of the Department of La Paz, in Bolivia*, and were drawn from life by Mr. Isidore Müller expressly for me. In some parts of the country, however, especially in the north, where the Quechua-Indian race commences, another type of face is also seen amongst the men (it is rarer in the women), represented in Pl. XIX. This, however, is quite a subordinate type; and, as will be perceived, the shape of the head is somewhat rounder, and the expression far from being so good as in the normal type; excepting only the head, I found that the proportions of all the other parts of the body were identical in both these types.

The facial angle differs but little from that of the European; and the features and profile of the normal Aymara are decidedly good. The head always appears to be somewhat long from behind to before, and, if any thing, somewhat large when compared with the body; it appears to be less wide than the Quechua head: the cheek-bones are seldom very prominent, except in old age, and the face is only slightly oval, the hair on the forehead in the men, and still more so in the women, descending very low.

The extraordinary elongated skulls (many of which have been received in Europe and have been frequently figured as

* The figure given in Smith's 'Natural History of the Human Species,' of an Indian of the Oto tribe, in North America, is almost an exact likeness of Conduri, an old Aymara man, some time in my service.

AYMARA WOMAN

well as described) which are met with in the ancient graves on the islands in the Lake Titicaca, in the Aymara country, have been described and regarded by Tschudi as natural and peculiar to what he calls the Titicaca or Inca race. As before mentioned, the Inca or Quechua race cannot be correctly termed a Titicaca race, since the entire shores of Lake Titicaca have even from pre-incarial times been solely inhabited by the Aymaras, although subsequently conquered by the Incas. Elongated skulls are not confined to this district*, or even entitled to be considered natural productions; if the evidence to prove their artificial origin is allowed due weight, the partial or total obliteration of the sutures in all those skulls which I examined must be regarded as so many proofs of the application of compression in infancy; and Bolivians who have disinterred them assure me that in the same graves (family or tribal burial-grounds) many other skulls of the usual form were always found along with them, and that the general opinion was that these elongated skulls belonged to the families of chieftains, amongst whom it was considered a mark of distinction to so distort the head (of the male only) in childhood. Although Tschudi mentions that he could not find any evidence to show that such practice of compressing the head was usual amongst the ancient Peruvians, I found full proof to the contrary upon searching the 'Ordinanzas del Peru,' Lima 1752, where, in tomo primero, lib. ii. tit. ix. ord. viii., we find the decree:—

"Iten mando, qui nigun Indio ni India apriete las cabezas de las criaturas recien nacidos como lo suelen hazer por hazerlos mas largas, porque de averlo hecho, se lesà recrecido, y recrece dafio, y vienen amorrir dello, y desto tengen gran cuydado los Justicias, sacerdotes, y alcaldes y caciques en que no se haga†," which may be considered as settling this question.

The superoccipital or interparietal bone, the os Inca of Tschudi, cannot be considered peculiar to any Titicaca race; for not only was it deficient in all the skulls which I examined from this district, recent as well as ancient, but it was found present in some of the skulls out of the graves on the Pacific coast (out of 111 skulls examined by me at Arica and further south I found 3 with this bone); it seems to me probable, however, that it is somewhat more common amongst the American races than amongst those of other parts of the world, at least so far as our knowledge at present extends.

The general expression of the Aymara face is sad and reflective, melancholic, with at the same time a strong admixture of

* In 1863 I disinterred three fine specimens of elongated skulls from graves on the very edge of the Pacific, at Pisaqua, in the province of Tarapaca, in Peru.

† Spelling as in original.

determination, as if a continual struggle was going on within to conceal the emotions under the appearance of stolid indifference, which, however, is far from real; the expression of stupidity often seen and described by travellers is altogether assumed. The Aymara Indian is always grave, and rarely seen to laugh or even smile; whilst the Quechua Indians are in these respects very different.

The profile is good, the nose being invariably aquiline, except in the instances before alluded to; and in all the ancient figures the nose is also, as a rule, aquiline. In many cases, especially in women, it is often somewhat curved inwards at the point; the nostrils are usually broad at the base, open, and expanded.

The mouth is somewhat large, but not excessively so, the lips being of a yellowish or brownish red colour, often full, but not flabby or thick as in the negro. The teeth, usually very regular and almost vertical, are generally fine and white, unless coloured by coca-chewing; they resist age well, and caries is not very common.

The eyes are always small, black or deep brown in colour, the cornea being, however, never pure white, but invariably more or less yellowish in tint; they are brilliant and generally deep-set, the eyelids being fringed with long, fine, black lashes. The angle made by the central line of the eyes is very slightly inclined inwards, not nearly so much as in the Mongol, yet not altogether horizontal as in many of the Chinese. The eyesight is very good and enduring; the eyebrows are black or brown black, and usually somewhat sparse.

The hair of the head commences very low down on the forehead, and is extremely abundant and long, in the men as well as the women. It is of a deep black-brown or black colour, perfectly straight, without any attempt to curl, and rather fine in texture; on comparison I found that it was never so coarse as the black hair of the Spaniards or half-castes. It is said never to fall off* or become grey or white in old age; and, as far as my own observation extended, I cannot remember ever having seen a pure Indian man or woman, however old, with white or grey hair.

The men wear their hair drawn backwards over their heads, and plaited into a long pigtail, sometimes reaching behind down to their knees; occasionally the hair, after having been drawn back, is first divided into several portions (I often noticed five), each of which are separately plaited for a short distance, and

* The Indians have the custom of washing their hair in urine, which, they imagine, nourishes it; and this disgusting practice is also adopted and generally followed by the Spanish-American women of these parts of South America.

then the whole united into one long pigtail, as before. This same mode of hair-dressing appears also to have been used in more ancient times, as the hair of several mummies which I dug out of ancient graves was put up in a like manner. The women also draw their hair backwards, but then divide it into two portions, which are both plaited into pigtails, one hanging down on each side of the back.

The men are beardless, and, beyond the eyelashes and eyebrows, rarely have any trace of hair on the face, although in some older men I have occasionally seen a few straggling short hairs on the upper lip, but never so much as could be entitled to the appellation of a moustache. Neither men nor women have any hair on or under the arms or legs, nor on the body, excepting only that the men have occasionally a little tuft or fringe of soft black hair on the pubes*. It is not the custom to pull out or otherwise eradicate the hair from any part of the body; on the contrary any straggling hair or tuft which might make its appearance is more likely to be encouraged and regarded with something akin to pride. The men especially prize their pigtails, and, I believe, often introduce false hair when plaiting them, in order to make them appear longer and thicker at their feasts.

When not exposed to the weather or hard work, the skin of the Aymara Indian is always extremely smooth, fine, soft, and, as if polished, having no trace of hair upon it, and never clammy, but, on the contrary, somewhat cool to the feel. Its odour did not, at least when in good health and cleanly, appear to be stronger than in the European—in fact, is so slight as to be all but imperceptible. The Indian, however, whose sense of smell is highly developed, notwithstanding the state of dirt in which he lives, has particular names to denote the natural odour of the white, black, and Indian man respectively.

The colour of the skin in the new-born infant is of a reddish tint, and did not appear to me to be very much darker than in the white infant; but it becomes rapidly darker, and soon acquires the permanent hue of the race. This colour, however, seemed to me to vary greatly with the locality, no doubt from causes due entirely to the climate. In the moist, cold highlands the colour is a light somewhat coppery brown resembling much in tint that of many of the North-American Indians. In the dryer highlands and the rainless valleys of the western range this colour becomes much less red, and more of a blackish-brown; whilst in the hot humid valleys of the eastern slopes of the Andes, looking towards Brazil, all trace of the red dis-

* The women have no hair on the pubes even in old age.

appears, and the skin has a much yellower hue, a sort of bilious-looking light-brown tint, often silky in appearance. As a rule, the darkest and blackest-looking skin is always found in the dryest localities, independent of the amount of sun to which it may be exposed. The influence of the sun, as on the skin of the European, appears to be, in greater part at least, only momentary; thus one of the redder-coloured Indians becomes much darker in tint after remaining some time in the hot dry district of the Pacific (as, for example, at Tacna), or attains a more yellowish-brown hue when employed in the gold-workings or coca plantations in the hot humid valleys of eastern Bolivia; yet upon his return to his native mountains the original ruddier tint gradually asserts itself in a short time. Although in the white race the skin of the face and parts exposed to the light become invariably the darkest, this, at least with regard to the face, very much to my surprise, was not the case with these Indians; for in all the instances where I had opportunities for comparison, the face was as a rule lighter in colour than the other, covered parts of the body*.

The Spanish writers have always maintained that the Indian cannot blush: this is without doubt incorrect; for although, from the very colour of the skin, it is impossible that a blush should be so visible as in the white, still, under such circumstances as would raise a blush in the latter, there can always be seen the same expression of modesty or confusion on the countenance of the Indian, and even in the dark a rise of temperature of the skin of the face can be felt, exactly as occurs in the European. On many Aymara Indians I noticed, more particularly in women, a red tinge on the cheek, something like what might be termed a permanent blush, and reminding one of the hectic tinge on the cheek which often accompanies ill-health in the white: whether this in the Indian owes its origin to a similar cause or not I have not been able to verify.

The great size of the body of the Aymara Indian, when compared with his other dimensions, cannot fail to attract immediate attention; and a closer examination at once shows that of this the major part is occupied by the region of the chest; the neck is not long, oftener short, but always thick; the shoulders, although always broad, convey to the eye the impression of their being even broader than they are found to be upon actual measurement. The space occupied by the breasts is both broad and high, *i.e.* longer than usual—besides projecting much more,

* The skin of the nipples of the mammæ in the women and the organs of generation in the men was deepest in colour, but that of the inside of the prepuce and glans usually flesh-coloured.

T. M. Delt.

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AYMARA MAN

being unusually large in circumference, which consequently indicates a great internal capacity, affording space for an immense development of the breathing-organs. The circumference of the body both at the waist and navel is unusually large; but at the pelvis, although still large, is not extraordinarily so, except in the Indian women, who consequently bring forth with great ease*.

The relative proportions of the extremities are equally remarkable with that of the body itself, although this is less conspicuous in the case of the arm than in that of the leg.

The arm is, as a rule, well formed, full, and rounded, the muscles, although well developed, not producing that angularity of outline so commonly seen in the European. The arms are short, but chiefly so with respect to the upper arm; and the hands are small, but somewhat broad.

The lower extremity is decidedly short, its height from the ground to the hip (tip of the trochanter major) being, on an average of a number of measurements, exactly one-half of the entire stature. The relative proportions of its subdivisions are curious; for instead of the thigh being, as in all other known nations, longer than the leg, it would appear to be, on the contrary, slightly shorter, giving a peculiar appearance to the Indians of the highlands of Peru and Bolivia, especially when seen unclothed. In several of the ancient figures found in the tombs these relative proportions are distinctly indicated, as also in the rude pictures and caricatures which the Quechua Indians of Cochabamba paint and sell about the country, in which Spaniards and Indians are seen depicted together: the Indians are always figured with longer bodies and shorter legs than the whites, and with the thighs looking very short when compared with the length of the leg.

These remarkable differences in the proportions of the body and extremities appear also to be present in such of the Quechua race of Indians as inhabit the highlands to the north of the Lake of Titicaca—but as a whole is most characteristic of the Aymara race, more especially those who inhabit the great elevated basin of Titicaca, as the Aymara colonies in the lower regions of Yungas did not exhibit these proportions in nearly so marked a degree.

* The symphysis pubis seemed to differ somewhat from the European in its angle, being apparently somewhat more elevated above the fork of the legs. The male organs appear to be placed somewhat higher up; the penis is usually less in its dimensions than in the white, although the testes are about of the usual size; in some instances the raphe of the scrotum was observed to be continued like a thread of flesh attached outside the skin all the way up to the prepuce; but this may be exceptional.

All the joints in the Aymara Indian had the appearance of being somewhat large, the knee-joint in particular; as the measurements of the circumference around this joint did not quite bear this out, I imagine that the greater width of the joint in front was alone the principal reason of this appearance.

The legs are perfectly smooth and free from hairs, and are well developed, full and rounded in outline, without any muscular angularity. The thickest part, or calf, of the leg is situated somewhat lower down than usual (the exact reverse of the negro), at least in the men; and this, in conjunction with the effect of the dress, which is a sort of knee-breeches of llama wool, open and flapping about at the knees (below which the leg is bare), caused upon me at first the impression that the peculiar appearance and gait of these Indians were due to the leg being in reality extremely short, whereas upon seeing the entire leg bared it was perceived and proved by measurement that the reverse was actually the case.

The calf of the leg is generally well developed; and in the Indians of the highlands the surface veins are usually seen to be extremely prominent, and particularly so in the middle-aged men, projecting from the surface like varicose veins in Europeans; yet I am not aware of any evil consequences, although this was the case with many of my Indian messengers, who would accomplish extraordinary distances on foot in an almost incredibly short space of time.

My attention was directed to the structure of the Indian foot, which is probably one of the smallest known, from observing that a pair of woollen stockings which had been knitted for me by an Indian woman were shaped so that there was absolutely no projection allowed for the heel as usual in those of European make. Upon examination, I noticed at once that the heel in the Indian was but very little prominent, and did not project backwards at all, or, at any rate, not to any thing like the extent met with in most other races of men, the leg itself rising up almost straight from the ground at once; and it is extremely rare to see amongst the Aymaras the graceful swell of the ankle, so enticing in what we in Europe regard as a well-made leg.

Another peculiarity of the foot is the position in which it is, so to speak, set on to the leg: in the Aymara, by far the greater mass of the foot is placed altogether in front of the leg, the result of which is, that although the sole or total length of the foot itself from the heel to the extremity of the great toe is extremely short, and possibly even more so than in any other race of men, the back of the foot, *i. e.* the upper part, measured from the extremity of the great toe to the nearest part of the leg, is comparatively very large.

The height of the foot, *i. e.* the distance from the ground to the tip of the inner ankle, is not great; but its breadth is considerable, as well as its circumference measured round the instep. The great toe is usually very large, and directed outwards, which most probably is principally due to the effect of the thong of the sandals worn by these Indians. Curiously enough, the foot of the Aymara seems to be about the least sensitive part of his body; however cold or wet it may be, they, as a rule, never seem to feel it, or attempt to cover their feet, and will walk for miles in the snow and sludge without taking any precautions or appearing to suffer in the slightest degree from the damp or severity of the weather. In such cases all their attention seems directed to keeping their heads, not their feet, warm.

To the preceding observations, which are as it were a *résumé* of my notes on the general appearance and proportion of the Aymara Indians, I have added in the Appendix, Table A, a detailed tabular statement, containing the results of a number of measurements of their bodies, made when in Bolivia and Peru. These I regard as the more important, since the figures themselves will tell their own tale more correctly than any description in words, founded merely upon the impressions which the external appearance of these Indians in their costumes could convey to the mind of the traveller.

As it is obviously impossible, by a mere reference to measurements stated in inches, to form any correct idea of the relations which the various dimensions of the different parts of the body bear to one another, or to compare the size of any one member of the body of, say, a small with that of the same member of a large individual, a supplementary column of figures is in each case added, which enables all such comparisons to be made at a glance, since the numbers in these columns are those which represent the proportion which each individual measurement bears to that of the entire body or stature of the person, supposing this to be represented by the number 1000*.

In order, however, to facilitate a comparison between the general proportions of the Aymara Indians of the highlands and the low valleys, both with one another and also with the white and black races of Europe and Africa, the annexed tabular statement has also been drawn up in a more condensed form, the actual measurements in inches having been omitted, and in their place the proportional numbers before referred to alone inserted, so that a mere examination and comparison of these figures with

* This calculation is made simply by multiplying each separate measurement by 1000, and then dividing the product by the whole stature or height of the individual.

one another will show in what respects and to what extent the Aymara Indian differs in external configuration from these races, as well as indicate the relative ratios of the dimensions of the different members of the body to one another.

In this Table the first three columns are devoted to the Aymara :—1 being the average proportional numbers, based on the measurements of all the Indians of the Puna or cold highlands of the Titicaca region in both Peru and Bolivia, given in the Table before referred to; 2 the average of two Indians of the Aymara colonies, in the low hot valleys to the east of the high Andes, both being colonists of the second generation, *i. e.* who themselves, as well as their fathers, had been born in these tropical regions; and 3 the general average of both the preceding columns; column 4 gives the proportional numbers derived from the average of the measurements of two young Englishmen in robust condition of health, but of two different types, the Saxon and Celtic, the fair-haired robust and black-haired slender forms of body respectively; and lastly, the fifth column gives the average figures obtained from the measurements of three fine specimens of the Menas negro on the west coast of Africa,—all in excellent health and condition. When comparing these figures, however, it must, be remembered that, as it naturally follows that every circumferential measurement made round the body or any of its members must altogether be dependent upon the condition and general state of health of the individual at the moment of being taken, such circumferential measurements are naturally less suited for reliable comparison with one another than are those straight measurements taken of the limbs or other parts of the body not so affected *.

* In reference to both these Tables I may state that, having been quite unable to find any system of human measurement in general use, or to meet with any published (detailed) measurements of even a single white or black individual for comparison, I was entirely thrown upon my own resources, and constructed, when in South America, the above scheme of 71 measurements, of which 60 are direct (from nos. 1 to 60) and 11 indirect (*a* to *l*) measurements. These appeared to me to take in all the main features of external human configuration. With regard to the standard white and black races, or rather the numbers representing the relative proportions of their bodies, given in the Table, I was obliged, for the same reasons, to content myself with such averages as in my travels I found myself enabled personally to obtain.

	Measurements*.	Aymara.			European white (England).	African negro (Mensa, W. coast).
		Normal high cold mountains.	Abnormal low hot valleys.	Average of both.		
		1.	2.	3.	4.	5.
1	Stature	1000	1000	1000	1000	1000
2	Extreme distance between finger-tips, arms horizontally extended	1015	1062	1038	1034	1085
3	Head, greatest circumference	337	341	339	326	302
4	——, „ width (with callipers)	87	94	90	92	86
5	——, „ antero-posterior diameter (with callipers)	115	105	110	129	107
a	——, „ height from under chin to vertex (6+7+8+11+12)	142	136	140	143	139
b	——, height without lower jaw (6+7+8+11)	114	111	113	111	112
6	——, distance perpendicularly from vertex to growth of hair	33	35	34	26	33
7	——, forehead from growth of hair to orbit	38	32	35	43	37
8	——, Nose from orbit to nostril, vertically	26	33	29	31	26
9	——, „ projection at nostrils	11	12	11½	11	11
10	——, „ breadth „ „	23	23	23	20	27
11	——, Jaw, upper (upper lip), from nostrils to centre of mouth	17	12	15	11	16
12	——, „ lower (under lip and chin), from centre of mouth to below chin	28	25	27	32	27
13	——, Face, breadth between cheek-bones (with callipers)	82	80	81	73	76
c	——, " length from growth of hair to below chin (7+8+11+12)	106	101	103	117	106
14	——, Eye, distance between inner corner of eyes	22	19	20	18	22
15	——, „ „ „ outer „	68	63	65	59	61
d	——, „ length of orifice of eye $\left(\frac{15-14}{2}\right)$	23	22	22½	21	20
16	——, Mouth, breadth	34	33	33½	30	31
17	——, Ear, length	34	31	32	36	33
18	Neck, length from chin to semilunar notch of sternum measured upright	52	35	44	48	41
19	——, breadth across from semilunar notch to 7th vertebra of neck (with callipers)	83	72	76	82	83
20	——, *circumference*	211	198	205	204	195
e	Head and neck, from vertex to semilunar notch of sternum (6+7+8+11+12+18)	194	171	184	191	180
21	Trunk, breadth across between outer tips of shoulders in a straight line	230	238	234	250	241
f	——, front length from semilunar notch of sternum to fork of legs (30+33)	354	...	...	363	326

* In the above Table the direct measurements, sixty in number, are numbered from 1 to 60; the indirect, or deductive measurements, eleven in number, are marked *a* to *l*, and in parentheses are placed the numbers of the direct measurements from which they are obtained. The circumferential measurements, which are only useful when the exact state of health of the individual is known, are printed in italics. As it is sometimes difficult to get the exact distance from the umbilicus to the symphysis pubis, the distance to the fork or division of the legs, always easily obtainable, is also given; the circumference of the body is given both at the narrowest part, or waist, as well as at the navel, as these dimensions, although sometimes the same, are not always so.

TABLE (*continued*).

	Measurements	Aymara. Normal high cold mountains. 1.	Aymara. Abnormal low hot valleys. 2.	Aymara. Average of both. 3.	European white (England). 4.	African negro (Mensa, W. coast). 5.
22	Trunk, Back, length from 7th vertebra of neck to os coccygis	363	...	...	347	323
g	——, Side, length from shoulder-tip to trochanter major (35+37)	337	...	...	334	322
23	——, Breasts, breadth between nipples of mammæ	127	143	135	122	123
24	——, „ height from below mammæ to semilunar notch of sternum	125	98	112	99	88
25	——, Chest, breadth across between armpits, in straight line	190	197	194	207	188
26	——, Chest, height in front from semilunar notch to tip of sternal cartilage	128	123	126	118	113
27	——, Chest, height at side from tip of shoulder to lowest rib	228	215	222	175	179
28	——, Chest, *circumference under armpits*, respiration at ease	580	...	...	518	494
29	——, Waist, *circumference* of the smallest part of body	473	...	...	433	447
30	——, Distance from semilunar notch of sternum to umbilicus	226	197	212	227	220
31	——, Abdomen, *circumference* at navel	490	...	...	465	441
32	——, „ distance from umbilicus to symphysis pubis in a straight line	81	...	...	87	89
33	——, Abdomen, distance from umbilicus to fork of legs in a straight line	129	...	...	136	106
34	——, Abdomen, distance from umbilicus to anterior superior spine of ilium	88	94	91	97	98
35	——, Distance from shoulder-tip to anterior superior spine of ilium	267	231	249	251	248
36	——, Pelvis, breadth straight across between the anterior superior spines of the ilium	172	203	188	168	164
37	——, Pelvis, height from anterior superior spine of ilium to trochanter major	70	...	...	83	74
38	——, Pelvis, *circumference* round ala	460	...	...	458	443
39	Upper extremity, arm, upper, length of humerus	179	179	179	188	195
40	——————, „ „ *greatest circumference*	145	141	143	161	155
41	——————, „ „ *least* „	143	121	132	127	144
42	——————, „ lower, length of radius	148	146	147	147	176
43	——————, „ „ *greatest circumference*	148	137	143	154	153
44	——————, „ „ *least* „	102	96	99	93	94
45	——————, Hand, length from wrist to tip of forefinger	108	107	107½	107	117
h	——————, Hand, length exclusive of fingers (45—47)	56	54	55	50	51
46	——————, „ breadth exclusive of thumb	55	49	52	52	60
47	——————, „ forefinger to knuckle-joint	52	53	52½	57	66
i	——————, entire arm from shoulder-joint to tip of forefinger (39+42+45)	435	432	433½	442	488
48	Lower extremity, thigh, length from trochanter major to knee-joint (femur)	211	220	215	244	258

TABLE (*continued*).

	Measurements	Aymara. Normal high cold mountains. 1.	Aymara. Abnormal low hot valleys. 2.	Aymara. Average of both. 3.	European white (England). 4.	African negro (Menas, W. coast). 5.
49	Lower extremity, thigh, length inside from fork of legs to knee-joint	191	...	...	204	218
50	———, thigh, *greatest circumference*	283	...	...	300	292
51	———, „ *least* „	204	197	200	200	223
52	———, Knee-joint, *circumference*	202	201	201½	204	211
53	———, Leg (tibia), length from knee-joint to ankle	252	227	240	230	241
54	———, *greatest circumference*, calf of leg	188	187	187½	206	204
55	———, *least* „ „	127	121	124	121	129
56	———, Foot, length of the sole from heel to tip of great toe	137	143	140	148	153
57	———, Foot, back or ridge from leg to tip of great toe	98	92	95	93	102
58	———, Foot, greatest breadth	56	57	56½	56	...
59	———, „ height from ground to tip of inner ankle	37	43	40	47	41
60	———, Foot, *greatest circumference* around instep	149	147	148	138	156
k	———, entire (thigh, leg, and foot), from trochanter major to ground (48+53+59)	500	490	500	522	540
l	———, entire (thigh, leg, and foot), inside from fork to ground (49+53+59)	444	...	...	495	502

In examining a tabular statement of this character in order to compare the relative proportions of the different members of the body of the Aymara Indian both with one another and with those of other races, one of the first points which demand attention is the ratio which the lower extremities or legs bear to the entire height or stature. From measurement *k* in this Table it will be seen that the height of the legs in the Aymara, measured from the trochanter major of the femur down to the ground, is 500 thousandths of the stature, *i.e.* exactly one-half; whilst in both the European and Negro it is much greater, being respectively 522 and 540 thousandths, so that the Aymara and African are the two extremes. In the white infant I understand that the stature is divided into two equal parts by a line drawn through the symphysis pubis, thus the same proportion as in the adult Aymara Indian, but that subsequently the lower extremities in the white increase more, becoming relatively longer with age up to puberty.

With regard to the upper extremities or arms, a similar rule

seems to hold good; for upon reference to the measurement No. 2 it will be seen that in the Aymara Indian the distance between the tips of the fingers, when the arms are held out horizontally, is also considerably less than in the white or in the black man, these proportions being respectively 1015, 1034, and 1085 thousandths; and, as seen in *i*, the length of the entire arm from shoulder to tip of finger is 435 in the Aymara, 442 in the European, and 488 thousandths in the African; so that here again the Indian and Negro are the extremes, and it is perceived that the Aymara has the shortest and the African the longest arms and legs of the three races.

If now the details of the measurements of the upper and lower extremities be examined in order to compare their relative proportions one with another, some interesting results, difficult of explanation, are obtained. Thus, taking the arm, the proportions of its different members, when stated in thousandths of the stature, are given in the Table as follows:—

	Indian.		European.		African.	
39. Upper arm.....	179	327	188	335	195	371
42. Fore arm	148		147		176	
h. Hand without fingers.....	56	108	50	107	51	117
47. Longest finger..	52		57		66	
	435		442		488	

from which it will be seen that the proportions of the fore arm and entire hand are nearly the same in the Aymara and European, yet both are shorter than in the African; also that the upper arm, both in the white and negro, is much longer than in the Aymara,—the Indian and African being again, as also in the length of their fingers, the two extremes; and further that the reason why the entire arm of the Aymara Indian is so much shorter than in the white, lies mainly in the shortness of his upper arm.

In the lower extremities the results are still more curious, the different numbers being as follows:—

	Indian.	European.	African.
48. Thigh	211	244	258
53. Leg	252	230	241
59. Foot	37	47	41
	500	521	540

Here we find the extraordinary instance of the thigh being shorter in length than the leg, which, as far as I am aware, is not the

case in any other race of men as yet described*. The African and Indian are still the extremes with respect to the length of the thigh; but the leg appears to be proportionally longest in the Aymara and shortest in the European.

The great peculiarity of the Aymara foot consists in the absence of the considerable protuberance at the heel, so common in other races, and which appears to attain its maximum development in the negro, who, consequently, here again, as well as in the total length of the foot, is the opposite extreme when compared with the Aymara. Another curious point about it is that a greater portion of its total length is placed in front of the leg than in the European, as will be seen by reference to the figures in No. 57, which are respectively 98 and 93 thousandths, although the sole of the foot is as 137 to 148 thousandths, and consequently much longer in the European than in the Aymara. The Aymara and Negro are again the two extremes when the total length of the foot is compared. Coming now to the details of the trunk, which is so large in the Aymara when compared with his stature, we also find that it is divided in very different proportions between the thoracic and abdominal regions than in either the white or the black man; and what specially deserves attention is, that the region of the chest occupies a much larger portion of the whole both in height and bulk, thus giving a vastly greater space for the development of the respiratory organs.

If the height of the side of the chest be measured from the shoulder down to the lowest rib, the numbers given in No. 27 are 228, 175, and 179 for Aymara, European, and African, whilst that of the entire trunk from the seventh vertebra of neck to the os coccygis was found to be 363, 347, and 323 respectively. These differences, great as they are, are however, in reality, much greater; for in addition to the mere height of the chest-region, its two diameters must also be taken into due consideration; and as the circumference of the Aymara chest when measured under the same conditions of health and respiration was always found to be considerably greater than in either the white or negro (in the Table No. 28 gives the figures 580, 518, and 494 respectively), it naturally follows that the capacity of the thoracic cavity must be much more voluminous in the Indian.

* When making my first measurements of an Aymara Indian, who died in the hospital of La Paz in February 1860, I was so surprised at this result that I got Dr. Lopera of that city to verify the measurements; and subsequently, in order to avoid deceiving myself, I obtained in several other instances the assistance of Dr. Cooke, of London, then residing in Bolivia. The measurements of the thigh were all taken from the trochanter major to the knee-joint as correctly as these points could be distinguished in the living subject by the touch.

From the above observations it will be perceived that the more prominent differences in the configuration of the Aymara Indian from that of the European or Negro consist mainly in the greater length of the trunk, the enormous development of the chest, the shortness of the arms, legs, and feet, and in the great differences in the relative proportions of the parts which make up these several members.

The inquiry into the causes which have brought about these abnormities, if they may so be called, is one of great interest; but this I must leave to the ethnologists at home, contenting myself with having furnished data upon which they may found their explanations; it is right, however, that I should direct their attention to some points which cannot but have a strong bearing upon such researches, and which appear to throw some light upon more than one of the peculiarities of the build of these Indians.

It must, in the first place, be borne in mind that the Aymaras in their normal condition are more or less confined to the high table-lands of Bolivia and Peru, and consequently live at a greater elevation above the level of the sea than any known or at least as yet described race of people; and as the air at such great altitudes is extremely rarefied*, it follows as a natural consequence that it would require a larger development of the lungs in order to take in an amount of oxygen at each respiration equal to the volume found necessary to keep up the same activity of circulation at the level of the sea; for this reason, therefore, we might expect to find the region of the chest more prominent in a race living under these exceptional circumstances; and it is probably from this reason that the Indian does not suffer from the so-called Puna or Sorochi† which so frequently

* It is also not improbable that the prominent or varicose character of the surface veins of the legs so often seen, as before mentioned, is connected with the rarity of the external air in which the Indian lives.

† The affection known in different parts of Pacific South America by the names of Puna, Sorochi, Veta, or Marea, appears to be a species of inflammation of the lungs, brought on by over-exertion in working the lungs at so much quicker a rate than ordinarily, in consequence of the very attenuated state of the atmosphere at these elevations; and this is necessarily aggravated by the exertions attendant upon travelling in these rude countries. Usually it commences with more or less severe headaches and a feeling of, as it were, swelling of the head; the sense of smelling is often lost; and the symptoms occasionally become so aggravated as to end in death. Three instances of Europeans having died when suffering from Puna came under my notice; amongst these, the last case was that of Lieutenant Wallace, who, when crossing the Cordilleras by the pass of Tinogasta, was taken ill at an elevation of 14,500 feet above the sea, and died on May 2, 1869. These symptoms appear to be much aggravated by the use of spirits, often taken as a remedy, although in reality they seem to augment the inflammation. Onions are universally recommended as a good remedy, both for man and beast; for the

attacks the white traveller, whether European or South-American, when he ascends from the Pacific coast to the higher parts of the Andes, and which even when he has become in a measure acclimatized, is likely to attack him whenever he may happen to over-exert himself.

I particularly noticed the difficulty in breathing and distress of the white (Hispano-American) officers in the Bolivian infantry when the troops happened to march up hill or somewhat faster than ordinarily, whilst at the same time the soldiers themselves (half-breed or nearly pure Indians) would be quite unaffected, and those in the band of music would be blowing away lustily at their wind instruments without apparently the slightest inconvenience to themselves.

Although several outlying colonies of these Indians are seen situated at lower altitudes, it may be considered that normally the Aymara Indian is not met with below 8000 feet in elevation, but that, on the contrary, he is only truly at home in the high plains and mountain-sides ranging in height from 10,000 feet up to the very line of perpetual snow, which in this part of the world, lat. 17° S., may be regarded as about 16,500 feet above the level of the Pacific Ocean.

On descending from these heights, the Aymara Indians, like their llamas and alpacas*, find themselves altogether out of

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mules, when taken up from the lowlands, suffer greatly from Sorochi, and the arrieros have a practice of rubbing the mouth and nose of their mules with a sliced onion when at high elevations. With respect to myself, I seldom suffered from Puna at all, and never to any extent, except upon the occasion of the ascent of Tacora (Chipicani), 19,740 feet; but I occasionally suffered from a sense of fulness in the head and headaches, and felt the impossibility of making any continued exertion, such as running, without being often pulled up for want of breath, as it is vulgarly called, having to sit down to recover very much oftener than under the same circumstances at a lower elevation. Tschudi considers the first effects of Puna to commence at 12,600 feet elevation; but this seems dependent on the state of health of the individual at the moment, as well as on the locality: whilst I never suffered at all under 15,000 feet, my servant was on one occasion laid up with it at Palca, only some 9000 feet above the sea: and it is commonly believed in this part of South America that certain localities are more "Assorochado" than others. The natives believe it due to what they call "antimonios" or metallic exhalations; from my own experience I found that I suffered from Puna only when amongst the high volcanic ranges nearer the western coast, and never, even at equal heights, amongst the western or high Andes. Tschudi mentions its extraordinary effects upon dogs, and relates that cats cannot live at these altitudes; but after having lived three years at about 15,400 feet elevation, my experience was quite the contrary, having been pestered with both these animals, who seemed to thrive well wherever man lived.

* When brought down to the coast the llama or alpaca seldom lives any length of time; and as the main trade of Bolivia and the interior is principally carried on by llamas, the mortality which occurs amongst these animals after descending with their loads from the heights of the Andes is a

their natural element, and if they do not soon return, die off in large numbers in climates so unsuited to their constitutions. This is the case both in the dry regions of the Pacific coast and in the humid valleys to the east of the Andes. On the Pacific side the pure Indian population (which is not at all numerous) of such provinces as Arica, Tacna, Tarapaca, &c. is only kept up by continued fresh arrivals from the interior; whilst in the east the same may be said; for the great mortality amongst the Aymara Indians who are induced, now by high pay but formerly by compulsion, to descend from their hills in order to work at the coca plantations of Yungas, the gold-workings of Tipuani, or the quinine-bark trade of the eastern forests, affords ample evidence of how unfitted they are to inhabit these lower regions: as a rule, but an extremely small percentage of such colonists survive their transplantation.

In order to examine whether the descendants of such Aymara colonists differed or not in appearance and proportions from the normal Indian of the highlands, I made, in 1861 and 1862, journeys to the Tipuani and Yungas districts, to the foot of the high Andes in the department of La Paz, in Bolivia, and was so fortunate as to obtain measurements of two individuals who, as well as their fathers before them, had been born in these lower tropical regions. These measurements are given in full detail in the Appendix, Table A; but for the purpose of comparison, the proportional numbers, which alone are introduced in the former table (p. 213) are more convenient for reference, as they show at a glance that the proportions of at least several members of their bodies have already experienced a considerable change from what they were in the parent stock, as before explained.

These Indians, besides being as a rule somewhat taller men, appear to have lost very much of their massive build, and become more slender and flexible in their forms and movements, whilst the colour of their skins had lost all shade of red, and assumed a yellowish brown, a very different and, at the same time, less healthy-looking tint.

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very serious item in the cost of transport. Of late years this has been considerably reduced by the establishment of stations like those at La Portada, Palca, &c., situated at the commencement of the descent from the Bolivian table-land, where the llamas stop and deliver up their cargoes to mules, who take them down to the Pacific harbours, and *vice versâ*. The original alpacas which were brought by Mr. St. Leger from the Bolivian highlands at Chulluncayani to the coast of Chili, notwithstanding that several years were occupied in driving them that distance, in order to acclimatize them gradually, all died off on the road, so that those which eventually were shipped off to Australia from Caldera were already of the second and third generation from the stock started with from the highlands.

From the Table it will be seen that, in the case of the lowland Indian, the division of the stature or entire height made by the length or, rather, height of the lower extremities or legs, remained the same as before, being still 500 thousandths, or exactly one-half of the stature, but that the trunk did not now take up so much of the other half; for, if the measurement No. 35 be referred to, it is seen to be only 231 instead of 267 thousandths in the highland Indian; and of this, again, the chest-region did not occupy so great a proportion as before, as will be seen on referring to the measurements Nos. 24 and 25.

Although the length of the arm was not found to differ much, the distance measured between the finger-tips, when the arms were held out horizontally (No. 2), was somewhat greater in the lowland Indian; but, as is seen from measurement No. 21, this was in reality due to the greater breadth across the shoulders, as also was the case between the nipples of the breast and across the pelvis; in the lowland Indian, however, this increased breadth was accompanied by a decrease in width, for, although not shown in the Table, the body of the highland Aymara was much wider from back to front than that of the colonist.

The relations between the lengths of the component members of the entire arm did not seem to have undergone much change, being as follows:—

	39, upper arm.	42, forearm.	45, hand.	*i*, total.
Highlander.....	179	148	108	435
Lowlander	179	146	107	432

but, in the case of the leg, the difference was much more pronounced, being—

	48, thigh.	53, leg.	59, foot.	*k*, total.
Highlander.....	211	252	37	500
Lowlander	220	227	43	490

which shows that, although the thigh in the lowland Indian still continues to be somewhat shorter than the leg, it is so in a very much less proportion than in the highland Aymara, or, in other words, it much more approaches, or has returned to, the proportions usual in other races.

The foot also, as will be seen from the measurements Nos. 56, 57, and 58, has undergone an equally great change; for it has now, in the lowland Indian, become proportionately both longer and broader than before; besides which, the back of the foot has become shorter if measured from the tip of the great toe to the leg, and consequently the heel has become more prominent

than in the foot of the highland Aymara, in which, as before observed, it is very slightly pronounced*.

To place too much reliance upon figures derived from the measurements of only two individuals would not be prudent; yet, when these are taken in conjunction with the general appearance of the Aymara Indians of the lowlands as a whole, it seems to me not only all but certain that we have here very confirmatory evidence that the remarkable configuration of the highland or normal Aymara must be in great measure dependent upon local circumstances, more particularly those of climate and elevation above the level of the sea, but also that we have strong proofs, when these circumstances again become changed, that the relative proportions of the body may again return in their dimensions, so as to approximate more closely to those found in other races of men living under similar and more ordinary conditions.

The mixed race of Aymara and white have always been derived from the intercourse of Indian women with men of Spanish extraction; and although in external appearance they may be regarded as an improvement upon the Indian, my belief is that, in moral character at least, the Cholada, as they are called on the Pacific coast (*cholo*, man; *chola*, woman), are, if any thing, inferior to either of their parents, from having retained most, if not all, the vices of both with but very few of the virtues of either race.

I now regret that I did not avail myself of the opportunities afforded me for obtaining a series of measurements of the mixed races; but, judging from their external appearance, I should imagine that the chest- and trunk-region were longer, and the extremities shorter than in the white, although probably not so much so as in the pure Indian. The general features of the half-caste are usually more Indian, and generally more pronouncedly so in the man than in the woman. Occasionally pretty, and sometimes even handsome, half-caste women, as well as men, may be met with; and they often become very corpulent, which is never the case with the pure Indian.

* The measurements made on several individuals pertaining to the Tacana and Muchani tribes of Indians, to the east of Aymaras, who inhabit the lower tropical slopes of the Andes looking towards Brazil, as also of the Peguenche Indians of the Pampas of the Argentine Confederation, showed that these races were not characterized by any of the remarkable peculiarities of the Aymara configuration, such as the great length of body and chest, shortness of extremities, absence of heat, &c.; and measurements of the bones of mummies taken out of graves near Arica and Pisaqua, on the Pacific coast of Peru, proved that in these instances the thigh could not have been shorter than the leg, since the femur, when measured from its lower extremity to the tip of the trochanter major, was always longer than the tibia.

The cornea of the eyes always remains yellowish in colour; and they usually possess but very little hair on the face or body, although the hair of the head is extremely abundant and long: it is of a dark brown-black to black colour; and, although not coarse in texture, I have several times observed that it appeared to be coarser than in the pure Indian. The colour of the skin is seldom darker than in the darker inhabitants of southern Europe; but on the body I noticed that it was not unfrequently patchy and irregular in tint*.

Although no great reliance can, as before remarked, be placed on the statistics of the population of these countries, it appears to me, even after making due allowance for the mortality amongst the half-castes caused by the interminable civil wars, which have lasted ever since the independence of Spanish America was secured, during which the mass of the combatants were drawn from this class, that the Cholada or mixed race do not increase in numbers in such proportion as they might have been expected to do, provided they had really been *inter se* a fruitful race.

Without being able to advance absolute proof, I still retain the impression that the half-caste of the first generation, *i. e.* those resulting from the intercourse of the white man with the pure Indian woman, are not amongst themselves very prolific, and that the Cholada are really but a floating population whose numbers are kept up, at least in major part, by the direct offspring of the white man and Indian woman, and of both white and pure Indian with the half-caste woman, and not, as is usually imagined, the progeny of the Indian half-caste with the Indian half-caste†.

It seems to me difficult otherwise to explain why we still meet in Bolivia with three, as it were, quite distinct races, and do not find any complete fusion of the inhabitants of the country into one uniform mixed race,—or to understand how an Indian tribe like the Aymaras could have retained, as it were, a distinct and separate existence all but unmixed with, and apart from, either the Cholada or the white population of Bolivia or Peru.

In the time of the Spaniards many negro slaves were introduced into Bolivia; but they seem to have quickly died out, owing to this highland climate being quite unsuited to their constitutions, so that it is now very rare to meet with half-

* Dr. Haygarth, of La Paz, informs me that in the nearly white crosses the last trace of Indian blood is indicated by the dark colour around the nipples of the breast, and anus, and in a black line or groove extending from the pubes to the umbilicus and upwards, in children of both sexes.

† What I have seen of the mulatto or negro half-caste makes me inclined to believe that this is also the case with them, and that such a thing as a true mulatto or half-breed race does not exist in actuality.

breeds between the negro and Aymara; on the eastern side of the Andes, in the tropical valleys of Yungas, however, I have met some few examples; and, to judge from their appearance, they seemed rather a fine race. The colour of the skin was of a rich dark-brown tint, smooth, and glossy; the nose straight, and the features rather good, yet with the mouth and lips much fuller than in the Indian; the eyes black and brilliant, and the whole expression intelligent and infinitely more animated than in the Aymara; the hair glossy, jet black, and with a slight tendency to curl.

On the Pacific coast are to be seen a few half-breeds resulting from the intercourse of Chinamen with Indian women; and certainly their external appearance would lead to the conclusion that they were far from being an improvement upon either of the parent races; for they were intensely ugly, both in features and expression.

The Aymara Indians of the "Puna," as the highlands of Bolivia and Peru are termed, generally enjoy robust health, and, notwithstanding that they are exposed to a very trying and severe climate, and are poorly clothed, lodged, and nourished, both men and women, as far as I could learn, frequently attain to an advanced age. One great reason for this, however, is that, owing to the great mortality which takes place amongst the infants, a sort of natural selection asserts itself, and only the very strong children survive the first few years after birth: this is, no doubt, also the cause why deformed individuals are rarely or ever seen.

There seemed to be but few large families—very seldom more than four children, and more often less than that number. The infants are kept to the breast always for one year, and frequently until they are two years of age, and are swaddled up in llama-wool cloths, and bound round so as to be quite unable to move their limbs in any direction; in this state they are carried about, slung in a poncho behind their mother's backs, as with the peasantry in some parts of Ireland. At the religious feasts, when women as well as men usually contrive to attain a state of beastly intoxication, these living bundles are often left lying about on the ground, exposed to the inclemency of the weather, and not unfrequently perish before their wretched parents come to their senses. On the morning after such a feast I found the little child of one of my Indians dead from exhaustion, after having been left out in the rain all night; and such scenes are far from uncommon.

In some districts, particularly in the provinces of Larecaja and Muñecas, the Indians suffer from wens or goître, which often attain a great size. Amongst the inhabitants of Quiabaya

and Sorata it is so common that they have received from their neighbours, not so affected, the nickname of "Ccotosos," from Ccoto, the Aymara word for goître. Although the Cholada as well as the pure Indians suffer much from this disease, I did not hear of any instances in which whites were affected; yet I had previously found it common enough amongst the white inhabitants of the province of Mendoza, in the Argentine Confederation, where also Dr. Edmund Day informed me of a case of an infant born with decisive symptoms of goître. Animals are also stated to be affected; and Doña Toribia Bernal, of Sorata, informed me that she had an instance in two kids born with incipient goître.

In Bolivia, dried seaweed from the shores of the Pacific is employed in the cure of goître. In March 1859 I saw large quantities being collected for this purpose at Cobija, and forwarded some 300 miles into the interior, where it is sold at the rate of 4 Bolivian dollars per arroba, of 25 pounds, or about sixpence per pound. The employment of this substance in medicine is remarkable, as showing how similar results may be arrived at in far distant parts of the globe; for it is quite evident that the curative properties of the seaweed are due to the iodine contained in it; yet in Europe the discovery and employment of preparations of iodine in the cure of goître are comparatively of but very recent date.

An epidemic, known as the "Peste," committed terrible havoc amongst the Aymara Indians of Peru and Bolivia, in the years from 1855 to 1858, without at the same time appearing to attack the white inhabitants; I understand, from Drs. Haygarth, Cooke, and Lopera, that this was a species of fever closely allied to typhus, and raged with greatest violence during the months from June to September. It was accompanied by the appearance of spots on the skin of the body, and by intense hæmorrhage from the nose and anus. The Indians usually recovered from the first attack; but most frequently this was followed by a second one, to which they generally succumbed. Don Pedro Saientz, of Corocoro, informed me that he believed he had saved a great number of his Indians by compelling them to bathe daily in a large tank of water.

Both gonorrhœa and syphilis are known amongst the Aymara Indians, and treated by themselves without foreign medical assistance. Their treatment of syphilis would seem to be attended with success, since, although it is known to be common, the general health of the Indians appears to be good, and I have never met with any instance of an Indian disfigured by the disease. I was informed, on good authority, that these Indians employ mercury, both in the metallic form and as a chloride (calomel), in the

cure of the disease, and that they now procure these substances from the apothecaries or merchants (who sell mercury to the silver-amalgamating establishments) in the large towns; as they are also acquainted with cinnabar, which in several parts of the country is found in the native state as a mineral in veins, it has been surmised that they may also employ this compound of mercury as a medicine.

Some of the medical men in La Paz assured me that the Aymara Indians who chew coca are not salivated by mercurial preparations, even when administered in great excess; how far this is correct is worthy of inquiry. It was proposed in La Paz to employ cocaine to prevent salivation; but there are some doubts as to whether the substance so called really represents the true active principle of the coca-leaf.

It would appear probable that syphilis has been known amongst these Indians from a very early period, because they have in their language a name for this disease ("*Cchaca-usu*," literally translated "bone-disease" *Huanti*, a bubo), because they are apparently quite familiar with its treatment, and, lastly, from the occasional occurrence of skulls taken out of graves dating from a period antecedent to the Spanish conquest, on which may be seen depressions or scars pronounced by several medical men to have resulted from syphilitic caries of the bone, and which in two instances which came under my observation afforded proof that the disease had been arrested in its progress and new bone formed during the lifetime of the individual.

A very remarkable circumstance also is, that the Alpaca, an animal altogether peculiar and confined to these highlands of Bolivia and Peru, also suffers extensively from a disease which, in all its symptoms and effects, appears to be identical with syphilis in man, and which is treated by the Indians by a precisely similar mode of cure, consisting principally of inunction with mercurial ointment. Several white landed proprietors of Bolivia and Peru with whom I have frequently spoken upon this subject, have assured me that the prevalence of this disease is the sole reason why they have such a repugnance to occupying themselves with the culture of alpaca wool, which as a commercial speculation, although an extremely lucrative one, has still been left entirely in the hands of the Indians themselves: the mortality amongst the alpacas caused by the disease, when not extremely carefully treated, is said to be very great indeed; and the bones of the diseased animals are stated to be affected by caries exactly as in man*.

* The question whether this disease may have been communicated from the Alpaca to man, or *vice versâ*, is an open one. It is well known, however, that such unnatural intercourse is common, and that under the Incas severe

The character of the Aymaras is a peculiar one, not easy to describe; they rarely smile or laugh, and always appear to be sad and serious, reflective, silent, and uncommunicative, intensely suspicious and distrustful, never forming attachments until after long acquaintance.

Although they are patient under suffering and submissive to the laws and governing powers, they at bottom possess a dogged determination which nothing can shake, and which enables them to support torture and even death rather than confess. In my own experience, I have seen an Aymara Indian, who stole a mule, expire under the lash rather than reveal where he had concealed the animal; and in former times many an Indian has been tortured or put to death by the Spaniards for not pointing out the localities of the gold- or silver-mines from which he had procured these metals.

Impotent as they know they are at present, there can be no doubt that the Indian still lives cherishing the hope of one day crushing his oppressors. With an intense hatred to the white man, he has if possible a still deeper hatred to the Negro, although at present these latter, who were much more numerous under the rule of the Spaniards, have since the independence all but disappeared from the country, or at least from the highlands. Their hatred to the white was so strong that, during the insurrection in 1780 they swore to destroy even all the white animals in the country, and as far as possible carried this oath into effect.

When, however, the treatment which these Indians have received at the hands of the Spaniards and their successors is recollected, no one can wonder at the depth of these feelings, or be surprised at the influence which so many generations of oppression has had on the original character of the race.

Secretiveness seems also to be a well-developed trait in their character. The Indian, except possibly on his feast-days, looks as if reduced to a state of the most abject poverty, if one is to judge from their clothing, habitations, and mode of living. They, as a rule, hide all their riches, *i. e.* their silver or gold, generally burying it in earthen pots in the ground; and as the Indians rarely confess before death, a large part at least of such hoards remain concealed, although not unfrequently such "tapadas," as they are called by the Spaniards, are come upon accidentally. It is also well known that after the battles in the eternal civil wars of Peru and Bolivia, a large portion of the arms disappear, having been carried off by the Indians and concealed by them, no

laws were enacted against it. Even after the Spanish conquest, an old law not permitting the llama-drivers to start on their journeys unless accompanied by their wives was retained in force; and this regulation was understood to be intended as a safeguard against such abuses.

doubt with a view to their ultimate employment against their oppressors.

The amount of silver so buried or hidden by the Indians must be enormous; for they rarely part with any silver money, when once it comes into their hands. In later years, when the demand for the wool of the alpaca became so great and the price rose proportionately, the amount of hard cash (Bolivian silver dollars, which until lately were the only currency in this part of the world) received by the Indians was extremely large; and as the major part of it at once vanished from circulation, it has been calculated by well-informed merchants of Tacna and La Paz that more than some ten millions of Bolivian dollars must in the course of but comparatively few years have been hidden away by the Indians of the highlands of Peru and Bolivia.

The Aymara Indians seem to have a natural preference for solitude; and it is strange to come suddenly upon solitary Indians, as it were ruminating for hours together, when unobserved, in some out-of-the way spot in the mountains, or to see the Indian women sitting crouched up the whole day as if motionless, on the top of some heap of stones or other elevation, herding their llamas. Often I have sent an Indian to watch the mules at night, and found him in the morning squatted down on his haunches with his knees up to his chin and his arms clasped round his knees (in almost the exact position of a mummy in an ancient grave), in which position he has remained all night, almost without moving, more than to renew his quid of coca-leaves.

The character of the Aymaras cannot at bottom be bad; for it is rare to find any of the greater vices much developed amongst the pure Indians: murder is extremely rare; and theft, except of a very petty character, is not common. I have myself repeatedly sent large sums of money long distances in charge of a single Indian on foot, but never had occasion to repent of so doing—although I knew of an instance in which an Indian did murder another who was carrying a sum of money from Sorata to the gold-washings of Tipuani. This, however, was quite an exceptional case; and the arrieros who travel between Tacna and La Paz, and other parts of the country, often with large amounts in money and gold dust, are as a rule never molested, even during the civil wars which are the curse of this unhappy country.

As servants, the Aymara Indians, to judge from my own experience, do well as long as they remain in their own district; but if taken elsewhere they soon get homesick and run away without notice. When, however, they do form an attachment to their masters, they are reported to be very faithful, and more particularly so when brought up from youth; so that a system

of purchasing or, rather, kidnapping young Indians is common, they being sent to the coast districts or to distant towns, where they are bought into the families of the landed proprietors or merchants. On several occasions during my residence in Bolivia I was requested by friends in Tacna to send them a young Indian boy as a present, which, although not openly permitted by the law, is still often done.

Although the Aymara Indian the moment he comes into contact with or is employed by the white at once puts on an expression of stolid indifference and stupidity far from real, and only moves step by step, so as religiously, it may be said, to do the least possible amount of work with which he can escape, he is far otherwise when amongst themselves; for there he is seldom or never idle; even the llama-driver as he walks along side his animals always has his distaff in his hand, spinning coarse yarn of llama-wool as he goes along; they do not, as many other and especially North-American tribes, throw all the burdens on the women's backs; and the Indian at home, although never animated or merry, is apparently sociable and probably even amiable in his family relations.

They particularly excel in walking, and can keep up on foot with the quick walk of the mule for a long time and distance. In March 1860, an Indian on foot accompanied my mule at a sort of trot, for a distance of twenty-three leagues (69 miles) in one day; and the Indians who fetched my letters from La Paz have on several occasions made the journey to and fro (a reputed distance of 60 leagues) in three days, during which their only food would be a small bag of parched Indian corn and another of coca-leaves; the post from La Paz to Tacna, a reputed distance of 250 miles, was during my residence in Bolivia regularly carried by a single Indian on foot in five days. I have reason, however, to believe that the extraordinary story given by Dr. Scherzer, of the Novara expedition, of the custom said to be prevalent amongst these Indians, of standing on their heads after such long journeys, in order to allow of the blood returning to the feet*, is somewhat of a hoax played on the learned Doctor when in Tacna; and, further, I am also inclined to believe that the virtues generally attributed to the use of the coca-

* Bd. III. p. 349, when speaking of an Aymara guide who had already marched 30 leagues on foot, he adds, "fühlte Herr Campbell, obschon er ein vortreffliches Thier geritten, schwer ermüdet; der Führer dagegen, nachdem er sich einige Minuten auf den Kopf gestellt und ein Glas Brantwein zu sich genommen hatte, trat unverweilt, ohne weiter auszuruhen die Heimreise an;" and remarks further: "Es ist dies eine eben so allgemeine als wunderliche Sitte der Aymara-Indianer nach langen, beschwerlichen Märschen, um, wie es scheint dem Instincte folgend, der gewaltigen Andrang des Blutes nach unten zu mildern."

leaf are very considerably exaggerated in most of the accounts given by travellers and others, both because I found by experience various of my Indians who did not use coca to be equally good walkers, and as capable of enduring fatigue as those who habitually indulged in it, and because I was assured by General Belzu (the President of the Republic of Bolivia, and nearly a pure Indian himself) that, although in the Bolivian army coca was never allowed to the soldiers, they were quite as good, if not better walkers than the average of the other Indians; and as a proof of this I may mention that when in the months of January and February 1860, owing to a number of almost simultaneous revolutionary attempts breaking out in different parts of Bolivia (La Paz, Oruro, and Potosi) at great distances from one another, the walking-powers of some of the most reliable companies of infantry were severely taxed in order to repress these movements, I saw the first battalion of the Bolivian army arrive in Biacha in excellent condition, notwithstanding that, upon summing up the lengths of the different marches they had made during the previous three weeks as detailed to me by Colonel Flores their commander, it appeared that they must have marched on an average during this period something like forty-five miles English per day; yet their entire list of casualties only included one man who had dropped dead on the road, and three left behind from illness.

What the religion of the Aymara Indian at the present time is, is a question difficult if not impossible for even one of themselves to answer definitely; it seems to be a curious and confused jumble of their ancient belief with some slight admixture of Christian doctrines. Outwardly the Roman Catholic form of worship has been forced upon them by the Spaniards ever since the conquest, the infants being all obliged to be baptized and named after some saint in the calendar, whether their parents wish it or not; and consequently the white inhabitants regard the whole of the Aymaras as "Indios Christianos," in contradistinction to the so-called "Gentiles" or Pagan Indians, although it seems quite certain that but very few of these Indians have any clear conception of what the Christian religion really is.

The worship of the Sun does not seem at any epoch to have played a prominent part amongst the Aymaras, if even at all acknowledged by them, before the Incas, after their conquest of the country, introduced this form of religion, and built temples on the islands in the Lake of Titicaca dedicated to the sun and moon. The sun in Aymara is called Lupi, not Inti as among the Quechuas or Inca race; and in some of the old Spanish writers it is expressly mentioned that the Colla Indians were neither allowed to enter the grand temple of the sun, nor to assist at the

ceremonies, being regarded by the Incas in the light of heathens. Idols seem, however, to have been common with them; but it would appear that these idols had more a local signification, *i. e.* were regarded more as the guardian saints of the different districts or places than as representing the universal or almighty God, who seems to have been at all times, both ancient and modern, acknowledged by the Aymara Indians, and to whom they sacrificed and made offerings, especially of their esteemed coca, as well as poured out libations of chicha, both of which latter customs they still continue to keep up, in out-of-the-way districts. They are also equally firm in their belief in the existence of an evil spirit or devil, whom they appear to think it necessary to propitiate at times, and call by the names of Aucca, Huantahualla or Supay; they also believe in several attendant or administering angels of the devil, one of whom is called by them Carieari, and is supposed to be a messenger sent by the devil to kill men and remove the fat from their bodies, for what purpose, however, I could never get them to explain.

The Aymara, moreover, acknowledges the immortality, or rather the existence of the soul in the next world, and in ancient times always buried the dead along with a supply of food and sometimes clothing to take along with them; even at the present day Cortez states that this custom is kept up in certain districts of Bolivia. Under certain circumstances, it is believed by them that the souls of the dead may return to this earth; and it is known that the Indians of the Puna occasionally put an end to the sufferings of their relatives when about to die, by strangling them with a rope, under the impression that by so doing they can prevent the ghost of the defunct returning to this world to haunt and trouble them.

The symbol of the cross (always rectangular and equal-sided) is very common on the ancient Aymara ruins at Tiahuanaco; but it seems to have been used only as an ornament, since, notwithstanding that they now employ the cross as a symbol of Christianity, and commonly place crosses of wood in a conspicuous position on the roof or at the eaves of their houses, on the bodies of the dead, and on the graves afterwards, they appear to do so merely out of fear of the Catholic priests, as they are always ready to swear by the cross, (or by Jesus Christ or the Virgin Mary,) yet evidently have not the slightest respect for such oaths, which they never scruple to break when convenient. In order to make an oath binding on an Aymara, it is customary, at least in some districts, for the Alcalde of his community to lay his staff of office on the ground, and then make the Indian step over it before giving his declaration.

As a remarkable instance of how in a perverted form some of

the doctrines of Christianity may become grafted into the present Aymara belief, I may mention that the so-called "Indio Christiano" of the Puna of La Paz still believes that on one day in the year, which is Good Friday, he may commit any crime short of murder with impunity; and on this day instances are known where they have even violated their own daughters in presence of their mothers, as I have been assured by a trustworthy Indian of Omasuyos, who explained at the same time to me that it could be no sin, as on that day God was dead, and consequently could not possibly on the next day remember any thing which happened the day before—rather a strange application of a Christian dogma!

When Roman Catholic churches have been built in this country, it has not unfrequently been found subsequently that the Indian masons have concealed in the walls or in the altar itself small idols, as if to put the church itself under the protection of their ancient gods also. The small idols or figures found in the Indian graves seem to have stood in the same relations to the Aymaras as the Lares and Penates or household gods amongst the ancient Romans, and appear to have been kept by each family in their huts.

The influence exercised by the parish priests over the Aymara population is an extremely powerful one. This must certainly be attributed more to a sort of innate sense of duty inherited from their ancestors, than to any true respect for the present priesthood, whose morals (or rather want of morals) are not often such as would engender any great amount of reverence for their cloth. This power, however, too often exercised to bad purposes, always seemed to me to be founded more on fear than on any true respect or love for their spiritual leaders.

I often found it advantageous to avail myself, in my dealings with the Indians, of the power possessed over them by the priests. On one occasion, when a number of Indians who had agreed to carry a heavy and important piece of machinery up an almost inaccessible path to the mines and had found the task so difficult as to have at last abandoned it in despair, I as a last resource appealed to the parish priest to assist me, which he did most effectually, by at the next mass giving them such a thundering sermon in Aymara, in which he threatened them with all manner of pains and penalties in this and the next world, that the Indians in their fright ran out of the church and did not return until they had effected my object.

Under the rule of the Incas, and probably even from a much earlier period, the religion of these Indians had always been intimately connected with their fêtes or religious feasts; and a similarity in this respect no doubt greatly facilitated the intro-

duction of the Roman Catholic form of Christian worship amongst them, since the Indians did not feel that there was any very great revolution in the order of things when they still were allowed to retain their "fiestas," which, if somewhat altered as to date, were otherwise more changed in name than in reality, and most probably still retain much of the character which they had even before the Spanish conquest.

The priests were on their side only too glad to encourage the Indians in these tastes; for they soon found out that the weak side of the Indian was his attachment to his feasts, for which alone he can be induced to part with his money, which otherwise he would only continue to hoard up, grudging even the most necessary comforts to himself. Encouraged by the priests, the Indians of many districts are urged on to a rivalry in getting up feasts, one more magnificent than the other, all of which naturally puts money into the pockets of the priest himself.

The impression made upon my mind upon first witnessing one of these feast-days celebrated by the Aymara Indians is quite ineffaceable. Arriving in the evening at La Paz, in Bolivia, after a long and wearisome journey of seven days on muleback from the Pacific coast of Peru, this city (of about 70,000 inhabitants, of which some 40,000 are Indians, whilst the remainder consists of the Cholada, and still fewer whites of a rather dusky tint in general) seemed to me, at least that evening, very much like some of the older towns in Southern Spain. Next morning, however, which (unknown to me) happened to be a feast-day, my slumbers were broken by music of an unearthly but certainly not heavenly character, and I beheld the streets filled with troops of Indians, men and women, dancing energetically to the accompaniment of numerous drums, pandean pipes, Indian flutes, and long trumpets, which together produced a most doleful and monotonous sound, loud enough indeed, but hardly entitled to the appellation of music. The Indians themselves were attired in the most grotesque costumes: many of the men had enormous head-dresses of ostrich- or condor-feathers, often dyed of various colours, some erect and others drooping down so as entirely to conceal the head; others had masks representing the heads of animals, or were attired in the hides of oxen with the horns projecting from their heads, whilst many had cuirasses made of the skin of the jaguar, or American tiger, as it is commonly called. The women were decked out in all their finery; and many had enormous bunches of flowers hung as if from their ears, but actually supported by being looped up on each side by their pigtails of hair, or had similar pendants of oranges, lemons, red-pepper pods, or ring-shaped cakes incrusted with sugar.

The effect altogether was most extraordinary and surprising, especially from the great contrast between the appearance of the Indians themselves and the almost European buildings and streets in which they moved; for it seemed like a dream to behold them occupied by so incongruous a population.

In the vicinity of the towns, the Indians on these occasions usually crowd in, and pass the first day perambulating the streets with their music and dancing before the various churches and in the squares of the town; afterwards they generally retire to their own hamlets, where they continue their diversions during the remaining feast-days.

These diversions are kept up, without any interruption, day and night, as long as the feast continues, or until the Indians literally drop down from sheer exhaustion or intoxication. It is perfectly astonishing, however, to observe how long both the men and women can, hour after hour, without any cessation, keep on dancing round and round like lunatics, whilst all the time not a smile can be perceived on their countenances, which, on the contrary, never indicate the slightest trace of excitement or hilarity, but retain the same sad and melancholy expression characteristic of their features in their most serious moods. In fact, the Aymara Indians are a paradox; for they seem to amuse themselves without ever appearing gay, and to dance without becoming animated.

On these occasions also it is common to find the Indians burlesquing any new fashion which may come into vogue amongst the whites: thus, for example, when the use of crinoline became introduced amongst the ladies of La Paz, this custom was immediately caricatured by Indians, who danced at their feasts in would-be imitations of enormous volume.

The name's day of the patron saint of the town or village is always kept in great style by the Indians, who, no doubt, recognize in it the feasts which their ancestors celebrated in honour of their local gods or saints. Besides the usual fêtes common to the Roman Catholic religion, some, which are held by the Indians under the auspices of the priests, appear to have been introduced into the calendar after the Spanish conquest, no doubt for the sake of securing the goodwill of the Indians and facilitating their adoption of Christianity, by allowing them to hold religious feasts corresponding, or nearly so, to their ancient ones. This appears, for example, to be the case with the "Fiesta de la Cruz," held in La Paz on the third and following days of May, which I am informed is not known in other parts of the Catholic world, and which is evidently only a replacement of the great feast called "Aimoray" held in this month by the Indians before the arrival of the Spaniards.

On St. John's eve it is usual to see bonfires lighted on the hills, and even in the streets of La Paz; but I cannot say whether this custom has been introduced by the Spaniards or was prevalent before the conquest.

The three days of the carnival are a great time amongst the Indians in all parts of the country, as also the feast of Corpus Christi, which is specially celebrated in the towns by the erection of huge altars in the plaza or before the churches, covered by coloured cloths, and decorated by pictures of the saints, mirrors, bunches of fruit, and by all the valuables which the Indians possess or can borrow for the occasion. The Indians vie with each other in the size of these altars, which are frequently several stories in height, and occasionally so carelessly put together (being constructed only of wooden poles tied together with ropes made of llama-wool) that they tumble down during the ceremony, and sometimes cause the loss of life in their ruins.

The Indians themselves make great preparations for these feasts, which may be regarded as their only luxuries; they will not part with money, if they can help doing so, except in the purchase of materials for the decoration or brandy to be consumed at them. Rich Indians have been known to spend even some hundred dollars for fireworks, and they pay highly for the feathers of the condor or ostrich for their head-dresses,—as much, for example, as nine dollars for a jaguar skin, of which they make their ornamental cuirasses worn in the dances.

These feasts are attended with great drunkenness and immorality*, and, as might be expected, frequently end in fights, in which sometimes, but very seldom, lives may be lost. In the villages, the priest, when at hand, is usually appealed to in such disputes; and it has amused me to see the summary mode in which the holy (but often rather unsteady) man administers justice, by laying about him promiscuously with a heavy pair of tapir-skin reins, or any other thing at hand, to the dire confusion of the Indians around.

At these feasts in the towns, or at the celebration of some national event, bullfights are occasionally arranged by the authorities of the district; as, however, they have no bull-rings, the animals are simply let loose in the square (*plaza*), and allowed to be tormented by the Indians, without any further ceremony or precautions being taken than the temporary erections which

* In the midst of the dances men and women are frequently seen to exchange head-gear, by which is understood a mutual arrangement to become partners for the night of the feast. The Indians, however, are not a lascivious race in general, although Dr. Cooke informs me that this was due only to their rarely removing their garments at night, sleeping completely clothed, and usually all the family together, on the earthen floor of their huts.

most of the dwellers around put up in all haste, in order to protect their doors and windows, and enable them to look on in safety. As might be expected, lives are often lost, when the enraged bulls charge at the Indians and Cholos, who irritate them on all sides, and who are often too much excited by drink to take much care of themselves. At Achecache and other towns in the Puna it is common on these occasions for the Indians to bring forward and set at liberty wild animals, such as vicuñas, foxes, viscachos, wild rabbits, &c., the smaller animals being placed in holes made in the ground and loosely covered over by stones, which, on being kicked aside by the bull in its charges, allow them to jump out, to the great delight of the spectators.

The Aymara Indian is extremely superstitious, and is a firm believer in omens and witchcraft *. I am told that they have a custom, similar to what in Europe was common up to a very recent date, of making small images of clay of those whom they wish to injure, which, after piercing through with a thorn, they leave in some out-of-the-way place, believing that the individual in question will then suffer as long as the thorn remains sticking in the effigy.

They also have the idea that the possessor of any part of the body, or any thing pertaining to them, can, as long as he holds it, exercise an influence for good or evil over them. For this reason I found it very difficult to obtain samples of the Indian hair for comparison. This was more particularly the case with the men, who could not be persuaded, like the women, that you might like to keep it as a memento.

To cut off the pigtail of an Indian is one of the heaviest punishments which can be inflicted on him. On two occasions, in which this was done for theft, the Indians offered what to them was a very large sum to obtain the severed pigtail back again. An Indian whose hair has been cut short is always regarded with great suspicion by his comrades, and rarely admitted afterwards to their society or confidence. In like manner I found it, in some out-of-the-way districts, occasionally very difficult to persuade them to sit for their photograph or portrait, as they always retained the idea that the possessor of even their likeness must retain some power over them.

When the Indian is about to commence any undertaking, such as building a house, marking his llamas, or starting upon a journey, he always puts great faith in what he considers

* It occasionally happens that individuals supposed to practise witchcraft have been put to death with terrible tortures by the Indians of the remote districts. This is also the case amongst the Pampa Indians.

good or bad omens (such as the appearance of the heavens, the flight of birds, dreams, &c.), and usually pours out a propitiatory libation of chicha, brandy, or even water, before beginning his labours *.

When the Indians in 1854 were arranging their plans for a general rising against the whites, one of them, on his death-bed, confessed to the parish priest that the insurrection had been deferred because the omens had been unfavourable, and informed him that a council of the principal Indians had selected three llamas, one of each colour, white, black, and brown, which were respectively intended to represent the white, black, and Indian races, and had forced them to swim across the river Ilave, which runs with a rapid current into the Lake of Titicaca, on its western side. The white llama got across all right, the black managed also to do so, but was so exhausted as to drop down dead upon reaching the shore, whilst the third, or brown llama, was carried away by the stream and drowned. From this result the Indians had drawn the conclusions that the white race was still too powerful, that the blacks were not to be feared, and would soon die out, but that the Indians must wait longer, since they were not as yet so strong as their white masters. The outbreak of the "Peste" epidemic soon after, and the great mortality caused by it amongst the Indians, contributed to make them respect this verdict.

As a means of freeing themselves from the "Peste," the Indians of some districts (in 1857) loaded a black llama with the clothes of the infected persons, sprinkled them with brandy, and then turned the animal loose on to the mountains, in the vain hope that it would carry the disease off along with it.

When an animal, as a cow or llama, is killed by lightning, they regard it as a mark of the displeasure of God, and carry the carcass to the summit of some neighbouring hill, where they bury it, placing along with it, at the same time, an earthen jar of chicha or aguardiente, apparently as a peace-offering to God.

Upon arriving at the top of a steep hill, the llamero, as the llama-driver is called, commonly places a stone upright, or leaning against the side of the hill, as a token of thanksgiving for having arrived so far with his llamas without their having been knocked up by fatigue. All along the roads, or rather tracks, especially in the higher and little-inhabited parts, numerous heaps or cairns are encountered, often of very considerable di-

* The Indian fishers, before commencing operations, drink a little of the water with reverence, and mutter a prayer. When rain is desired, it is said that they often make little images of frogs and other aquatic animals, and place them on the top of the hills, as a means of bringing down rain by propitiating their deities.

mensions (where loose stones are abundant in the vicinity); these are called *apachetas*; and the Indian, when he passes them, invariably adds a stone; and if he has his quid of coca in his mouth, he takes it out and throws it against the cairn, on which he occasionally sticks feathers or places one or more of his leather sandals, and mutters some words, probably a prayer. When he passes these cairns, the Indian is sometimes seen to pull a hair or two out of his eyebrows or eyelashes, and, placing them before his mouth, to blow them away in the direction of the sun, probably as an offering. As these cairns or apachetas were considered remnants of Pagan worship, the Lima Council pronounced against them*; but I regard them as originally instituted to mark the line of road.

When travelling from Tacna to La Paz, I noticed, on the Bolivian side of the Pass of Huaylillos (14,650 feet above the sea), numbers of small erections, put together with loose stones, and upon inquiry was informed, by the arrieros, that these were put up by the Indian llameros when descending to Tacna with their loads, and that upon their return they examined them, in order to see whether they still remained standing, in which case they regarded them as proofs of their wives having remained faithful to them during their absence, and the contrary if the stones had tumbled down.

Some of these are sketched in Pl. XXI. fig. 2. A glance at the style of some of these little erections makes one almost fancy oneself capable of distinguishing between the characters of the men who had put them up. The confident husband would no doubt content himself with putting one or two stones on the top of one another, so as to be not easily displaced; whilst the anxiety or jealousy of another would be likely to tempt him to still further risk his own happiness by erecting a flimsy structure in two or three stories, very likely to be upset accidentally.

I am sorry to add that my muleteer, a Cholo or half-breed, who, by-the-by, are almost as much hated by the pure Indians as the whites themselves, before I could expostulate with him, backed his mule purposely so as to kick over a number of these little structures, remarking with malicious delight, "Won't there be a row when those fellows get home again."

The Aymara Indians celebrate the birth of an infant, as also marriages, but, curiously enough, appear (although they have the verb *marmasiña*, from *marmi*, a woman) to have no word in their language to signify the act of marriage, and always use the Spanish substantive "*casamiénto*" and the verb "*casár*," putting to the latter an Aymara termination, thus:—"*casarasiña*, to

* El Concilio Limense segundo, in su parte 2ª, capitulo 29.

marry oneself; "*casaraña,*" to marry one to another, *i. e.* perform the ceremony of marriage; and *casarayaña,* to make to marry, or give in marriage.

Although the ancient Aymaras had their family or tribal places of burial, as may be seen in the islands of Lake Titicaca, Caranhas, &c., the Indian at present seems to be quite indifferent as to where a corpse may be buried, interring it anywhere most convenient, and not troubling themselves to transport it any distance for the sake of burying it in holy ground. In the various instances which I have witnessed they place the corpse, in its clothes, lengthways in an ordinary grave, dug out apparently in any convenient direction, the hands being tied (at the wrist) across the breast, and a cross, made of a couple of twigs tied together, placed on the body. On the grave itself a simple wooden cross is placed, probably only out of deference to the priests.

In ancient times, however, the position of the body in the tomb (*chulpa* or *huaca*) or grave was always that which the infant had originally occupied in its mother's womb, the knees being drawn up to the chin and the arms placed crosswise over the breast—the whole usually sewed in a species of sack, generally made of a species of grass (*ichu*) or of reeds (*Totora*) sewn together. In the chulpas at Carahuara in Caranhas, I was informed by Messrs. Bode and Savalla that the mummies there are all found in baskets, and, curiously enough, have invariably a stone about 5 inches in length placed *in ano*. In some parts the chulpas are square towers, about 14 feet high, and from 7 to 8 feet on each side, built of unburnt sun-dried clay, tempered with straw; those at Palca had, I found, their sides placed in the direction of the cardinal points of the compass; at many other parts, as in Caranhas and around the Lake of Titicaca, they are built of stone, and round as well as square in shape; several of these have been figured and described by Mr. Squier in his memoir on the primeval monuments of Peru*.

High up on the sides of the mountain Illampu, more commonly known as the Nevado de Sorata I found (in 1861), at Marcomarcani, at an elevation of more than 16,000 feet above the level of the sea, two graves within a few feet of one another, on a narrow ridge connecting two great spurs of this mountain; both of these were about 4 feet deep, quite empty, and lined with stone walls neatly put together: the one had a direction nearly east and west, was 3 feet 8 inches long and 1 foot 8 inches wide in the centre, but tapered to each end, which was only 15 inches wide; the direction of the other was about north-east

* The American Naturalist, vol. iv. 1870.

and south-west, and its shape a rectangle 5 feet long by 1 foot in breadth. No tower or other erection appeared to have marked their site.

Occasionally, as in the island of Quebaya, in the Lake of Titacaca and elsewhere in that district, the chulpas or burial-towers have two or even more stories, as if the chamber in each story was intended for the interment of a different member of the same family. In some districts, as in Caranhas, these monuments are so abundant as even to form what might be termed villages of the dead. Many of these graves have been opened and ransacked for the gold and silver articles which they so often contain, as it was the general custom to bury along with the corpse articles of pottery, wood, and metal, especially small images or figures of men and animals made of gold, silver, or copper. A gold ornament, represented in Pl. XXI. fig. 1, evidently intended to be worn round the neck, was found in a chulpa near Corocoro, along with a silver spoon-shaped ornament called a "pichi" (Pl. XXI. fig. 11), such as at present are worn by almost all the Indian tribes of the Pacific coast down to Araucania; mace-heads of magnetic oxide of iron occurred in some of these tombs; but the most curious article which came under my notice during my residence in the country was the small solid silver image represented in full size in Pl. XX. figs. 1 *a* and *b*. This was placed in my hands by M. Ramon Doux, who took it out of a chulpa in Caquinhora, about four leagues from Corocoro, in the department of La Paz, Bolivia. What makes this figure extremely interesting is the fact that it has in its left hand what appears to be a telescope, or rather a tube, evidently intended to assist the vision, since the one end of it is held to the eye, whilst the other is apparently directed to the heavens. Although, like the rest of the figure, this part also is of solid silver, and not really tubular, there can be no doubt that it was intended to represent a tube, since the outer end is hollowed out. The right hand of the figure holds a mask, as if this had been just removed from the face in order to permit of the telescope being brought up to the eye. The features and proportions of this figure, the aquiline nose, long body, short thigh, and long legs, are quite characteristic of the Aymara; the peculiar headdress may possibly indicate the rank of chieftain or priest, whilst the instrument held to the eye would indicate that the use of some such tubular arrangement to assist the vision was known to these Indians at a very early period.

The custom of burying things with the dead was carried on long after the Spanish conquest, and is, as before mentioned, not altogether extinct in the present day. A wooden chicha cup given to me by Mr. Thackeray, who obtained it from an old

Fig 5.

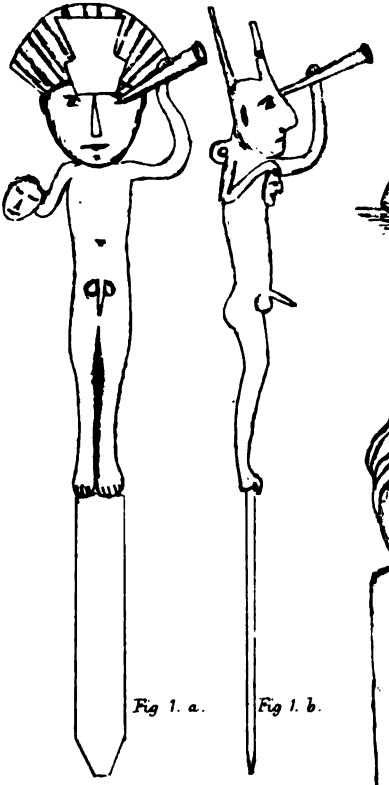


Fig 1. a.

Fig 1. b.

Fig 3.

Fig. 2 a.

Fig 2. b.

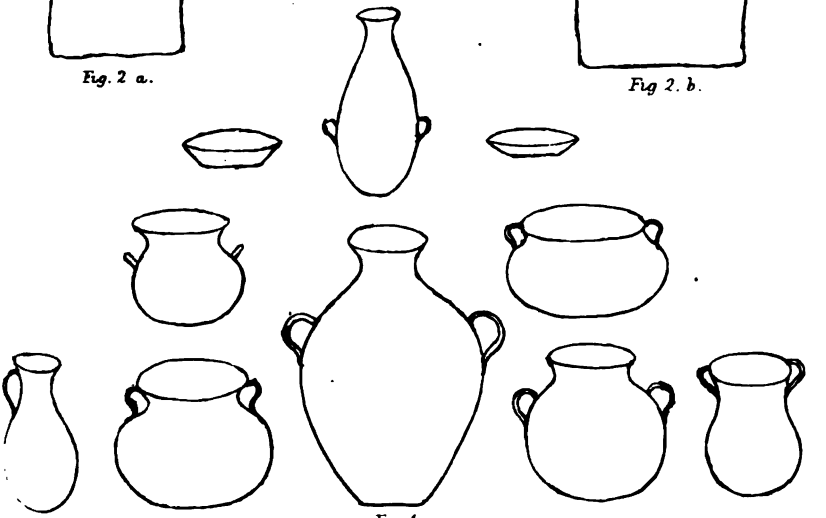


Fig 4.

AYMARA IMAGES, POTTERY &c.

tomb near Puno, on Lake Titicaca, is inlaid with figures painted like mosaic, in red, green, and yellow, evidently representing the arrival of the Spaniards in their vessels; and another wooden cup, also in my possession, of probably much more recent date, has, standing up inside from the bottom, rude projecting figures of the heads of two oxen yoked together, and is the only example of one turned in a lathe which I have seen in any of the graves. Both of these must naturally have been made subsequently to the arrival of the Spaniards, who first brought horned cattle and turning-lathes into Peru. These chicha-cups were apparently filled and emptied by those at the funeral to the memory of the dead, and then thrown into the grave. They are very commonly found of pottery also.

It is now a matter of difficulty, if not an impossibility, to tell with any certainty what the dress of the Aymara Indian was before the Spanish conquest. The only article of costume which is without doubt of thoroughly ancient origin, is the woollen poncho, which appears, however, to have been in general use amongst all the South-American tribes on the Pacific, from New Granada down to Araucania, even from the oldest times; all the other articles of clothing at present employed by these Indians are of much more doubtful origin.

In the Aymara highlands the men wear on their heads a large-brimmed hat, made (apparently felted) of llama wool, or, preferably, vicuña wool, of the natural colour of the animal. Under this they generally have one or even more knitted woollen caps, like old-fashioned night-caps. As before mentioned, the Aymara has no care for his feet, however inclement the weather may be; but he takes every care of his head, often placing two, and I have even seen at times three, of such woollen caps one over the other. Sometimes these are made so as even to reach over the face, leaving orifices for the eyes, nose, and mouth; such I have seen occasionally in Norway or the Welsh Mountains. The body is protected by a coarse shirt of unbleached white llama or sheep's wool, whilst the legs are clothed in a sort of breeches or drawers made of black or white llama wool, which reach down to the knees, below which the leg is nearly always bare, the sole of the feet alone being protected by a sandal, called *ojota* or *usuta*, of leather, usually made from the skin of the neck of the llama, which, together with the thongs which hold it on, is cut out of one piece. Stockings are rarely seen, even among the well-to-do Indians, and, when used, generally have no feet, reaching but to the ankle. Over all is the universal poncho, generally only a square piece of cloth of undyed, usually black, llama wool, with a slit in the centre to put the head through. The llameros commonly carry in their hand a short wooden

whip, the handle of which is somewhat ingeniously inlaid diagonally with strips of lead, which look like silver, and makes it extremely heavy and almost as formidable as a life-preserver*.

The women, when at home, go about bareheaded, their long black hair being plaited into two pigtails, which hang down one on each side of the back. Next the skin they wear a chemise of wool or cotton, over which from the waist downwards hangs a short petticoat, made of thick woollen stuff, black or deep-blue in colour. Across the shoulders they throw an oblong piece of coarse black llama-wool serge or of baize, which is dyed of the brightest colours, as orange, red, yellow, blue, or green, and fastened in front with the "pichi," a sort of spoon-shaped ornament usually made of silver. Two of these are often seen, one on each side of the breast, sometimes of very great dimensions; the handles, being pointed, serve as bodkins, whilst the other end or bone is very commonly used as a spoon when eating. This ornament is not confined to the Aymaras, being used by most of the Indian races of Western South America, and is shown in Pl. XXI. fig. 11.

The women are nearly always barefooted, being but rarely seen with stockings or with sandals like the men.

Like the fair sex in many more civilized countries, the Aymara women seem to consider it a special beauty to appear more than ordinarily massive about the haunches, notwithstanding that naturally they are far from being deficient in this respect; when in full dress, as at their feasts, they consequently do not fail to place thick woollen skirts one over another, the number being a mark of the wealth of the lady, until their actual dimensions are wonderfully exaggerated.

When at their feasts or on a journey, the women wear a peculiarly shaped hat (*montera*), generally made of black or dark-blue cloth or velvet lined with some red stuff. It is in the form of a cylinder, or rather a cone, expanded greatly at the top, the lower part for a short distance cylindrical, fitting close on to the head, whilst the upper part is turned down in the form of a square, so that the part turned down has the appearance of flaps hanging down on to the face on all four sides. I at first imagined that this peculiar head-dress might be a remnant of their ancient costume, but was told by General Sagarnaga, of La Paz, that he believed that it was derived from an old Spanish woman's head-dress long ago introduced into Peru.

Neither men nor women are cleanly in their habits, rarely removing their clothes at night, often leaving them on until

* The lead is secured by cutting grooves into the whip-handle, wider at the bottom than at the surface, after which melted lead is poured into them, and fixes itself in when cold.

worn to pieces; and even then some of the Indians would draw their new pair of breeches over the old ones, allowing the latter to remain on the body. They sleep on the ground or earthen floor of their huts, or on a sort of bench of earth raised some eighteen inches above the ground—their only bed-clothes being a few skins, and a poncho (or thick quilt) of llama wool, called *ccanieri*.

The food of the Aymara Indian is much more of a vegetable than animal character. Of the flesh which he consumes, that of the llama is the most important; but from my own experience I did not consider it well flavoured, except when the animal was only about a year old, when they are called *chuchos* by the Indians. A considerable quantity of the llama flesh is prepared by being sprinkled with salt and air-dried, and is then known as *charqui*. A very important article of consumption and of export to the mining-districts and the coca-plantations and gold-workings to the east are the "*chalonas*" or dried mutton, being the whole sheep, which, after being skinned and the head removed, is split open, flattened out, and dried in the air, after having been sprinkled with a little salt. Beef is rarely seen or consumed by the Indians, who often keep a few domestic fowls. Around the Lake of Titicaca many wild fowl and a good supply of their eggs are obtained, as well as some nine species of fish, several of which are excellent eating, especially the boga, which in taste and appearance much resembles a small herring or large sardine.

Salt is obtained by the Indians from springs which have their origin in the saliferous marls, probably of triassic age, the water being allowed to run into clay moulds and spontaneously evaporate, the operation being repeated until cakes of salt, about one foot square and some three inches thick, are left behind, and are of tolerably good quality.

As before mentioned, however, the staple of the Aymara food are the vegetable productions of his country, a summary of which may be given as follows*:—potatoes of several varieties, in-

* The above are such productions as are either peculiar to the highlands or are there grown by the Indians for their own use; for I may mention that it is extraordinary, when examining the markets, say of La Paz or Sorata, where the snow lies close at hand all the year round on the peaks, to observe the extraordinary admixture of tropical products from the hot valleys below with the alpine ones peculiar to the district itself: thus, in addition to the above, there are abundant supplies in the markets of oranges, sweet and sour lemons, limes, paltos (fruit of the *Laurus persica*), bananas, pine-apples, prickly pears, granadillas, pacays (pod of a species of inga), cherimoyos (fruit of the *Anona cheremolia*), sweet potatoes, rice, yam, gualusa, aricoma or yacona, &c., as well as (from the intermediate zones) strawberries, grapes, melons, pears, apples, and peaches; but, with the exception possibly of some ill-looking small green apples and pears, few of these products ever reach the hut of the Indian.

cluding the *Papa amarga* or bitter potato, called "luki choque" in Aymara; maize or Indian corn; beans; ocas, called in Aymara "apilla;" ullucos, the tubers of the *Ullucus tuberosa*; onions; garlic; chichchipa, a variety of fennel; quiñoa, the Peruvian rice or seeds of *Chenopodium quinoa*; ysaño, the tuber of the *Tropæolum tuberosum*; chuchuchu, a freshwater plant from the Lake of Titicaca; and several other minor vegetables, including the soft white lower part of the Totora or great Titicaca reed, which is eaten as a salad.

Here I may remark that not only have the peculiarities of the country inhabited by the Aymara Indians determined to a great extent the nature of their nourishment, but, particularly those of altitude and climate, have also exercised a great influence upon the methods found necessary to be employed for the culinary preparation and conservation of many of the articles of food.

Owing to the great elevation which this part of South America has above the mean level of the sea, it follows that the atmospheric pressure is greatly diminished, and consequently that the temperature of water when boiling is very much lower or, in other words, less hot than on the coast—in fact, so much so that several ordinary articles of consumption cannot be thoroughly cooked even by prolonged boiling with water in an ordinary open pot. For this reason the dry small beans which elsewhere in South America are almost everywhere the favourite and one of the principal articles of food, especially of the lower classes, for the reason that they cannot be thoroughly boiled in the whole state, are not used in any quantity, and are always first ground to fine powder before being cooked. Peas have to be treated in a similar manner, as also the dry maize or Indian corn; so that before every hut there is always seen an Indian grinding-apparatus, "parara" (it cannot be called a mill), which only consists of two rough stones, the lower being a heavy one fixed in the ground, with a flat smooth surface upwards, whilst the other is a semicircular piece, which is rocked in see-saw fashion by the Indian women, so as to crush up the substance placed beneath it.

I remember the delight of a Bolivian family in La Paz upon their first trying a cooking-pot made with a lid so arranged as to convert it into a sort of digester, and thus to raise considerably the boiling-point of its contents, which had been sent up from the coast as a present, and which they found did enable them to cook beans, &c. thoroughly in their whole state. On another occasion, when on an exploring-expedition, accompanied by two arrieros from the coast who had never before been very high up in the mountains, I left them with the mules at an ele-

vation of about 17,000 feet, to make a fire and prepare their meals, whilst I ascended higher on foot; on my return, some hours after, I found them in a good state of fear and excitement, insisting that we should at once leave a place which must be bewitched, since they could not get a dish of beans cooked, notwithstanding that they had seen the water in the pot boiling away lustily for several hours.

The potato, which is cultivated on a large scale by the Aymaras, and forms the most important article of their food, is, owing to the severity of their climate in these highlands, often frozen before its tuber has arrived at maturity—a circumstance which has given rise to its being subjected to a preservative mode of treatment quite unknown in other countries, and well worthy of being imitated, particularly in the northern parts of Europe, where the summers are short and severe.

The method of preparing the potatoes to convert them into "chuñu" (or "chuño," as it is called in Spanish) is, as far as I could observe, somewhat as follows, although I understand that there are minor differences in the procedure in almost every district. The potatoes, after being dug out of the ground, are, in the months of May and June, steeped in or sprinkled with water, and spread out on a thin layer of straw (ichu) placed on the ground. They are then exposed to the frost, turning them occasionally by hand some three or more nights and days consecutively, until they are quite frozen throughout their substance. During the congelation they become covered with blisters filled with a watery fluid, and when thawed have a somewhat spongy consistence. They are now steeped in water, and trampled out by men's feet to remove all soluble matter, after which they are spread out in the air until perfectly dried, when they are ready for use, and known in the market as black chuño or *chuño negro**.

When thus prepared the potatoes are much reduced in volume, being shrivelled up to the size of about musket-balls, of a somewhat deep-brown colour and not very inviting appearance. The white chuño (or "ttunta," as it is called in Aymara), which is much better, in outward look at least, both when raw and boiled, is prepared in the same way, except that after the potatoes have been frozen they are steeped in water for from two to four weeks, changing the water frequently, or, what is better, allowing a current of clean water continually to run through them, after which they are dried as before; when cut through they show a

* It must be remembered that the climate of these highlands is very favourable to carrying out this operation, both from the night frosts and the drying-quality of the air itself, which very rapidly removes all the water from the chuños by evaporation, and in a very short time completely dries them up into hard balls.

thin tough external skin, filled with a white matter exactly like, and in actuality nothing more, than a form of potato-starch. In this state both the varieties of chuño will keep for any length of time, even for years, if only stored in a tolerably dry place, and require merely to be steeped in water (the white for about a day and a half, and the black for from four to eight days) in order to soften them, after which they are boiled like an ordinary potato before being eaten. Although the white chuño when cooked looks extremely tempting, being in external appearance of a pure white colour, even more enticing than a nice new potato, I never got quite reconciled to its taste, as it always seemed, at least to me, somewhat soapy; and, with the Indians themselves, I agree in preferring the cheaper or more common black chuño (or merely chuño, as it is called, in contradistinction to the other, to which the name "ttunta" is, as before mentioned, applied), which is free from this savour, and, although somewhat insipid and crisp in the mouth, has a taste which, even if not at first relished, one soon acquires a liking for.

The theory of this process appears to be a purely chemical one. When the potato, which is mainly composed of potato-starch, along with a small amount of gluten or other such nitrogenous compound, becomes frozen, upon thawing a species of decomposition or fermentation is immediately set agoing, the nitrogenous ingredient acting the part of yeast or ferment, and changing a portion of the starch first into dextrine and then into sugar, which explains the sweet taste recognized when potatoes which have been touched by the frost are eaten. This fermentation, when once it has commenced, proceeds rapidly to putrefaction, and destroys the potato. The Aymara Indian, however, without understanding the *rationale* of his procedure, has found out the means to arrest the fermentation in its first stage, by dissolving out the dextrine, sugar, and nitrogenous ferment, leaving the potato-starch alone behind in a form but little susceptible of further alteration as long as it is kept dry; and by this means is enabled to keep the farinaceous matter of the root for an indefinite period.

The object of the Indian in thoroughly freezing his potatoes before washing out the soluble matter, appears to be to get the whole of the nitrogenous matter into a state capable of being washed out by the water, and so prevent any germs of fermentation being left behind.

It has always struck me as very remarkable, that the uncultivated Indian could thus have invented a process, founded on the most correct chemical principles, which has enabled him to use and conserve as food the frozen potato, which otherwise would be quite worthless, had not this discovery converted it

into his most valuable article of food, especially during the winter months, and without which he would not only not have been able to reap the full benefit of his most important harvest, but also could not have availed himself of a variety of this esculent, the *Papa amarga,* or bitter potato, which is not regarded as edible until after it has been converted into chuño.

The bitter potato (or "luki choque," as it is called in Aymara) is a very important vegetable for the Indian, since it grows well in the very coldest parts of the highlands, which will not produce any other crop. Whether it is a different species, or merely a variety of the common potato, I was not sufficient botanist to decide; but the only external difference which I noticed was, that the tuber appeared to be somewhat longer and flatter than the small round ones of the ordinary potato grown in the district, and that the plant had a blue instead of the more usual white flower. It is not cultivated or eaten by the whites; and I have eaten it only in the state of chuño. I am told, however, that it has only a very slightly bitter taste, but that this taste cannot be removed even by prolonged boiling, which also does not render it soft like the ordinary potato. I am uncertain whether the Aymaras ever eat it in its natural state when simply boiled; but converted into chuño it has no unpleasant taste, and is a very important article of their consumption.

Several varieties of the ordinary potato, "choque," are cultivated by the Aymaras; but none of them appear to attain to any size, probably never coming to full maturity in this climate; the wild potato, called "lillecoya," also occurs. The Aymara women understand the boiling a potato in their earthen pots to full perfection. Occasionally the ordinary potato is preserved by being dried in the air, after having been first boiled and peeled. It is then called "cucupa" by the Indians.

The oca (or "apilla" in Aymara) is another root, well suited to the climate, much cultivated by the Indians, and is the tuber of the *Oxalis tuberosa,* of which several varieties, red and white, are grown. The white, called queni-apilla, or floury ocas, are the best. As I can testify, this root when simply boiled is hard and has a horrid acid taste,—in fact, is quite unfit for consumption, unless it also has undergone a previous preparation. This is effected by the Indians by exposing the ocas to the sun and air for from six to twelve days, which causes, as it were, a species of ripening, after which the oca, when boiled, is a very agreeable farinaceous vegetable.

If exposed in this manner for a much longer period (several weeks, or even months, is, I believe, necessary), taking care not to let them freeze, they become still sweeter, and taste very

much like sweet potatoes. In this state they are called "caui," and should not be boiled in water, but merely steamed. The Indians cook them by placing them on the top of a pot full of straw, with a little water at the bottom, to which they apply the heat. Another preparation of the oca is called "caya," and is obtained by freezing, and treating them much in the same manner as in the preparation of chuño from potatoes, as before described. Although much esteemed by the Indians, this substance did not quite suit my palate.

As another example of how the culinary preparation of the articles of food used by these Indians has been influenced by the peculiarities of the climate, may be mentioned the "isañu," the tubercle of the *Tropæolum tuberosum*, a variety of Indian cress or nasturtium, cultivated particularly about La Paz. When removed from the ground, this is so acrid and nasturtium-like in its flavour as to be uneatable, or at any rate unpalatable; here, however, they eat the boiled tuber in a frozen state, when it possesses a very agreeable taste, and is much appreciated by the whites also, being sold frozen, kept from thawing by being wrapped up in woollen cloths, and covered with straw, under the name of "taiacha."

Another important article of food is the quinoa (*hupa* in Aymara), the seeds of the *Chenopodium quinoa*, or Peruvian rice, as it is sometimes called. These are exactly of the form and size of an ordinary mustard-seed, and are of a red, yellow, or white colour in different varieties of the plant. The seeds must always be first well washed with water, to remove a bitter principle they contain, before cooking. When boiled, they make an excellent porridge or pudding. The leaves of the young plant are eaten as salad; and a sort of chicha or fermented drink is also made from the seed, called "hupaccusa."

Beans are cultivated to a considerable extent, but are always ground to powder on the stone before being cooked, or are eaten whole after having been parched over the fire in a pot. Indian corn or maize does not grow in the puna and higher lands, but in the sheltered valleys grows well, and is largely bought by the highland Indians, who exchange their dried llama- and sheep-meat, wool, salt, and chuño for Indian corn. When dried, it is either ground up or toasted, in which latter state a small bag of it is usually the entire sustenance taken by the travelling Indian. Several varieties are known, amongst which a sweet, shrivelled-up, semitransparent, yellow one, called "chulqui," is especially esteemed for eating raw or parched; another variety, of a mulberry colour, is called "culli," and often used to give a colour to their drinks.

The beverages employed by the Aymara are but few in

number; and, except on grand occasions, the pure water from his native hills quenches his thirst. His national drink is the chicha, made from the Indian corn fermented, called in Aymara "ccusa." It is made in different ways; but the most esteemed is the so-called "chicha mascada," or chewed chicha, the preparation of which is nothing less than disgusting; but having been often described by former travellers, since it is in common use in many parts of South America, I need not further refer to it than to state that it is not alone appreciated by the Indians; for the whites and Europeans in Bolivia, as a rule, take to it with apparent relish. Chicha is also made from the quinoa seeds. In some parts a fermented drink is made by the Indians from the sweet stalk of the young green Indian corn, called "huiru" (wiru): this is the name of the stalk. Of late years, however, the establishment of large manufactories on the coast of Peru for the distillation of "chancaca," or unrefined sugar and molasses, has sent in great quantities of a very inferior white rum, or "aguardiente" as it is called, amongst these Indians, and is rapidly doing great mischief amongst them.

The two main dishes of the Aymara cuisine are the *chupe* and the *chairo*. The former of these is common all over the northern countries (at least of the Pacific coast) of South America, and consists of a soup made with potatoes and any flesh or fowl which may be to hand, as well as any other vegetables convenient, never omitting to add some red-pepper pods. The chairo, however, is peculiar to the highlands of Bolivia and Peru, its fundamental ingredient being chuño instead of potatoes; and to this, as in the case of the chupe, any flesh (generally of the llama or sheep) or fowl is added. Although, from the dirty-looking leather-like fragments of chuño which mainly compose it, the chairo has at first a far from inviting aspect, which certainly would not recommend it at a European table, a taste for it is soon acquired, and it is even relished by the traveller who visits the inhospitable Puna of Bolivia and Peru.

The Aymara Indian, in his cuisine, is not, however, content merely with the productions of the vegetable and animal kingdom, amongst which I forgot to enumerate the aquatic larva of a species of diptera called "chichi," which is found in abundance in the rivers of the Puna, and from which he makes a ragout seasoned with red pepper said to be excellent. He also applies to the mineral kingdom, not only for the salt which he employs as a condiment, but also for the clay which, extraordinarily enough, he adds, often in considerable quantity, to the chupe or chairo before described.

In the city of La Paz I found that clay prepared for this purpose was regularly sold in the market, under the name of

"ppassa" (the Aymara name for crude clay being "llinque"); and going amongst the Indians myself when they were cooking their dinners in the streets near the market-place, I saw how they added it to and mixed it with the other constituents of their chupe, eating the whole apparently with good relish. Afterwards, when I purchased from them a large bag of this "ppassa" for the purpose of bringing it to England, I continually found that my own Indians pilfered from it, to add to their own food, and declared to me that they considered it to improve greatly the taste of the soup.

When in La Paz I went to see the Indians digging out this clay from the deposits in the alluvial formation through which the Rio de la Paz runs, the only preparation which it received on the spot being to separate as much as possible all the small stones and fine gravel by hand, or by a sieve; before being sold in the market, however, it undergoes some further preparation, which appears to consist in kneading it up between the hands into doughy lumps, which looked as if they had been mixed with a minute quantity of lard or some other fatty matter; in this state, although it still feels very gritty when tried between the teeth, it is used and sold for immediate consumption.

The idea having been put forward that the clays or earths known to be eaten by certain Indian tribes contain a small quantity of organic matter capable of being assimilated by the human system, I, in order to see whether this might be the case with the clay eaten by the Aymaras, made a complete analysis of a sample taken with my own hands at La Paz, and obtained the following results:—

Silica	50·64
Alumina	30·19
Lime	1·09
Magnesia	0·87
Protoxide of Iron	9·64
Protoxide of Manganese	0·49
Potash, with trace of Soda	3·75
Water	2·28
Organic matter and loss	1·05
	100·000

from which it will be perceived that this clay, which geologically is a product of the wearing-down of the clay slates, and the granite intruded amongst them, of the Silurian formation of the high Andes, really contains no element of nourishment; and therefore I imagine that the custom of eating it is merely for the purpose of keeping the stomach more distended,

and retaining the food longer under the action of the gastric juice, so as to make the most of the extremely small allowance of food which the Indians of the Puna exist upon when they have to provide for themselves; for I have practically proved that they can and always will take in a very large supply when they can procure it at the cost of the white man.

The so-called "calcareous earth," which, according to Humboldt*, is sold in the streets of Popayan and several parts of Peru as an eatable, is evidently not an earth at all; but only the ashes of wood or plants commonly sold in order to be used along with the coca-leaf chewed by the Indians.

This ash is prepared for that purpose. That from the wood of the quenua tree, which grows in abundance on the Puna, and is something like a wild olive tree in appearance, is generally considered the best, from its being strongest in alkali; the ash of the banana is held to be next in quality: but all sorts of ash from cacti, shrubs, or trees are employed; and in the north of Peru even burned lime is used, although not considered equally good for the purpose.

The ash is usually made up with a little water, and kneaded into small pieces, sticks, or cakes, sometimes with the figure of a saint stamped upon them; and they are regularly sold in the market under the Aymara name of "llucta."

The use of a substance like vegetable ashes containing alkali, or an alkaline earth like lime, along with the coca-leaf by the Aymara and Quechua tribes of Peru and Bolivia is altogether analogous to the custom so prevalent in the East Indies of adding lime when chewing the betel nut (*Areca catechu*) or betel leaf (*Piper betel*); and in both cases the object of this addition appears to be for the purpose of setting free the vegetable alkaloid of the plant. The Indians declare that the coca-leaf will not yield up its virtues when chewed alone.

The coca plant (*Erythroxylon coca*) does not, however, grow in the higher regions, and is not even known as a wild plant (at least as far as I could learn) even in the Yungas or tropical valleys to the east of the Andes, where it is cultivated by the Aymara and Quechua colonists on a very considerable scale. Although used by all the Indian tribes of this part of South America, it is consumed in larger quantities by the Aymaras than by any other nation; and its name appears to be of Aymara origin, the word "coca," as it is usually spelt by the Spaniards, being evidently only the Aymara word "ccoca," signifying a plant, bush, or tree, apparently applied to it as the plant *par excellence*, just as amongst the Hispano-Americans the Para-

* 'Aspects of Nature.' Philadelphia edition, 1849, p. 159.

guay tea is always called only "Yerba," *i. e.* the herb. From the oldest times it seems to have been esteemed as the most precious of all vegetable productions, the Indians, as before mentioned, always making it a part of their offerings to their gods; and even at present they hang on the altars of the Virgin or Roman Catholic saints small packages of coca-leaves bound up nicely in maize husks into the form of the letter V, as offerings likely to be acceptable, at least, according to their ideas. Under the dominion of the Incas the coca was held in very great esteem, and, being regarded as a luxury, was not allowed to be an article of general consumption amongst the lower classes.

The Aymara Indian, especially when travelling, is rarely if ever seen without his "istalla," or small bag, which contains his supply of coca-leaves, from which he takes out a pinch of the leaves (say, about from 1 to 2 drachms) at a time, in order to form his quid or "aculli," as it is termed in his language. Before doing so, however, (or, as the Spaniards say, beginning to "acculicar,") he generally sits down at ease on the ground, always relieving himself of any load or other object he may be carrying; and then, picking out leaf by leaf, he turns them in his mouth so as to moisten them well, and forms them into a small ball or quid, which he carries, when conversing, inside his left cheek*. This he now takes out; and, opening it, he places inside of it a small quantity of the "llucta" or alkaline ash, and then, returning it to his mouth, he commences chewing it for an hour or two, until he considers it exhausted, when he again repeats the operation as before, continuing to do so with such regularity that amongst themselves the Indians often describe the distance between two places as being equal to so many "accullis." The verb "acculicar" is used amongst the Bolivians to denote this operation; and, as far as I could perceive, the Indian, as a rule, seems to swallow the saliva, and not to expectorate, as in the case of chewing tobacco. Having had to provide the coca necessary for a large number of Indians in my employ, I found that, on an average, each Indian used about ¾ of a pound per week, but occasionally more: my old Aymara man-servant Mateo always took his one pound per week; but he admitted himself that it was too much, and it is generally considered among the Indians that more than this amount is injurious to the system. The whites, negroes, or Cholos in Bolivia and Peru do not as a rule make use of coca; and it is stated that when they do commence chewing it they generally carry its employment to a very injurious excess. Cholos are said to occasionally take as much as three pounds per

* In most of the little images of silver or gold found in the ancient graves the left cheek is shown to be swelled out by the coca quid.

week; and I was told that a Negro who took as much as one pound per day became demented in consequence; but I cannot vouch for the truth of these statements.

The women amongst the Aymaras, at least as far as my own experience goes, never employ coca, nor are the Bolivian soldiers allowed to use it; the Peruvian soldiers, although not furnished with rations of coca, are not prohibited from occasionally purchasing it at their own expense when on the march; the Quechua Indians of Cochabamba, Chuquisaca, and Santa Cruz do not chew coca; nor is it employed by the tribes of the lower tropical regions of Bolivia; so that the custom is in great measure confined to the highland Indians of Peru and Bolivia. I found that the coca-leaf when used as tea, only taking care to throw away the first water or infusion, which contains a bitter principle, was refreshing, and somewhat stimulating to the weak stomach.

A somewhat careful study of this habit of chewing the coca-leaf does not at all convince me that its true properties have anything like the marvellous characters commonly ascribed to it by previous travellers in general; for, as before mentioned, I found quite as much power of endurance under similar circumstances amongst those of this race who did not chew the leaf at all as amongst those who did; and it must be remembered that amongst the Indians themselves it is never regarded in the light of a necessity, but always as an indulgence (in other words, as a luxury, like tobacco in Europe), and that they often apply the Spanish word "vicio," or vice, when speaking of its employment.

Just as in many out-of-the-way parts of Europe men can be bribed to do little services by what is called "a drink" more easily than by the offer of payment in coin, so I found with these Indians, that by carrying with me a small bale or "cesto," as it is called, of coca-leaves, and giving them a handful on such occasions, I could supply the deficiency of small change (so difficult to be obtained in these countries), and get what I wanted both more cheaply and cheerfully performed at the same time.

In the highlands of Peru and Bolivia it is only at rare intervals that any trees are seen, or even brushwood; so that no reliance can be placed on a supply of fuel from the vegetable kingdom. The combustible all but universally employed is "tajia," or the dried llama-dung. As the excrements of these animals are in the form of small round balls like those from the sheep, it is fortunate that these animals, as also the allied species the Alpaca, Huanaco, and Vicuña, when pressed by the calls of nature, do not scatter their dung at random, but if left to themselves (*i. e.* not driven) always resort to fixed spots, so that little heaps of a bushel or more are found at each spot, very con-

venient for the Indian, who otherwise would find it an endless task to collect a similar quantity. Owing to the dry winds and peculiar climate of the highlands, the dung rapidly loses the water it contains, and forms an excellent fuel, giving a good red heat with little or no smoke; it is not only employed in culinary operations, but on a larger scale is used for smelting the copper-ores (100 lbs. dung smelting 80 lbs. copper ore) and casting bronze for bell- or cannon-metal or other purposes.

The vessels made use of by the Aymaras in cooking are invariably of baked clay; and it is perfectly astonishing to see how expert the women (and even the children) are, without the assistance of a potter's lathe, in making them merely with their hands. The shapes in general use at present amongst them are given in fig. 4, Pl. XX.; whilst fig. 3, Pl. XX. represents one of the small earthen cooking-stoves which the women put up at the door of their huts, erecting them in an extraordinarily short space of time. When the clay is quite dry it is burnt whilst in position, and answers remarkably well for heating the earthen pots placed in the orifices. I have often been amused when the Indian women quarrelled amongst themselves, to see that they, as one of the first symptoms of anger, generally make a rush at each other's stoves, kicking them to pieces with revengeful pleasure.

The dwellings of the Aymara Indians are small, rude, square, oval, or circular huts, usually of rough stone put together with clay and thatched with "ichu," a species of long coarse grass, something like esparto grass. In the towns and villages the houses are usually square, with gables, but rarely possess any window at all, or at most only a small sighthole, ordinarily stopped up with some few stones; the doors of the houses are always extremely small. In the town of Santiago de Machaca, I had the curiosity to measure the dimensions of the door of the house in which I lodged, and found it to be only 3 feet in height by 15 inches in extreme width, the angles at top and bottom being somewhat rounded off, so as to give the opening a slightly oval shape. The door itself is made of a couple of boards, or more often of a raw hide stretched and dried over a wooden frame; but in the out-of-the-way districts no door is used beyond a poncho, which is hung up across the opening when the hut is tenanted; when the family is absent the entrance is blocked up by loose stones placed one on another.

Furniture is rarely or ever used even in the houses of the richer Indians; a chair or table is rarely if ever seen, as the Indians invariably take their meals whilst squatting down on their haunches (never crosslegged however), with the dishes placed on the ground beside them. Whenever a table is seen, it is usually a little thing standing about 15 inches high from the floor. On

one occasion at San Andres I noticed a chair with the figure of a double-headed Eagle carved upon it, which puzzled me for some time, until I remembered that the iron bottles used for exporting quicksilver from Idria, and which occasionally come to the amalgamating-establishments attached to the Bolivian and Peruvian silver-mines have the Austrian Eagle stamped upon them; and no doubt this had been copied from them.

The walls of the huts are always quite bare, and the floor merely the natural soil of the spot—often (in fact, more commonly) somewhat lower than the level of the ground outside the hovel. There is never more than one room in a house; and along one side of this a raised sort of bench of mud, about twenty inches high and broad, is usually seen, which is used as a bench, as a bed, or for sitting upon, whilst a similar one, about six feet long and some four feet broad, at the end of the room is employed as a bedstead to sleep upon.

In the out-of-the-way places I observed circular or oval stone huts; such have been called beehive houses, the stones forming the roof and sides not being arched, but approaching one another little by little until they meet in the form of a dome; I found an excellent example of this construction, well and neatly put together, on the slope of the mountain of Illampu. This measured, internally, 9½ feet long by 5 feet broad, and 5 feet in height; the door, which was on the longer side of the oval, was straight, 3 feet high and 18 inches broad; no chimney or other opening for smoke was visible.

Notwithstanding that the present dwellings of the Aymara Indians are so wretched and rude in their construction, the Aymara appears nevertheless to have a natural talent for architecture; and I am informed by Bolivian architects, and have myself also proved, that he is very quick in picking up any thing novel in masonry when shown to him. Some of the churches met with in out-of-the-way districts, although built entirely by the Indians, with their "cura," as the village priest is called, at their head as architect, and without plans or tools, except such as are of the rudest conceivable nature, occasionally show proofs of considerable skill. In 1863 I was surprised to see some hundred Indians rebuilding the church at El Disaguadero, on the Lake of Titicaca, in Peru, and dressing the stones for the edifice with no other implements than stones and a few pickaxes and other rude agricultural instruments made of iron; such a thing as an iron hammer or chisel was not to be found amongst them.

Señor Muños, the architect of the Cathedral of La Paz, further informed me that the beautiful Corinthian columns made of hard white granite, finished in a style which would not disgrace a first-rate European establishment, were all made by the

untaught Indian masons after his drawings; they, however, would not make use of the hammers he provided them with, but accepted his steel chisels, which they hit with a round stone held in the palm of the hand, in a similar manner to that in which their ancestors had no doubt been accustomed to work at Tiahuanaco and elsewhere.

In ancient times *i. e.* (before the eleventh century, or Inca conquest) the Aymaras possessed an architecture peculiar to themselves, apparently of a much higher character than that of any of the other nations of South America: full evidence attesting this is to be seen at the present day in some of the magnificent ruins at Tiahuanaco, near the southern extremity of Lake Titicaca; an examination of which, however, leads to the conclusion that they are probably of two very different dates, the one being evidently earlier and of a much ruder character than the other, which is of vastly superior workmanship. Although these ruins are by the older Spanish writers represented as being of immense antiquity, or, as they frequently express it, works of a period before there was a sun in the heavens*, it appears that part of these were not even completed, and were probably in course of construction, at the time of the conquest of that part of the Aymara country by the third Inca, Lloque Yupanki, some time before his death in 1026; so that the downfall of the Aymara civilization may be reckoned from about this date.

When at this place, I took drawings, on a considerable scale, of the principal features of these interesting ruins; but upon my return to Europe I found that various figures and descriptions of several of the more important sculptures and monoliths had already been published by other writers; so that at present I purpose only to add a few remarks upon points which, as far as I am aware, have not as yet received any attention. In the first place I may mention that the stone of which the buildings and sculptures are formed is of two very different characters. The one is a light red sandstone, which forms the hills in the immediate neighbourhood, and is probably the equivalent of the Devonian formation, since I obtained fossils of undoubted Devonian age from the beds of similar sandstone at Aygatchi, not far distant from Tiahuanaco. The other stone, however, is very different in nature, being a hard, tough, and compact volcanic rock, precisely the same as what was originally called Andesite by G. Rose, from a specimen brought home from Cotopaxi by Humboldt, and which is a true Trachydolerite. Notwithstanding its great hardness, most of the sculptured

* Diego D'Avalos y Figuroa, in Miscel. Austral. (Lima, 1602) p. 145: "Obra de antes que hubiese sol in el cielo."

work, the great monolithic portals and some of the finer figures, are made of this rock; and to this day they retain all the sharpness of their edges, and, to a considerable extent, even the original polish on their surfaces; whilst a few others, made of the sandstone before alluded to, are in a very dilapidated condition.

The size of some of the great blocks of stone employed in one of these buildings* is very imposing. I measured one which appeared to be of the largest, and found it to be about 27 feet long, 13 broad, and 7 thick, so that, as it was of sandstone, it could not have weighed less than one hundred and sixty tons. It seems very difficult to explain how these Indians, with their imperfect mechanical appliances, and no beasts of draught, could handle and transport such masses from their original sites, in order to place them in their proper positions in palaces or temples situated on the top of artificial mounds raised some 40 feet or more above the level of the plain itself.

Although the sandstone has evidently been taken from the hills seen at but a few miles distance from Tiahuanaco, the volcanic stone of which the two great monolithic portals &c. have been constructed has been conveyed a very great distance from the volcanic mountains on the other or western side of Lake Titicaca, where the quarries are still visible; and there still remains at the edge of the lake an immense block hewn out into the form of a sort of sofa or divan, which has received from the Spaniards the appellation of "La Piedra Cansada," or stone which got tired, which no doubt had been left behind when on its road to Tiahuanaco, at the time that the invasion of the Inca Lloque Yupanki put an end to the building of the great palace there.

An examination of the situation of the ruins of Tiahuanaco shows them to be in a narrow plain (bounded at the sides by two small ranges of hills) which, although extending a considerable distance from the present shore of the lake, is but very slightly elevated above the level of its waters, makes me believe that the lake (or, more correctly speaking, an arm of it) in former times extended to Tiahuanaco, and that, probably, the rise of its waters in the rainy season inundated the plain itself, and thus enabled the Indians to transport the great blocks of stone previously alluded to from the other side of the lake on rafts up to the very site of the edifices themselves. This view seemed to me to be confirmed by my finding in a small pool of water situated in the midst of these ruins, the *Totora* or great Titicaca

* I was told by one of the Cholos there that this had been called the palace of Pumapunku (of the gate of the Puma); but whether this is correct or not I am unable to say.

rush growing luxuriantly, although I understand that it is never found elsewhere than in the lake itself or the Disaguadero river leading from it; the great artificial mounds on which the buildings themselves are placed also seemed to favour the idea of the plain being at times inundated.

When we remember that the Indians were unacquainted with steel or iron implements, it seems perfectly unexplainable how these Indians could work the hard volcanic rock to such perfection; the Aymaras have, it is true, a word for iron, "*quella*," in their language; whence *quella-cahua* a coat of mail, and *quellahuisca* an iron chain; but it seems to me that this word, before the arrival of the Spaniards, was in reality only applied to iron-ore, *i. e.* the black heavy magnetic oxide of iron commonly found native in Peru and Bolivia, and employed by the Indians for clubheads, one of which is depicted in Pl. XX. fig. 5, from a grave at Calacota, was some 2½ inches long by 1¾ inches thick, neatly worked with a groove around it by which to fasten it to the handle*. Some of their tools of bronze were capable of taking a pretty good edge, but would stand a very short time if used for cutting stone; we must remember, however, that the wonderful patience and perseverance of these and many other of the South-American tribes would, with unlimited time at their disposal, enable them to overcome difficulties otherwise seemingly insurmountable. In 1863 I was extremely astonished to see the Indians rebuilding the church at El Disaguadero work hour after hour, one might almost say day after day, in order to square or dress the sides of a rough stone, with the aid only of another one used as a hammer, when a few strokes of a civilized mason's hammer and chisel would have effected the same result in as many minutes.

Everywhere in both Peru and Bolivia the idea prevails that in ancient times all these stones were cut after having been previously rendered soft by the application of an herb called by the Indians *usccra*, and by the Spaniards *garbancillo*; this is said to have been used along with urine, and left upon the stone for some time before cutting it. If the stone in question was of a calcareous nature, such as might possibly be acted upon by the vegetable acids which might be formed by the acid fermentation of the juices of plants, this explanation might be entitled to some consideration; but as the stones used at Tiahuanaco are all either composed mainly of silica or silicates quite unaffected

* In like manner the Aymaras have a word for glass, "*quispi*," whence *quispinaira*, spectacles, literally glass eyes; since they were quite unacquainted with the artificial product, this term was no doubt formerly applied only to quartz or rock crystal, just as in Europe it is at present common to use the word crystal to denote certain varieties of glass.

by even the stronger acids, excepting only such as contain fluorine, I imagine that this commonly received supposition has no foundation, but that it may possibly have arisen from seeing the Indians employ the Mare's-tail, a species of *equisetum*, for rubbing the stones in order to give the exterior a final polish, for which this plant is well qualified, from the amount of sharp silicious matter contained in its rind and substance.

One distinctive feature in the Aymara architecture is the constant use of the right angle; an acute or obtuse angle is rarely if ever seen in any of the buildings, the blocks of stone being as a rule dressed on all sides at right angles to one another and then fitted together with perfect accuracy, often, when very large, being held fast by cramps of copper fixed into holes with melted tin or lead. Every corner, slot, or depression in these stones is cut in the most clean and workmanlike manner, the angles being as it were as mathematically correct and the surface as plane and smooth as if made by the most perfect machinery of the present day. The cross (especially when sunk into the stone) is extremely common as an ornament, but, as far as I observed, has its arms always of equal length. In respect to architecture, at least, the Aymaras seem to have been far in advance of their conquerors the Quechuas, whose cyclopean masonry about Cusco and elsewhere, although put together with such consummate skill that the blade of a knife can scarcely be introduced between the joints of the stones, is but of a rude character when compared with the beautiful dressed stonework and sculptures seen in the Aymara ruins at Tiahuanaco; the two styles of architecture are altogether different and distinct, one striking peculiarity being that the form of the portals or doors in the Aymara masonry is invariably rectangular and upright, whereas in the Quechua the sides are inclined inwards at the top, exactly as in the ancient Egyptian.

Many ruins of ancient Aymara towns, from the time before the Spanish conquest, called by the Spaniards "Pueblos de Los Gentiles," can still be seen in various parts of Bolivia, some of them being now in almost exactly the same condition as when last inhabited; they are usually situated on the summits of hills, probably for facility of defence. One of these, called by the Indians Himoco, on the east side of lake Titicaca, between Carabuco and Ancoraimes, is of considerable extent, surrounded with walls having gateways, and with streets, some of which seem to have been paved, arranged at right angles to one another, and leading into several squares or market-places. The houses are tolerably well built of red sandstones, with stone roofs, and are small rectangular rooms, most of which have a sort of stone shelf, like a mantelpiece, in one

corner. The only traces of inhabitants seen at present are the occasional occurrence of straggling bones or of an entire skeleton. In one or two of the houses little rude effigies of men, made of clay, hung up by a string round the neck, or pierced through the body with a thorn, were met with—evidently remnants of witchcraft.

In the high mountain-passes of the Eastern Andes near Sorata, which lead down to the tropical valleys of Tipuani &c., I noticed considerable ruins, like fortresses, perched up on the sides of the precipices overlooking the valley, in the most wonderfully inaccessible positions, and probably at an elevation of more than 16,000 feet above the sea, since they were on the very edge of the perpetual snow. These looked as if originally intended to guard the passes from invasions of the Indians from the east; yet, at the same time, I can hardly imagine any inducement in the cold highland regions which could tempt the far less hardy races of the tropics below to make such raids.

Excepting the ruins of palaces or temples previously noticed, the country of the Aymaras presents but few traces of public works, such as roads, aqueducts, reservoirs, &c., more common amongst the Quechuas. The roads are but rude llama-tracks, and never seem to have had such attention directed to them as is shown by the Inca government in Peru. Permanent bridges are seen nowhere; but the rivers, when not fordable, are crossed by rafts made of rushes tied together in bundles, or by what is called a "maroma"—that is, a rope (made of raw hide or of llama-wool in the highlands, and of "llianas" or long vines or creepers in the tropical valleys) which is stretched across the river from bank to bank, and has a crosspiece or cradle suspended, in which the passenger seats himself and hauls himself along, or is pulled over with a cord. The Rio Disaguadero, which runs south from lake Titicaca, is crossed in several places by floating bridges, formed by attaching one to another numerous "balsas" or rafts, formed of bundles of totora, the great Titicaca rush, upon which a sort of platform is made by spreading a large quantity of the loose rushes. No wheeled vehicles being used in these parts of South America, these primitive bridges serve very well for the passage of the llamas, mules, and other animals, as well as for men on foot.

The chief occupations of the Aymara Indians, now as in more ancient times, are agricultural and pastoral. The metallic riches of the country seem to have been comparatively little attended to before the arrival of the Spaniards. They were, however, well-acquainted with the metals gold, silver, copper, and tin, and made use of several alloys of these metals: one of gold and copper, called "champi," was much used for making small

images and certain ornaments and tools. Bronze was also in very general use. The analysis made by me of a bronze head of a chieftain's club or mace, which was found at Sorata, and is about 3½ inches across the extreme tips of the spikes, of which there are thirteen in all, showed its composition to be as follows:—

Copper	88·05
Tin	11·42
Iron	0·36
Silver	0·17
	100·00

from which it is evidently quite identical with many of the ancient bronzes of Europe. This club had been cast, and has a socket in which there is a crosspin for attaching the handle by means of a leather thong. The Aymaras evidently understood the art of soldering metals; for I found many little figures of llamas and men, some of which, in the British Museum, can be seen to be hollow, and made of thin plate silver nicely soldered at the joints.

Tin, called in Aymara "causi" or "titi," has been from time immemorial obtained from the stream tin-ore worked at Carabuco on the east side of Lake Titicaca, and in the district Oruro, where it is still obtained in large quantities. Gold, "chocque," is generally found in the alluvial deposits of the rivers, whence many of the Aymara names of places, Chuquesapo (now La Paz), Chuqueaguillo, Chuqesaca (now Sucre), which denote respectively the valley, river, or plain of gold. Silver, "colcqui," found native in veins, appears to have been also worked out of certain beds amongst the cupriferous sandstone series of Corocoro, in which it occurs finely disseminated in a native state, whilst the main supply of native copper was evidently furnished from those same deposits, which appear to have been worked from extremely ancient periods.

The domestic industries, as spinning, weaving, dyeing, &c., are carried on by the women, who still continue to furnish the greater part of the clothing of the household, although, at least around the larger towns, cotton and woollen fabrics of European manufacture have come into considerable use amongst the Indians. I have occasionally noticed spinning-wheels and looms of an extremely rude construction; but in the majority of instances I found that the wool was spun into yarn by the hand; and afterwards, when stretched out on the ground by pegs, it is woven by hand into cloth, without the aid of a loom at all. They, as a rule, sell all their alpaca and sheep's wool, but reserve the llama-wool, which is of a very inferior quality, for making their clothes, as well as their cords and ropes. The llama is to

the Indian what the reindeer is to the Laplander; for, besides being his sole beast of burden, its wool and hide serve for clothing, the flesh for food, the bones for his tools, musical instruments, &c., whilst its dung is the general, and in many places the only combustible at command. The Indian women are very clever in dyeing their wools, and also in knitting, and at their fairs often bring for sale curious little bags, purses, &c. made in the shape of llamas, turkeys, and other animals, very ingeniously knitted in wool of divers colours. Around the lake of Titicaca I have seen socks and gloves for children made of the down of the waterfowl, which had apparently been first spun into yarn and then knitted.

Fishing is pursued chiefly on the Lake of Titicaca. The Indians, not having any boats, or wood to make them of, use as a substitute the totora or great Titicaca rush, which they tie together in bundles to form a "balsa" or species of raft.

Hunting can hardly be said to be followed at all by the Indians, although there are large herds of vicuñas running wild over the mountains and plains, and also the huanaco, deer, biscacho, skunk, fox, weasel, and the puma, as well as a bear, which last animal, however, I never came across, and, I believe, it is rarely seen. Amongst the birds are numerous condors (quite unfit for food, as I have found upon trial), the S. American ostrich, flamingo, numerous species of ducks, water-hens, divers, geese, ibis, snipe, &c., many of them very good eating.

As the Indian, however, has neither firearms nor bows and arrows, he has no means of following the chase; the only weapon which he uses is the sling ("huaraca"), made of llama wool, which occasionally he employs with some dexterity. The fox is caught in a rude stone trap, shown in section, plate XXI. fig. 9, in which the bait is tied on with a piece of raw hide, which, being gnawed away, causes the stone door to fall and imprison the fox, which is afterwards taken out through the hole at the other end of the trap, closed by a stone. When a puma has committed any ravages amongst their animals, the Indians of the district follow up its tracks in parties, relieving one another night and day, without allowing it a moment's rest, until the animal is literally run down, brought to bay, and despatched with sticks and stones. In March, 1862, at Illabaya, I saw an instance of such a turn-out, the animal being hunted down, and literally knocked to pieces by the Indians, who drank up its blood, under the belief that it implants courage in the person who does so.

The culture of the ground, which is the main and most laborious occupation of the Indian, is effected by very rude implements. The plough, called "arma," is driven by one or two oxen, tied to it by a lasso or rope of untanned leather, and is of


Fig. 7

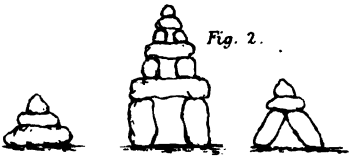


Fig. 2.

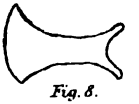
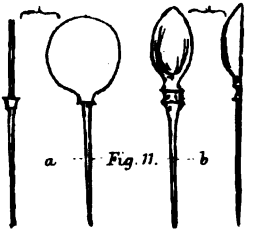


Fig. 8.


a Fig. 11. b

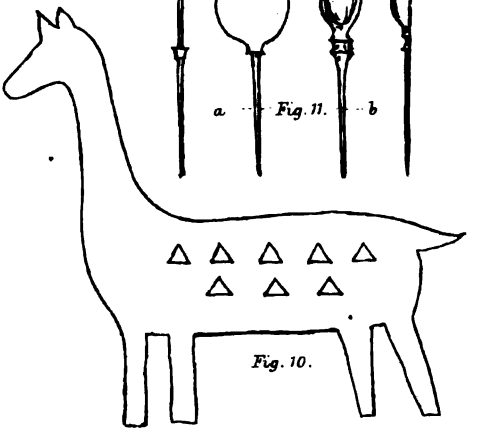


Fig. 10.


Fig. 4.

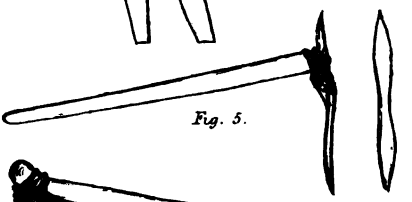


Fig. 5.

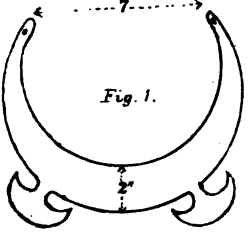


Fig. 1.

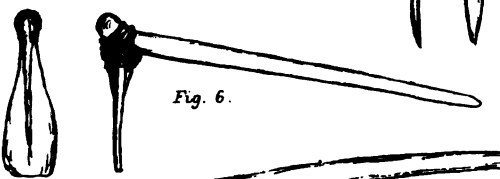


Fig. 6.

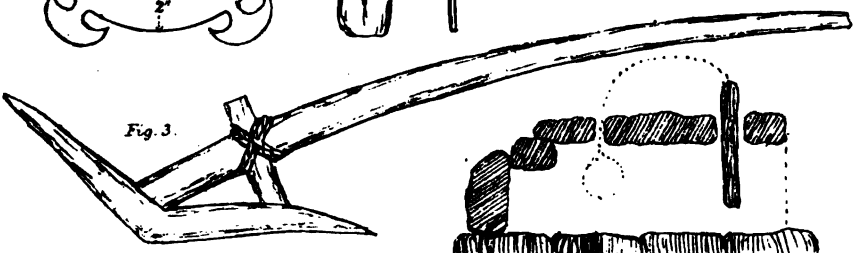


Fig. 3.

Fig. 9.

D.F Dale.

AYMARA IMPLEMENTS &c.

a very simple construction, consisting, as shown in plate XXI. fig. 3, of three pieces of wood tied together by thongs of raw hide, and, as might be expected, does little more than scratch the surface of the soil. The Aymara representative of the spade, fig. 4, pl. XXI., called "oiso," is but a pole of hard wood, about 7 feet long, sharpened and hardened at the end by charring the wood externally. It has a curved handle, and a support for the feet, like a couple of horns, on the right side of the handle, tied on to it with raw hide. The next important implement is the ocana, a sort of pickaxe, fig. 5, pl. XXI., which is now always made of a piece of flat iron, tied on with raw hide to a hooked stick as a handle, whilst in the out-of-the-way places a hoe, "asadon," sketched in fig. 6, pl. XXI., is still used, formed merely of the shoulder-blade of the llama, tied on to a hooked stick, as shown in the illustration. Besides these, they also employ a sort of mace or club, fig. 7, pl. XXI., consisting merely of a stone tied on to a stick, as a clod-crusher*, and an axe of iron or steel, which in the out-of-the-way districts is still made by the Aymara smiths in precisely the same form (fig. 8, pl. XXI.) as the ancient ones of copper or bronze, being merely a flat piece of metal of the form shown in the figure, placed in a cleft stick, which serves as a handle, and secured in it by a thong of raw hide bound tightly around it.

I was informed that, in some very much out-of-the-way districts, bronze and, even, stone axes may occasionally be seen employed by the Indians; but I have not personally fallen in with such implements, yet can believe that this may actually be the case.

The Indians, as a rule, make their fields of a very small size, usually surrounding them with walls of dry stone. On the mountain-sides they build up small terraces one above another, in some cases up to very great altitudes. Since they appear never to manure the land, they make a rule of only sowing it with crops once every fifth year, allowing it to remain fallow for the intermediate four, in order, as they say, that it may repose or recover itself. This circumstance must naturally be taken into due account when the traveller in these districts judges as to the number of inhabitants from the amount of land enclosed or under apparent cultivation. The crops generally sown are potatoes, ordinary and bitter, ocas, quinoa, and beans, along with maize or Indian corn in the more sheltered valleys or lower grounds. A bearded variety of wheat is also cultivated in some parts; but I do not think it is very productive. In the more temperate parts, lucern is grown as a green fodder for the beasts. Barley is also sown as fodder in considerable quantity; but,

* One of these may be seen in the Christy collection of the British Museum.

except what is required for seed, it is not allowed to come to maturity, being cut down before it is ripe, and employed for the cattle whole, *i. e.* along with its straw.

A great expense and trouble to the traveller in these districts is the difficulty experienced in obtaining from the Indians a sufficient supply of barley to keep his animals alive; threats, and even physical force, must sometimes be resorted to; for the Indians are so accustomed to be cheated that they can hardly be convinced that you are really willing to pay them for what they furnish. When a detachment of the army passes through the country, the corregidores, or heads of the district, summon the alcaldes or foremen of the Indians, and require them, within a certain time, to bring forward the amount of barley necessary for the beasts, for which they are paid far less than its real value. On one occasion, at Achecache, when I was present, the barley, which was extremely scarce that year, was only paid by the cavalry at 3 rials a quintal instead of 15, which was the actual price ruling in the district; besides which, instead of weighing a quintal, they still further imposed upon the Indians by measuring it in the following, to me, somewhat novel manner:—Two of the tallest soldiers of the troop were made to stand upright, so far apart that their forefinger-tips could just reach one another when one of the arms of each was extended at full length; all the barley which could be packed into the space between their bodies from the ground up to under the arms was then taken as a quintal, although in reality much more; but (as the unfortunate Indian well knew) complaints were useless.

The practice of cutting barley before it arrives at maturity, although common in many parts of South America, where it is done in order that the straw itself may be sweeter and more palatable to the animals, seems in these highlands to be, as it were, enforced by the severity of the climate, since only in more sheltered spots does the grain fully ripen before the frosts commence.

The coca-leaf, so much employed by these Indians, does not grow in the higher regions of Bolivia and Peru, and is chiefly cultivated in the hot valleys of the province of Yungas *, to the east of the high Andes, by Indian colonists, who formerly were forcibly sent there for the purpose, but now, since the independence, are enticed there by high wages, to engage themselves for longer or shorter periods. The mortality among these colonists is very great; so that since they have not been compelled to go there, great extents of the plantations or cocales, as they are called, formerly planted with coca, have been abandoned and

* The word "yungas" is not Aymara, but Quechua, in which language "yunca" signifies *hot*.

become overgrown with forest, owing to the impossibility of obtaining hands to cultivate them. In Yungas all the slopes of the hills, at an elevation of from 3000 to 6000 feet above the sea, the soil of which is composed of a disintegrated Silurian clay-slate, are covered with small terraces or, as they are termed by the Spaniards, Andenes, rising one above another, like the seats in an ancient amphitheatre, and covered with the small coca bushes, about from 20 to 30 inches in height, planted in single rows along each little terrace, which is about 12 inches in width, and supported by a little wall of stone in front. When the coca is grown on level ground, which is more seldom the case, the plants are placed in furrows ("uachos") separated from one another by little walls of stone called "umachas."

Before being transplanted into cocales arranged on either of the before-mentioned systems, the plant is raised in separate nurseries, from seed, which, when frequently watered, makes its appearance above the ground in from ten days to a fortnight; the next year these plants, which will then have attained a height of from 12 to 15 inches, are ready for transplanting to the cocal, and are sold in large quantities for this purpose, at the rate (when I was in Yungas in 1861) of two dollars Bolivian per what is called the "head," *i. e.* the bundle of plants in size equal to the circumference of the purchaser's head; so that the planter with whom I was residing told me that he always chose one of his men who had the largest head to buy coca plants for him. Old plants, however, are much dearer, and were at that time valued at three rials per plant.

When the plants are between two and three years old, the leaves first commence to be picked for consumption, and are stated to yield the most abundant crops between the ages of three and six years, yet to have an economical life of from twenty to forty years, and occasionally even more. The plant is said to be most productive when not allowed to attain a greater height than about 30 inches, although when not cultivated it is said to attain double this height.

The first time the plant is picked the leaves are found to be coarser in quality, and are seldom exported, being used up by the Indians on the plantations; afterwards, in the larger plantations, the pickings (or mitas, as they are called) take place three times a year, in March, July, and October, which are known respectively as the Mitas de Marzo, San Juan, and Santos; the first of these, taking place immediately after the rainy season, is the most abundant, and that of July the least prolific. In the little plantations owned by Indians more care is taken to pluck the leaves as soon as they are full-grown, and not according to fixed times; by this means they are enabled to get

four crops a year. The pickings are done by girls, each leaf being plucked separately from the plant, and great care being taken that none of the top shoots are injured, as otherwise the plants would die. It is a curious sight to see these girls, often in great numbers, arranged in rows; and the noise made by their nimble fingers when picking the leaves, in which they acquire wonderful dexterity, is very strange, the sound keeping distinct time, and being sometimes like the rustle made by the wind among dry leaves.

The plantations are, as a rule, not irrigated or watered, notwithstanding that this is known to develope the leaves much more rapidly, and to ensure the bare plant being covered again with leaves in even less than two months, so that as much as five pickings can be obtained from well-irrigated plantations; it is considered, however, that such leaves are much inferior in quality: their colour is not so rich; and in drying they do not retain the fine green tint, but acquire a blacker hue, which is not liked in the market.

The women and children who pick the leaves place them in a poncho or cloth hung in front of them, and then take them to the hacienda, where they are spread out in a yard floored with slabs of slate, turning them frequently in the sun until perfectly dry. If the weather has been fine, the leaf, when dry, retains its form and colour, on which the value of it in the market depends. The dried leaves are then put up in small bales called cestos, which weigh about an arroba (or 25 pounds) each, and are in this state sent up to the highlands for the general consumption of the Indians; on the road, however, the Bolivian government exacts a duty upon each bale.

The coffee and cacao plantations of these tropical valleys are also worked by Aymara Indians, of whom a few also engage in the search of Cascarilla, *i. e.* the bark of the Cinchona tree, which also is found in quantity in the hot humid forests on the eastern slopes of the high Andes, the cascarilla bark of this part of South America being the most esteemed of all the varieties, fetching by far the highest price in the market, and being considered the richest in quinine*. Notwithstanding the great inducements

* Most of the men employed in the bark trade are not pure Indians, but cholos. When, in 1861, I was in this district, I obtained from the cascarilleros a quantity of the seeds of what they considered the most valuable of all the very numerous kinds of this tree, and forwarded them to Sir Roderick Murchison, who, however, did not receive them before 1864; they were sent by him to Kew; but the reply was discouraging, since it was to the effect that they must be far too old to germinate. In June 1866, however, Sir Roderick wrote to me that he had heard from Dr. Hooker that they had been successfully raised at Kew; but further information I have not received.

held out to the Aymaras by the extremely high rates of wages, the Indians will not enter these regions until all other resources fail them; for they have an intense horror of these warm climates, where they, as a rule, die off so very rapidly that but a small proportion of those who enter ever return. For this reason, therefore, it is that the vegetable riches and the rich gold-deposits of this vast tropical region remain as yet quite undeveloped; the cultivation of the coffee, cacao, &c. is carried on on a very small scale; and the great extent of abandoned and now overgrown coca plantations attest the unwillingness of the Aymaras to colonize regions so prejudicial to their health, now that they have been freed from the Spanish tyranny which previously forced them away from their homes like slaves, to cultivate these plantations for the sole benefit of their oppressors.

The animals domesticated by the Aymaras are the llama, alpaca, sheep, and horned cattle; the horse, mule, and ass, but more especially the latter, are also reared by them. All of these animals, with exception of the llama and alpaca, are very different in appearance from the fine beasts found in the lower regions of South America; the horse especially, although originally of the same Andalusian parentage, degenerates greatly, becomes in these highlands a small scraggy pony, with but little strength or endurance, and altogether a very inferior animal to what it is either in the mountainous Chili or the level pampas of the Argentine Republic. Notwithstanding Tschudi's statement that the dog will not live in the very high regions, this animal is everywhere found in abundance, and, as a rule, is a surly beast, apparently much resembling his Indian master in character, and usually a very mongrel-looking animal. Cats are also abundant; and occasionally I have noticed some of very great size. Pigs and domestic fowls are also common; but I do not remember having seen a tame goose or duck amongst the Indians. Their huts often swarm with guinea-pigs, which are great favourites with them, and whose dirty-yellow-looking flesh is considered a delicacy by the Indians, although I never liked it. Cows are rarely seen in large numbers, and milk is seldom procurable except near towns; oxen are used in ploughing. Upon asking an Indian why they did not milk their alpacas or llamas, he replied that they gave more kicks than milk. The llamas are shorn with shears, in the ordinary way, for the sake of their wool; but the wool of the alpacas, for what precise reason

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Although living in the interior of Bolivia when I collected these seeds, I had not at the time the remotest idea that Mr. C. Markham was then in Peru, sent out by the government of India for the purpose of obtaining Cinchona plants.

I do not know, is cut off with a knife, the animal lying down, with his head held by a woman between her legs, while the man all the time cuts off the long hair or wool: the Indians declare that, unless a woman holds them in this position, they cannot keep the animal quiet. The flesh of the alpaca is eaten, but not unless killed by accident; I do not think that the Indians make a rule of slaughtering them for food, probably because of their greater value, since the wool, especially of the white alpaca, is extremely sought after, and when I was in Bolivia fetched from 60 to 80 dollars per quintal of 100 Spanish pounds, and even more, whilst the price of the animal itself in Bolivia varied from 5 to 8 dollars.

From the immense difference between the native climate of the alpaca, which is cold and wet, with a moist and extremely attenuated atmosphere, and that of the dry, hot, denser atmosphere of Australia, I always maintained that the experiment of introducing alpacas into that country could not prove a commercial success, believing that, even if the animal in the course of some few generations could be so far acclimatized as to be able to live under so different circumstances, the wool must change its nature, so as to become shorter and more hairy, like that of the camel, and consequently more suited to the animal's comfort in a hot climate, and that it could not retain the long soft silky character evidently provided by nature to keep the animal warm up in the cold highlands of Bolivia and Peru.

The alpaca in Peru and Bolivia has never been thoroughly tamed, and is left in a semi-wild state to graze up amongst the highest mountains close to the borders of perpetual snow, its fleece improving in quality in proportion as the country which it inhabits is more elevated.

As beasts of burden the Indian, except in the immediate neighbourhood of towns, seldom possesses either horses or mules, but in the more temperate parts often has asses, which are generally very small and inferior specimens of the animal; his true beast of burden is still, as in the most ancient times, the llama*, or, in Aymara, "ccaura," on which he carries not only

* In Humboldt's 'Aspects of Nature,' 1849, p. 140, it is stated, "Since the introduction of the more useful mules and asses, the custom of rearing and using the llama or *alpaca* as beasts of burden in the mountains and amongst the mines has much decreased." This is altogether incorrect; for although it is true that the number of mules in employment is probably now greater than before, it must be remembered that the traffic itself has greatly augmented; and whilst I was in Bolivia the llamas used for transport, so far from having diminished, were probably greater in number than at any previous period. As for the alpacas, they are never used, or even attempted to be used as beasts of burden—and, as far as I could learn, never were, even in the most ancient periods. Further, on pp. 139 and 140, herds of tame llamas

all his agricultural and other produce at home, but transports the metallic ores, wood, iron, salt, and other exports and imports of the trade of the country,—the cascarilla or quinine bark, which is packed up in hide bales called serons, too large for the animal, as well as other bulky articles, being, however, always carried to and fro by mules.

The cargo or load for a llama, when on a long journey, does not exceed 100 lbs. in weight; and since no packsaddle is employed, the load being equally divided on each side of the back, and tied on to the animal's back by a soft rope of llama wool, with or without a cloth or skin under it, it must be also of such a nature as not to hurt or tear the skin of the llama. For short journeys I have known llamas to take 122 lbs. wool, but not more. To each 33 loaded llamas one driver, or llamero, as he is termed in Spanish, is required; all contracts for carriage of goods by llamas are consequently made by the "piara," or 33 quintals or llama-cargoes.

The llama travels very slowly, and will not be forced out of his natural pace; if too much urged or if overloaded, they immediately stop and kneel down, and then cannot be persuaded to go on unless relieved. When thus kneeling down, they look exactly like so many small African camels. The Indian driver walks alongside them, usually spinning llama wool into yarn with his distaff as he walks along; as these animals will never eat at night, they browse as they proceed on their way, and consequently, at the pace they go, do not make a longer average journey than four leagues, or about twelve miles, per day: one of the most sagacious old llamas in each piara goes at the head of the troup and has a small bell suspended round his neck. The cost of a llama is from four to five dollars; the white llamas, which are more esteemed than the others, are often decorated with tassels of red wool attached to their ears, and sometimes to their sides or breast also; the greater number of the llamas, however, are black or deep brown; yet occasionally particoloured ones are seen. When meeting others or any travellers who may pass them, they stretch out their long necks and stare at the passers-by with their large eyes. If offended, they will stamp their feet

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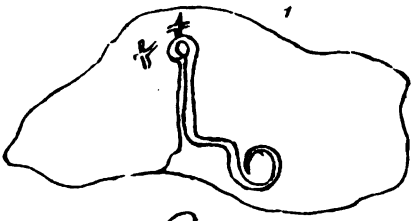
in Chili, are mentioned; it is added that "the moromoro of Chili appears to be a mere variety of llama," and that in that country the wild and tame huanaco are distinguished by separate names—the wild being called "luan" and the tame "Chilehueque:" these remarks are also incorrect, since llamas of any kind are not even known in Chili, nor are there any tame huanacos; the name Luan or Lluan is applied in Chili to an artificially brought-about hybrid between the sheep and the goat, cultivated, especially in Aconcagua, for the sake of its fur, which is much esteemed for saddle-cloths, owing to its great strength, length of hair (not wool), and durability.

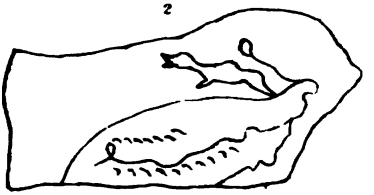
with rage, like a woman, and spit at their opponent's face, which, as the saliva is very acrid, usually makes the skin smart.

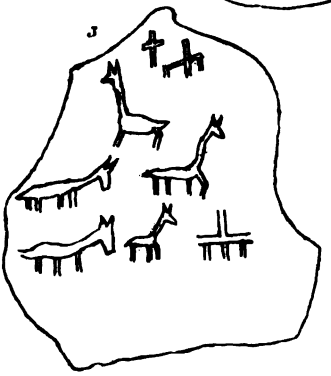
The Aymara language is one which as yet has attracted but very little attention, and has even by some writers been spoken of as a dialect of the Quechua or language of the Incas, notwithstanding that there are many reasons for believing that it must be by far the older of the two languages; and as many words are identical or very much allied in both languages, and as the general features of the grammars are much alike, I am inclined to the opinion that the Quechua language was of a very mixed character, like our present English, and that it had its origin in the Aymara,—also that, taking all circumstances into due consideration, the probability is that Manco Capac, the founder of Cusco and of the Inca dynasty, was an Aymara, who, after leaving the lake Titicaca, the home of the Aymara nation, founded a colony in the more genial region about Cusco, where he and his successors established themselves and extended their conquests or annexations on all sides, incorporating with themselves the numerous minor tribes which then held the country, into one great Peruvian or Inca empire, whilst at some time their languages became grafted on to and assimilated with the original Aymara to form a much richer and more perfect language, the Quechua—"La Lengua general" (or universal language) of Peru, as it was called by the Spaniards—which still retains many traces of its parentage. The original language of Manco Capac, or secret language known only to the members of the Inca families, would, according to this supposition, have been Aymara. Having conquered the greater part of the tribes of Western and Northern Peru, the Incas turned their arms southwards, where they also overran and annexed the Aymara country around Lake Titicaca, from which, according to their own traditions, the founder of their nation, Manco Capac, had originally proceeded.

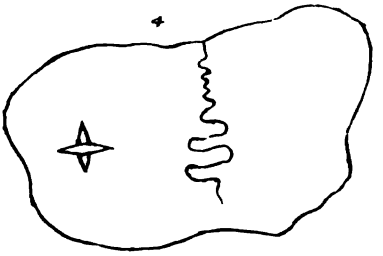
Neither the Quechua nor Aymara Indians appear to have ever possessed a written language*; and it is uncertain whether the latter ever made use of the Quipus, or system of recording events by knotted cords, which is said to have attained a great degree of perfection amongst the Quechuas in the time of the Incas. In many parts of the Aymara country, however, representations, usually on a very large scale, are seen, cut into the mountain-sides, of llamas, pumas, men, circles, rectangles, crosses, and other figures, several of which have already been described by Bollaert. Some of these figures appear to have been intended to mark places of burial, since mummies have been found in-

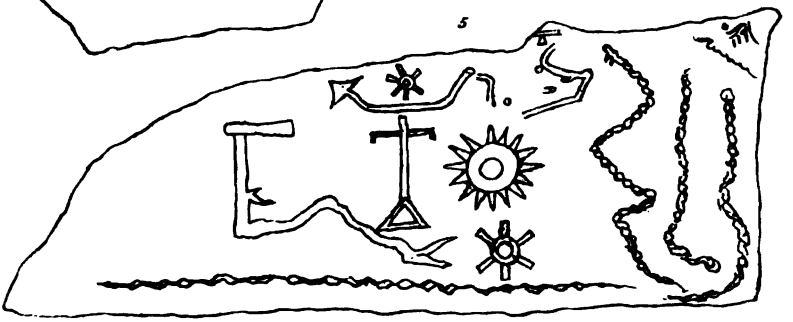
* Nevertheless the Aymaras have in their language a word, "quelcaña," signifying to write.

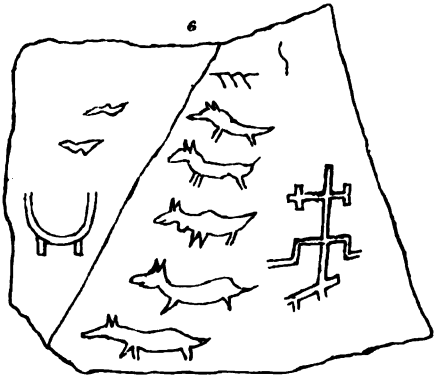












HIEROGLYPHICS - SOUTHERN PERU

terred close to them; whilst others are supposed to serve as indicators, to point out the direction of roads: thus the path to the pass across the Andes, at Cabesa de Vaca, in the south of the Desert of Atacama, is, I am informed, pointed out by figures of llamas cut in the side of the rocks, with their heads all turned in its direction. This also, I imagine, is the case with the figure of a llama, shown fig. 10, Plate XXI., which I saw on the side of a hill at Peña, in the saline desert, or pampa, of Tamargual, in Tarapaca, the eight triangular marks on the body of the animal possibly signifying the number of hours' journey to the next inhabited place.

Besides these, however, there are seen at several places in Peru rocks or large loose stones, more or less covered with a species of hieroglyphic markings; and through the kindness of Professor Boeck, of Arequipa, who copied them for me, I am enabled to give an example of these in Pls. XXII. and XXIII., which show the figures on the sides of fifteen large stones (amongst others) which are situated between Uchumaya and Vitor, in the south of Peru, and have been called by the Spaniards 'Las Campanas,' or 'La Biblioteca del Diabolo,' *i.e.* the Bells, or the Library of the Devil, the former name having been given because these stones are very sonorous when struck by a hammer or stone. Whether these symbols are of ancient Aymara origin, or were engraved by Quechuas subsequent to the Inca conquest of this part of the country, is uncertain; and I do not make any attempt in the present communication to decipher them, or explain their possible signification, my object being to bring them before the attention of those who have made such matters a special study.

The Aymara language is probably one of the most guttural in the world, much more so than even the Quechua, which is probably considerably richer in words; many of the Spanish writers, both ancient and modern, have described it as a beautiful and manly language—according to them, "as sonorous as the Spanish, yet as energetic and laconic as the English." The Aymaras themselves are evidently proud of their language, and in some parts, as about La Paz, are said to hold meetings for the purpose of keeping up its study, and discussing the purity or pronunciation of words or dialects spoken in the various districts; and I have been assured that some of the speakers at these reunions have not at all been deficient in the powers of oratory.

The Aymara alphabet may be regarded as represented by the following twenty-three letters (of which four, *cc*, *ñ*, *pp* and *tt* may be looked upon as double sounds):—A, C, CC, K, E, H, I, J, L, M, N, Ñ, O, P, PP, Q, R, S, T, TT, U, W and Y. The consonants B, D, F, G, V, X and Z are altogether wanting,

whilst the letters E, R, Ñ, and probably also J, are never used in the commencement of a word.

The letters *a, e, i, j, l* (both when single and doubled), *m, n, ñ, o, p, q, r, s, t, u,* and *y* are pronounced as in Spanish, the *h** and *w* as in English; but as the Spanish do not have the latter, they replace it, when writing Aymara, by the letters "*hu,*" which, in order to prevent confusion, is retained in the vocabulary given in the Appendix C.

The double letter *cc*, or *ck* (as it is sometimes written), is also known in Quechua, and is much harsher than either *c* or *k*, being a combination of a deep guttural with a sound from the roof of the mouth at the same time: we have no identical sound in any European language; and it is very difficult to acquire, causing much trouble to the beginner in Aymara, especially as the words spelt with *cc* are quite different in signification from those with the single *c*, which is pronounced as in Spanish or English. Thus, for example, we have:—

Camiri, Creator,	and	*ccamiri*, rich.
chaca, a bridge	,,	*cchaca*, a bone.
tonco, Indian corn	,,	*toncco*, a locker or small box.

Although a third sound, or "*k,*" is usually enumerated amongst the letters of the Aymara alphabet, I confess that I was in the majority of instances quite unable to make any distinct separation between it and the ordinary *c*, and therefore have put most of the words in which these letters occur under the latter. The only examples I am quite sure of are the following:—

Karitha, lied, *caritha*, tired, and *ccaritha*, cut; as also *kisimira*, a large wasp, *kinchata*, heart-disease, &c. A few more are given in the vocabulary.

pp in Aymara is a very strongly accented *p*, being an intensely labial sound; *tt* is what may be termed an exaggerated or very forcibly-pronounced and drawn-out *t*. For example:—

tanta, together, united;	*ttantta*, bread;
tacana, to seek;	*ttacana*, to hate;
taque, for;	*ttaque*, a road.

When writing Aymara, the Spaniards express the sound of *w* by the letters "*hu,*" and frequently place *g* for *h* or *c*, *o* instead of *u*, or *l* for *r*. Thus they write *huah-hua* (a baby) for *wawa,*

* The Aymaras in some districts occasionally, like the Cockneys, add the "*h*" when not required: thus they often pronounce "*uma*" water, as if spelt "*huma,*" and when speaking Spanish will say "hutil" for "util," "have" for "ave," &c.

guanaco and *guano* for *huanaco* and *huano*, *yungas* for *yuncas*, *punco* for *puncu*, &c.

The noun in Aymara has but one declension, the cases being effected by the addition of a termination, thus *auqui*, a father; *auquina*, of a father. The plural is formed by the addition of "naca," thus *auquinaca*, fathers; *auquinacana*, of fathers. The difference of gender is expressed either by distinct words, as *chacha* or *haqui*, a man; *marmi*, a woman; or by the addition of the words *urco* male, and *ccachu* female; thus *anocara urco*, a dog; *anocara ccachu*, a bitch; *atahualpa urco*, a cock; *atahualpa ccachu*, a hen. The Aymara language is, like the Quechua, extraordinarily rich in family nouns, *i. e.* those denoting degrees of relationship: I made a list of no fewer than 43 separate words, signifying each some distinct degree of family connexion; and I have no doubt that there are many more beyond this number. The termination "collo" when added to a substantive magnifies its meaning, thus, for example, *achaco*, a mouse, gives *achacollo*, a large mouse or rat; *ccoca*, a tree, affords in like manner *ccocacollo* a forest, or aggregation of many trees.

The pronouns are declined like the nouns; there are, however, two plurals to the pronoun *na*, I,—*nanaca*, we, being the exclusive one, used, for example, when it is said *we shall teach another*, in contradistinction to *huissa* we, the inclusive one, employed when it is said *we shall teach ourselves*. The possessive pronouns, *ha*, my, *ma*, thy, *pa*, his, *ssa*, ours, are declined almost the same as nouns, and are attached to the end of the substantive, thus *uta*, a house, *utaha*, my house, *utahana*, of my house, *utanacahana*, of my houses. The addition of "self" is expressed by placing "quiqui" before the possessive pronoun, thus *quiquiha*, I myself, *quiquima*, thou thyself, &c.

Adjectives when alone are declined like substantives, but if placed before substantives are unaltered in all the cases, whether the nouns be masculine or feminine; thus, *amauta chacha*, a wise man, *amauta marmi*, a wise woman, and in the genitive *amauta chachana*, not *amautana chachana*.

The Aymara numerals are as follows:—

1, maya.	10, tunca.
2, paya.	11, —— mayan.
3, quimsa.	12, —— payan.
4, pusi.	13, —— quimsan.
5, ppisca.	14, —— pusin.
6, sojta.	15, —— ppiscan.
7, pacalco.	16, —— sojtan.
8, quimsacalco.	17, —— pacalcon.
9, llatunca.	18, —— quimsacalcon.

19, tunca llatuncan.
20, patunca.
30, quimsatunca.
40, pusitunca.
50, ppiscatunca.
60, sojtatunca.
70, pacalcotunca.
80, quimisacalcotunca.
90, llatuncatunca.
100, pataca.
500, piscapataca.
1000, patacatuncani, *or* hachu.

Although there is only one conjugation for all verbs in the Aymara language, many circumstances combine to render it extremely difficult for a foreigner to acquire any thing like a correct or complete knowledge of this part of the grammar*, especially from the use of particles which modify the sense, and the system of formation of what are called by the Spaniards "transitive" verbs, in which a combination of the verb and pronoun is expressed. The construction of many irregular verbs which require to be syncopized, under certain circumstances, in order to modify or vary their signification, and the tendency in some districts to shorten, or cut out letters, or even syllables, although to be regarded only as a local or dialectic corruption, is nevertheless extremely perplexing to the student in a country where all must be learned from actual *vivâ voce* contact with the Indians themselves. In order to show that the language is a rich one in synonyms, or rather in words expressing but very slight differences in meaning, I will take the verbs in Aymara signifying "to bring" or "fetch" as an example, which, it will be seen, vary according to the nature of the thing referred to, thus :—

Apanima is applied when the object is held in the hand, as a jug of water.
Hiscanima, when, as with a horse, it must be lead by a lasso.
Iriptanima, when moved like a chair, table, &c.
Aptanima, when lifted up after having fallen down.
Yunima, when the animal or person is brought along, whether he will or will not come.
Catatinima, when it requires to be dragged, like a large stone &c.

* On the whole I imagine there are not more than four or five publications in this language; and I am satisfied that, in greater part, at least, the sources from which these have been compiled have been far from pure Aymara; for I have found that a large number of words employed in them are of Quechua origin, not used by the Aymaras, except in the provinces bordering on the Quechua-speaking districts; and the works themselves contain abundant proofs that the authors have been more versed in that language than in pure Aymara. Although I made all possible efforts during my residence in Bolivia, and advertised in the papers that I would pay the high sum of 50 dollars for a copy of an Aymara dictionary or grammar, I found it impossible to procure one.

Yanima, when the thing is proportionally very long, like a pole or tree.

Iranima, when it is round: this word is always applied to money.

Asinima, when hollow or concave like a bowl, plate, or trough.

Apakanima, when removed altogether from a place.

Apsunima, when it has been taken out of a place which it fits.

Unkutayema, when it, as it were, is shifted from one place to another.

Irpanima, when to be brought to another person.

Iscanima, when the thing, or person, requires guiding, as, for example, when a blind man is brought to another*.

And it is probable that others might be added to this list of fourteen, which I made in the district of Omasuyos.

Although the Aymaras make a rule of appearing as undemonstrative as possible before whites, they have, nevertheless, various interjections in their language, which are as follows:—to denote imploration, *A!*; admiration, *Huay!*; grief, *Atach!*; joy, *Añay!*; disgust, *ytity!*; unconcern, coldness, or indifference, *alala!*

In the Aymara there is the same tendency as in the Quechua and many other of the South-American languages (in common also with some of those of North America and Australasia) to repeat words, as *corocoro, caricari, ninanina, tiscotisco,* &c. In some instances it appears to be a form of plural, or of magnifying the signification; in others (like *mocco-mocco,* knotty, hilly, from *mocco,* a knot or hill; *umauma,* watery, juicy, from *uma,* water) it converts the substantive into an adjective; but I am not able to state any rule in reference to it.

In the scale of languages the Aymara does not by any means occupy a low position; it is, probably, only second to the Quechua in its powers both of description and expression, which are conveyed in the most terse, and yet at the same time precise language. From the character which I have given of the Indians themselves, one would not expect any great amount of sentiment to enter into their conversation; yet, in addressing one another, there is a good deal of what has been regarded as the figure of speech characteristic of eastern nations; thus an Aymara Indian would, when paying his addresses, be likely to make use of some such expression as the following: "Suma pancara chuima churiricsma" which, literally translated, is "Beautiful flower I desire to present you with my heart."

The Lord's prayer in Aymara is as follows:—

Nanacan auquia alajpachanacana cancta, sutima hamppati-

* All given in the imperative mood.

tapa, ccapaj cancañama nanacaru hutpana, munañama luratápana, camisa acapachan ucamaraqui alajpachansa. Urumjama hichurum ttanttaha churapjeta, huchanacahasti pampacharaquita, camisa nanacasa, nanacaru huchachacirinaca pampachapjta hucama, haniraqui huatecaru tincuñahasti haitaristati, nancanacatsti qquespiaraquita. Amen*.

The first work† on the Aymara language known to have been printed was the 'Grammatica Aymara por Bertonio' in Rome, 1603; a second edition of this, called the 'Arte de la lengua Aymara,' appeared in 4to, in 1612, and was probably printed at Juli, on the lake Titicaca, in Peru, as in the same year Bertonio brought out in that town a 'Vocabulario de la lengua Aymara' in 8vo, which still is the only attempt at a dictionary known, and is now so scarce that I could not find a copy in Bolivia; subsequently in 1616, in Lima, there appeared a Grammar or 'Arte Aymara por Torrez de Rubio,' 12mo; and these works, along with two little pamphlets of a few pages each, published in La Paz, respectively entitled 'Catechismo de la Doctrina Christiana, traducido del Castellano en Aimará i Quechua por el Presbiter José Gregorio Jurado,' 1860, and a 'Breve Catalogo de Aymara de las voces mas usuales al Castellano,' 1857, complete, as far as I could learn, the entire literature of this so little studied language.

Being compelled by circumstances to live some years amongst these Indians in the most out-of-the-way part of the Aymara district, I was obliged (since all my efforts to obtain or, even, see a grammar or dictionary were fruitless) to form a vocabulary for my own use; and as the words in this were obtained direct from the Indians themselves, quite independently of any previously published sources, and as I believe many of them are not to be found in the dictionary of Bertonio, I have added this in the Appendix C., under the idea that it may prove useful in the future study of this very interesting language.

In concluding this communication, I have but to add that its entire substance was written down during my residence and travels in Bolivia and Peru, in the years from 1859 to 1863 inclusive, where I had no opportunity of consulting any works of previous travellers in these regions, and consequently had to

* This version was that which was authorized for general use in the department of La Paz, and published by the Presbyter Jurado in 1860; and therefore I should regard it as probably more correct than the version (which differs somewhat from it) given by Tschudi, 'Die Kechua Sprache' (Wien), p. 19, as taken from Bayer, in Murro, 'Journal für Kunst u. Literatur' iii. p. 173.

† Before this I understand that a series of questions in Aymara were printed in the 'Confesionario en la lengua Española, en la general del Cusco and en la Aymara, impreso en los Reyes, 1585, por Padre Diego de Alcobaça.'

content myself with recording only what fell directly under my personal observation. Since returning to Europe, however, I have consulted all the works relating to this part of South America which I could lay my hands upon, with a view to rewriting the whole; yet, notwithstanding that I find that in some minor points I differ from those who have gone before me, and that in others I have been, at least in part, anticipated, more especially by D'Orbigny, I have upon mature consideration considered it best to communicate the manuscript as it stands, with but a few remarks interpolated, in order to explain some discrepancies which otherwise would not be quite so clear to the reader.

APPENDIX.

A. *Table of detailed Measurements of Aymara Indians.* (See p. 282.)

The only reference to any previous measurement of the stature or relative proportions of these Indians is contained in D'Orbigny's work on 'L'Homme Américain,' tome i. p. 102, where he gives the extreme height of the Aymara men as 1·65 metre, equal to 64·96 English inches, the average height being, according to him, 1·60 metre or 62·99 English inches; whilst the average height of the woman he regards as 1·46 metre or 57·48 inches. As before stated, my measurements led me to the figures 63 inches for the average and 64 the extreme height of the men, and 56 inches as about the average height of the women. D'Orbigny does not report having made any measurements of the other proportions of the body.

The measurements of the different individuals given in the Table are stated in English inches, from which the proportional numbers, or thousandths of their entire stature, are in each case calculated and given in the next column; in addition, the following remarks were noted down when measuring the various individuals numbered in the columns of the Table.

No. 1. Bolivian Aymara from the Puna region near La Paz, about 14,000 feet elevation above the sea; age somewhere between 30 and 40; measured after death, in February 1860, in the hospital of La Paz, with the assistance of Dr. Lopera. As death had resulted from dysentery, the body was in an extremely emaciated condition, and consequently several of the measurements are naturally less than would be the case if the same individual had been in a good state of health.

The features and expression were good; nose aquiline; mouth not large, with fine teeth, although coloured from chewing coca; the hair of the head, which was abundant, was drawn backwards and

plaited into a long pigtail; it was black, perfectly straight, and rather fine in texture. No trace of hair under the arms or elsewhere on the body, except a mere trace of soft black hair on the pubes.

Owing to the emaciated condition of the body, the contours of the limbs were more than usually angular; but the muscles were not strongly developed; the surface-veins on the legs were prominent.

The arch of the lower jaw, measured from angle to angle, was 7½ inches, or 120 thousandths of the entire stature; the shoulder-blade 6 inches, or 96 thousandths; and the height of head without the lower jaw was 6½ inches, or 105 thousandths. The colour of the skin was a reddish brown, the face being somewhat lighter in hue than the rest of the body, which also possessed a much stronger odour than usual in these Indians, most probably due to dirt and disease.

No. 2. Bolivian Aymara from the highlands above Sorata, named Manuel Chuquimia, a perfect specimen of a fine-built young Indian, about 20 years of age and in a perfect state of health; measured on the 2nd of March, 1861, some eighteen hours after having been accidentally killed.

The features and expression were more than usually good and pleasing; the face rather round; nose aquiline; mouth not large; the teeth white and good; and the lips of a faint yellowish-red tint and not thick. The eyes were of a deep brown colour, somewhat lenticular in shape, and nearly, but not altogether, horizontal, being but very slightly inclined inwards; the eyelashes were black and thick-set, and the hair of the eyebrows black and rather abundant.

The hair of the head was drawn backwards and plaited into one long pigtail, and was of a deep brownish-black colour, abundant, perfectly straight, and not coarse in texture. No beard or hair otherwise on face, under arms, or on limbs or body, except a small fringe of soft black hair on pubes.

The arms and legs were well formed, the contours being well rounded off, smooth, with neither the muscles nor surface-veins at all prominent; the hands and feet small.

The skin was of a fine soft texture, and of a dirty yellowish-brown colour, that of the face being lighter in tint than the body or limbs. The nipples of the mammæ were only just visible, and the umbilicus quite superficial. The penis was small and apparently situated somewhat higher up on the pubes than usual. The measurements were all verified by Dr. Cooke.

No. 3. Peruvian Aymara of the Puna, from Yanapilla near Yungullo, on the borders of Lake Titicaca, close to the confines of Bolivia, named Simona Mamani, between 22 and 26 years of age, and apparently in a good state of health when measured, on the 27th June, 1861.

Although the face was pock-marked and the features decidedly ugly, the expression was neither bad nor repulsive; the eyes, which were brown, were very slightly inclined inwards, with long black eyelashes and rather abundant eyebrows.

The nose was rather turned up at the extremity, with expanded and

open nostrils; the mouth straight, not very large, with fine white teeth and lips, which were not flabby or thick, and had a brownish red tint.

The hair of the head was black, not coarse, and was drawn backwards and plaited in two divisions for a short distance, after which the whole was plaited into one long pigtail. No trace of hair on the face except a little down on the upper lip; and on the limbs, under the arms, or on the body no trace was seen, beyond a few black silky hairs on the pubes.

The limbs were rounded in outline and well formed, but neither the surface-veins nor muscular development were at all prominent; the hands and feet were small, and the second toe projected somewhat beyond the great toe.

Although the habits of the individual were apparently dirty, the skin did not possess any perceptible odour, and was of a brownish colour with tinges of yellow and red; the areolæ of the nipples of the breasts, and the skin of the penis and scrotum, were darker in colour, with a shade of black. The texture of the skin was fine, soft, and smooth, without any trace of hairs.

No. 4. Peruvian Aymara from Pomata, on the shores of Lake Titicaca, about 45 years of age, named Mariano Quispi; when measured, on the 26th of June 1861, appeared to be in good health; and when weighed, at same time, was found to be 130 lbs.

The expression of features was not very good, being somewhat sullen, the eyes very small and slightly inclined inwards,—the face, on the whole, being exactly that shown in Plate XIX., the nose not being aquiline, but the same as there represented, the nostrils being expanded and prominent. The hair of the head was of a deep brown-black, straight, and not coarse. The eyelashes were black, as also the hairs of the eyebrows, which were sparse. A few straggling short hairs were seen on the upper lip and under the armpits, but none otherwise on the body or limbs, except a little silky brown-black soft hair on the pubes.

The colour of the skin was dusky yellowish brown with a faint tinge of red, that of the scrotum, penis (including the glans) (which was apparently situated higher up than usual), and the nipples of the breasts being much darker and blacker in tint. The colour of the face was rather lighter than the general hue of the body, which emitted no perceptible odour and was smooth and soft in texture.

The contours of the limbs were rounded off, the muscles, although well developed, not producing any appearance of angularity in outline; the surface-veins were not prominent, and the feet and hands were small.

No. 5 gives the average of the four preceding measurements.

No. 6. Bolivian Aymara Indian from Timusa, in the tropical valleys on the eastern flank of the high Andes; both he and his father before him had been born and brought up in this district, his grandfather, however, having come from the Puna region as a colonist. His name was Manuel Calli; and when measured, on the 17th of June, 1861, he appeared to be in tolerable health and about thirty years of age.

The features and expression of countenance were good; the nose aquiline; mouth slightly curved, not large, with good teeth, and lips of a yellowish-red colour, not thick. The eyes were black, somewhat lenticular in shape and slightly inclined inwards, with short black eyelashes and sparse eyebrows.

The hair of the head was deep brown-black, perfectly straight, and not coarse; it was drawn backwards and plaited into a long pigtail, hanging down the back. Except a little hair on the pubes, no beard or other hair was seen on the face, body, or limbs.

The colour of the skin was of a clear yellowish-brown hue, without a trace of red, the face being lighter and of a still more yellow tint than that of the rest of the body, which did not exhale any apparent odour.

The limbs, although thin and in poor condition, did not look angular; neither muscles nor surface-veins were prominent.

No. 7. Rudisindo Perez, a Bolivian Aymara from Coroico, in the tropical valleys of the Yungas to the east of the high Andes, was born and brought up on the Hacienda de San Jose de Chicalulo, near Coroico, his father having also been born in Yungas; when measured, on the 17th of June, 1861, he was evidently in a bad state of health, and appeared to be about forty years of age. He was considered to be the tallest man on the hacienda or in the neighbourhood, yet was only 5 feet 4 inches when measured, although he looked very much taller.

The expression of the features, although good, was sad and very dejected; nose aquiline; mouth not large, with thin lips of a brown-red colour; eyes black, slightly inclined inwards, and had a melancholy expression; eyelashes long and black, the hair of the eyebrows being black but sparse.

The hair of the head was black, but not coarse, and was drawn back and plaited into one long pigtail; a few straggling short hairs were seen upon the upper lip, but none on the rest of the face; a trace of hair occurred on the legs, but not on the arms or body, except on the pubes.

The skin had a soft texture and a yellow-brown colour, without any trace of red; it had a disagreeable odour, probably due to disease. The muscles of the limbs were very little developed, and the surface-veins not prominent—the general outline being somewhat angular, evidently on account of the bad state of health of the individual.

No. 8. Average of the measurements of the last two Indians.

No. 9. General average of all the measurements of the Aymara men in this Table.

No. 10. Bolivian Aymara woman from the district of La Paz, probably about nineteen years of age, married, but with no children; when measured, in March 1862, she was in a good state of health.

The expression of the features was less sullen than usual, being more lively and sly than in the generality of Aymara women; forehead extremely low; nose aquiline and somewhat curved in at lower extremity; nostrils very open and expanded; mouth not large, with

strong, white, but somewhat irregular teeth, and full but not flabby lips. The eyes were small, deep brown, somewhat inclined inwards, and had a peculiar sly expression. The eyelashes were long and black, whilst the hair on the eyebrows, also black, was sparse.

The hair of the head was very abundant and long, perfectly straight, and in texture very much finer than the black hair of the Spanish or Chola women; it was drawn backwards and plaited into two pigtails. No trace of hair elsewhere on the body, limbs, or under the arms, except a few silky hairs, like an eyelash, on the edge of the labiæ.

The skin was smooth and soft in texture, feeling cool and as if polished to the touch, and was of a yellowish-brown colour, with a slight tinge of red, which was most pronounced on the legs. The colour of the face was lighter than that of the body; the breasts were well-formed and firm, the nipples being surrounded with a dark blackish areola, about three-quarters of an inch in diameter. The contour of the limbs was slightly rounded off, neither muscles nor surface-veins being prominent.

This woman is below the average stature, and much less massive in proportions than the Aymara females in general, but otherwise may be regarded as a good specimen.

B. *Substances used as Medicines by the Aymara Indians, and their names for Diseases.*

Quinoa, the seeds of the *Chenopodium quinoa*. The water in which these seeds are steeped before being cooked for food contains a bitter principle, and is used as an emetic; about a tenth of the weight of a Bolivian dollar of the seeds are placed in a glass full of cold water, and allowed to stand (covered over) all night, when the seeds are strained off, and the water, taken by spoonfuls, acts as an emetic. The water in which a handful of seeds has been boiled, when taken internally, is said to cure gonorrhœa very quickly.

Huanapaco, a sort of soft thistle, similar in appearance to that common in England; the leaves are used as a poultice for wounds.

Pantipanti, a wild flower, pink-red, with a yellow centre; about twenty of the fresh or dried flowers, infused in warm water, are taken as a dose as a sudorific in colds or pleurisy.

Conduri, the Condor. The flesh of this bird is esteemed as a sort of universal remedy; and the fat is especially recommended in rheumatism and diseases of the joints.

Itapalu, a species of nettle, the leaf of which is longer, and the stinging-hairs more prominent than in the ordinary English plant; a decoction is used for cutting short the menses.

Quellhua, a species of white Gull, common around Lake Titicaca, the heart of which is used for bringing away the after-birth.

Opopo, a small plant (a species of wort) is, when dried, put into hollow teeth to cure the toothache,

Anuchape, a small thorny shrub, about 18 inches high, with prickly seeds; when boiled in water, the decoction is used to cure eruptions of the skin. (*Continued on* p. 286.)

	Measurements.	Aymara men. Cold highlands of Bolivia and Peru. Normal.			
		1. Bolivia. La Paz.		2. Bolivia. Sorata.	
		in.		in.	
1	Stature	61·50	1000	62	1000
2.	Extreme distance between finger-tips, arms extended horizontally	.....	.....	.....	.....
3	Head, greatest circumference	19·50	317	22	354
4	——, „ width (with callipers)	5·25	85	5·25	84
5	——, „ antero-posterior diameter (with callipers)	7	113	7	112
a	——, „ height from under chin to vertex (6+7+8+11+12)	.....	.....	9	145
b	——, „ height without lower jaw (6+7+8+11)	.....	.....	7·25	117
6	——, distance perpendicularly from vertex to growth of hair	.....	.....	1·75	28
7	——, forehead from growth of hair to orbit	.....	.....	2·75	44
8	——, Nose from orbit to nostrils, vertically	.....	.....	1·75	28
9	——, „ projection at nostrils	.....	.....	·75	12
10	——, „ breadth „	.....	.....	1·50	24
11	——, Jaw, upper (upper lip), from nostrils to centre of mouth	.....	.....	1	17
12	——, „ lower (under lip and chin), from centre of mouth to below chin	.....	.....	1·75	28
13	——, Face, breadth between cheek-bones (with callipers)	.....	.....	5	80
c	——, „ length from growth of hair to below chin (7+8+11+12)	.....	.....	7·25	106
14	——, Eye, distance between inner corners of eyes	.....	.....	1·25	20
15	——, „ „ „ outer „	.....	.....	4	64
d	——, „ length of orifice of eye $\left(\frac{15-14}{2}\right)$	.....	.....	1·37	22
16	——, Mouth, breadth	.....	.....	2·25	36
17	——, Ear, height or length	.....	.....	2	32
18	Neck, length from chin to semilunar notch of sternum, measured upright	.....	.....	2·50	40
19	——, breadth across from semilunar notch to 7th vertebra of neck (with callipers)	.....	.....	5	80
20	——, *circumference*	.....	.....	13	208
e	Head and neck, from vertex to semilunar notch of sternum (6+7+8+11+12+18)	.....	.....	11·50	185
21	Trunk, breadth across between outer tips of shoulders in a straight line	14	226	14·50	234
f	——, front length from semilunar notch of sternum to fork of legs (30+33)	.....	.....	23·25	375
22	——, back length, from 7th vertebra of neck to os coccygis	20·50	333	.....	.....
g	——, side length, from shoulder-tip to trochanter major (35+37)	.....	.....	21	338
23	——, Breasts, breadth between nipples of mammæ	.....	.....	7·75	125
24	——, „ height from below mammæ to semilunar notch of sternum	.....	.....	.....	.....
25	——, Chest, breadth across between armpits in straight line	.....	.....	10·50	169
26	——, Chest, height in front from semilunar notch to tip of sternal cartilage	7	113	7·75	125
27	——, Chest, height at side from tip of shoulder to lowest rib	.....	.....	14·50	234
28	——, Chest, *circumference under armpits*, respiration at ease	.....	.....	.....	.....

Aymara men. Cold highlands of Bolivia and Peru. Normal.						Aymara men. Hot low valleys of Bolivia. Abnormal.						9. Average of all the preceding Aymara men.		10. Aymara woman. Department of La Paz, Bolivia. Normal.	
3. Peru. Yungullo.		4. Peru. Pomata.		5. Average.		6. Bolivia. Timusa.		7. Bolivia. Coroico.		8. Average.					
in.		in.		in.		in.		in.		in.		in.		in.	
62	1000	61·87	1000	61·87	1000	64	1000	64	1000	64	1000	62·56	1000	55·75	1000
63	1016	62·75	1014	62·87	1015	68·50	1070	67·50	1054	68	1062	65·43	1038	54·50	978
20·50	331	21·50	347	20·87	337	22·50	347	21·50	336	22	341	21·25	339	21·50	386
5·37	87	5·75	93	5·37	87	6·25	98	5·75	90	6	94	5·62	90	6	108
7·12	115	7·37	119	7·12	115	7	109	6·50	102	6·75	105	7	111	6·75	121
8·75	140	8·87	142	8·87	142	9·25	144	8·75	128	8·75	136	8·75	141	8·50	152
7	112	7·12	114	7·12	114	7·50	117	6·75	105	7·12	111	7·12	114	6·50	116
2	32	2·37	38	2	33	2·75	43	1·75	27	2·25	35	2·12	34	1·75	31
2·25	36	2·25	36	2·37	38	1·75	27	2·25	35	2	32	2·25	36	1·75	31
1·50	24	1·62	26	1·62	26	2·25	35	2	31	2·12	33	1·87	29	2	36
·62	10	·62	10	·62	11	·75	12	·75	12	·75	12	·75	11	·50	9
1·25	20	1·50	24	1·37	23	1·50	23	1·50	23	1·50	23	1·37	23	1·75	31
1·25	20	·87	14	1	17	·75	12	·75	12	·75	12	·87	15	1	18
1·75	28	1·75	28	1·75	28	1·75	27	1·50	23	1·62	25	1·62	27	2	36
5·12	83	5·50	89	5·25	82	5	78	5·25	82	5·12	80	5·12	82	5·25	94
6·75	108	6·50	104	6·75	106	6·50	101	6·50	101	6·50	101	6·62	107	6·75	121
1·62	26	1·25	20	1·37	22	1·25	19	1·25	19	1·25	19	1·75	21	1·50	27
4·25	69	4·25	69	4·12	68	4	63	4	63	4	63	4·12	66	3·75	67
1·37	22	1·50	24	1·37	23	1·37	22	1·37	22	1·37	22	1·25	22	1·12	20
2	32	2·25	36	2·12	34	2·25	35	2	31	2·12	33	2·12	34	2·50	45
2·25	36	2·25	36	2·12	34	2	31	2	31	2	31	2·12	33	2	36
3	48	4·25	69	3·25	52	2	31	2·12	39	2·06	35	2·75	45	2·50	45
5	81	5·50	89	5·12	83	4·75	74	4·50	70	4·62	72	5	79	5	90
13	208	13·50	218	13·12	211	13	203	12	187	12·50	198	12·87	205	13·50	242
11·75	188	13·12	211	12·12	194	11·25	175	10·37	167	10·81	171	11·50	186	11	197
13·50	218	15	242	14·25	230	15·50	242	15	234	15·25	238	14·75	235	12·25	220
20	322	22·75	367	22	354	.....	.....	.....	.....	.....	.....	22	354	19·12	363
24	388	22·75	368	22·50	363	.....	.....	.....	.....	.....	.....	22·50	363	21	377
20·50	331	21·50	344	20·87	337	.....	.....	.....	.....	.....	.....	20·87	337	19	341
7·50	121	8·50	137	7·87	127	9·25	145	9	141	9·12	143	8·37	114	7·25	130
7·50	121	8	129	7·75	125	6 50	102	6	94	6·25	98	5·62	111	6·25	112
12	193	13	210	11·75	190	13·25	207	12	187	12·62	197	12·12	193	10	179
8	129	9	145	7·87	128	8	125	7·75	121	7·87	123	7·87	126	6·75	121
14	226	14	226	14·12	228	14	219	13·50	211	13·75	215	14	223	10	179
34	549	37·75	610	35·87	580	.....	.....	.....	.....	.....	.....	35·87	580	31	556

TABLE

	Measurements.	Aymara men. Cold highlands of Bolivia and Peru. Abnormal.			
		1. Bolivia. La Paz.		2 Bolivia. Sorata.	
		in.		in.	
29	Trunk, Waist, *circumference* of the smallest part of body	.....	.....	.....	.....
30	——, Distance from the semilunar notch of sternum to umbilicus	.....	.....	14·75	238
31	——, Abdomen, *circumference* at navel	.....	.....	27·25	440
32	——, ,, distance from umbilicus to symphysis pubis in straight line	.....	.....	.....	.....
33	——, Abdomen, distance from umbilicus to fork of legs	.....	.....	8·50	137
34	——, Abdomen, distance from umbilicus to anterior superior spine of ilium	.....	.....	5·75	93
35	——, Distance from shoulder-tip to anterior superior spine of ilium	.....	.....	17	274
36	——, Pelvis, breadth, straight, between the anterior superior spines of ilium	9·50	154	10·75	173
37	——, Pelvis, height from anterior superior spine of ilium to trochanter major	.....	.....	4	64
38	——, Pelvis, circumference round alæ	.....	.....	.....	.....
39	Upper extremity, arm, upper, length of humerus	10	162	10	160
40	————, ,, ,, *greatest circumference*	.....	.....	.....	.....
41	————, ,, ,, *least ditto*	.....	.....	.....	.....
42	————, ,, lower, length of radius	9·50	154	9·50	153
43	————, ,, ,, *greatest circumference*	.....	.....	.....	.....
44	————, ,, ,, *least ditto*	.....	.....	6·25	108
45	————, Hand, length from wrist to tip of forefinger	6·75	109	7	112
h	————, Hand, length, exclusive of fingers (45—47)	.....	.....	4	64
46	————, ,, breadth without thumb	.....	.....	3·25	51
47	————, ,, forefinger to knuckle-joint	.....	.....	3	48
i	————, entire arm from shoulder-joint to tip of forefinger (39+42+45)	26·25	425	26·50	425
48	Lower extremity, thigh, length from trochanter major to knee-joint (femur)	13	211	13	210
49	————, thigh, length inside from fork of legs to knee-joint	.....	.....	12	193
50	————, thigh, *greatest circumference*	.....	.....	.....	.....
51	————, ,, *least ditto*	.....	.....	11	177
52	————, Knee-joint, *circumference*	.....	.....	11	177
53	————, Leg (tibia), length from knee-joint to ankle	14	226	14·25	230
54	————, *greatest circumference*, calf of leg	.....	.....	11	177
55	————, *least ditto*	.....	.....	8	129
56	————, Foot, length of the sole from heel to tip of great toe	7·75	125	8·50	137
57	————, Foot, length of back or ridge from leg to tip of great toe	6·50	105	5·50	89
58	————, Foot, greatest breadth	.....	.....	3·25	51
59	————, ,, height from ground to tip of inner ankle	.....	.....	2·75	44
60	————, Foot, *greatest circumference* around instep	.....	.....	8·75	141
k	————, entire (thigh, leg, and foot), from trochanter major to ground (48+53+59)	.....	.....	.....	.....
l	————, entire (thigh, leg, and foot), inside from fork to ground (49+53+59)	.....	.....	29	467

(*continued*).

Aymara men. Cold highlands of Bolivia and Peru. Abnormal.						Aymara men. Hot low valleys of Bolivia. Abnormal.						9. Average of all the preceding Aymara men.		10. Aymara woman. Department of La Paz, Bolivia. Normal.	
3. Peru. Yungullo.		4. Peru. Pomata.		5. Average.		6. Bolivia. Timusa.		7. Bolivia. Coroico.		8. Average.					
in.		in.		in.		in.		in.		in.		in.		in.	
26	420	32·50	525	29·25	473	.....	.....	.....	.....	.....	.....	29·25	473	27·50	493
13	209	14·50	230	14	226	12·50	195	12·75	199	12·62	197	13·50	214	11	197
28	452	35·75	578	30·75	490	.....	.....	.....	.....	.....	.....	30·37	490	27·50	493
	81	5	81	5	81	.....	.....	.....	.....	.....	.....	5	81	5·75	103
5															
	113	8·50	137	8	129	.....	.....	.....	.....	.....	.....	8	129	8·25	166
7															
	73	6	97	5·87	88	6	94	.....	.....	6	94	5·62	94	5·50	99
4·50															
	250	17·50	279	16·50	267	14	219	15·50	242	14·75	231	15·87	253	14·50	260
15·50															
	177	11·50	186	10·62	172	13·50	211	12·50	195	13	203	11·75	183	11	197
11															
	81	4	65	4·37	70	.....	.....	.....	.....	.....	.....	4·37	70	4·50	81
5															
29·50	476	27·50	444	28·50	460	.....	.....	... ..	.....	.....	.....	28·50	460	31	556
12	193	12·50	202	11·12	179	12	187	11	172	11·50	179	11·25	179	10	179
8	129	10	162	9	145	9	141	9	141	9	141	9	143	10	179
8·75	141	9	145	8·87	143	8·50	133	7	109	7·75	121	8·37	132	8·75	156
9	145	8·75	141	9·12	148	9·25	145	9·50	148	9·62	146	9·25	148	9	161
9·25	149	9·25	147	9·25	148	9	141	8·50	133	8·75	137	9	143	8·25	148
6·25	101	6	97	6·12	102	6·25	98	6	94	6·12	96	6·12	100	6	108
6·50	105	6	97	6·62	108	6·50	102	7	109	6·75	105	6·62	106	6	108
3	49	2·75	46	3·25	53	3	47	3·62	56	3·31	52	3·37	54	2·75	50
3·50	56	3·50	57	3·37	55	3	47	3·25	51	3·12	49	3·12	52	3	54
3·50	56	3·25	53	3·25	52	3·25	51	3·50	55	3·37	53	3·25	52	3·25	58
29·25	443	27·25	440	27·12	435	27·75	434	27·50	429	27·87	430	27·25	434	25	448
13·37	216	13	210	13·12	211	14	219	14	219	14	219	13·37	214	13	233
13	209	11	171	12	191	.....	.....	.....	.....	.....	.....	12	191	10·75	192
17	274	18	291	17·50	283	.....	.....	.....	.....	.....	.....	17·50	283	18·50	331
13	209	14	226	12·62	204	13·50	211	11·75	184	12·62	197	12·62	201	13	233
13·50	218	13	210	12·50	202	13·25	207	12·50	195	12·87	201	12·62	201	12·50	224
14·50	234	13·87	224	14·12	253	15	234	14	219	14·50	226	14·25	228	13·25	237
11·75	190	12·25	198	11·62	188	12·75	199	11·25	176	12	187	11·75	188	10·50	188
8	129	7·75	125	7·12	127	8	125	7·50	117	7·75	121	7·87	125	7·50	138
8·75	141	9	145	8·50	137	9·50	148	8·75	137	9·12	143	8·37	139	8	143
5	81	6	97	7·50	98	6	94	5·75	90	5·87	92	6	96	5	90
3·75	60	3·50	57	3·50	56	3·75	59	3·50	55	3·62	57	3·50	54	3·25	58
2·18	35	2·06	33	2·37	37	2·50	39	3	47	2·75	43	2·50	40	2·50	45
10	161	9·25	147	9·25	149	9·50	148	9·25	145	9·37	147	9·37	148	8·50	152
31·50	508	30·50	493	31	500	31·50	492	32·50	508	32	500	31·50	500	28·25	506
29·68	478	26·93	428	28·50	444	.....	.....	.....	.....	.....	.....	28·50	444	26·50	474

Añatuya, the Skunk; the heart of this animal, taken internally, is used under the impression that it assists labour.

Yaca-yaca, the Woodpecker; the tongue of this bird is placed in hollow teeth to cure toothache.

Anocara, the Dog; the hair of the dog, when burnt, and its ashes rubbed into the wound, is said to cure the bite of a dog.

Toucan; the tongue of this bird is considered so good a remedy against heart-disease, that the Indians pay as much as five shillings for the tongue alone.

Chusichusi, a plant with a viscid juice, much employed in the cure of recent wounds.

Ramo-ramo (*? lamo-lamo*), is a mineral used internally as an antidote against poisons; a sample, which I analyzed, was only a mixture of iron pyrites with quartz.

Molle-molle, the wild currant, which has both red and yellow fruit, and is used in catarrh, &c.

Chacacoma, a plant having a fœtid smell, which is used internally in cases of colic and disorders of the bowels; it has a hot taste, and is used in small quantity by the Indians in their sauces as a condiment. Externally, when mixed with dried figs, they use it in the form of a cataplasm, applying it to the testicles in hernia.

Chich chipa, a species of fennel; the seeds are used as a stimulant, and are also added as a condiment to the Aymara soups.

Women's milk is used as a lotion in cases of injuries to the eyes.

As before mentioned, dried seaweed, obtained from Cobija, on the shores of the Pacific, is used in the cure of goître; and mercury, principally made up with lard into a species of blue ointment, is used in the treatment of syphilis both in man and the alpaca. Mr. Falckenheimer, the German apothecary in La Paz, informed me that the Indians also purchased calomel largely for this purpose, and that they were never known to apply to the medical men, but always, and apparently with success, cured the disease themselves; they also employ cascarilla- or quinine-bark in the cure of Tertians or intermittent fever, which, in the lower valleys, commits great havoc amongst the Indians.

The names of the principal diseases in Aymara are as follows:—*chuccchu*, fever and ague; *huju* or *uju*?, a cough or bronchitis; *taycayestua*, a cold or catarrh: *cchaca-usu*, syphilis; *ccoto*, the goître; *caratchi*, eruptions or pustules of the skin; *chupu*, tumours, boils or carbuncles; *huanti*, bubo; *sirqui*, a wart; *macatiriusu*, contagion; *huntiusu*, fever; *suicho*, paralysis of legs; *cucillo*, paralysis of the arms; *kinchata*, heart-disease; *lacacama*, toothache; *yaca-taco*, stone in the bladder; *chocritacha* or *chocri*, a wound; *coyo*, a contusion; *tuluya*, club-foot; *nairahuisa*, short sight; *lerco*, squint-eyed; *occara*, deaf; *huico*, blind; *pejecora*, bald; *hinata*, dead; *huila*, blood, or the menses; *hualce*, pregnancy; *huahua-chaña*, childbirth; *ispaco*, twins; *tucu-usu*, madness; *ccolla*, medicine; *usu*, disease.

C. *Vocabulary of Aymara Words.*

The following Aymara words were collected in daily intercourse with the Aymara Indians of the northernmost provinces of Bolivia, and those of the Department of Puna, in Peru. In the latter district, owing to the relations with the Quechua Indians more to the north, many words of Quechua origin are used, which are seldom employed further south in Bolivia. In putting them on paper, they are written as if spelt according to the usual rules of Spanish pronunciation, at least as nearly as was found possible in the case of so extraordinarily distinct and guttural a language.

A ! dah ! *interjection of imploration.*
Aca, *this.*
Acaacata, *from hereabouts.*
Acaaja, *hereabouts.*
Acahua, *here it is.*
Acajpacha, *the earth.*
Acama, *thus, in this manner.*
Acampi, *with this.*
Acana, *here.*
Acanhua, *here.*
Acaru, *here.*
Acata, *from here.*
Accanca, *any large or thick thing.*
Achachi, *old (masculine).*
Achachiha, *grandfather.*
Achaco, *mouse.*
Achacollo, *rat.*
Achulla, *weazel.*
Achuma, *thistle.*
Aculli, *quid of coca-leaves.*
Ahuatiña, *to graze.*
Ahuatiri, *a shepherd.*
Aiccoña, *to complain lamenting.*
Aicha, *flesh.*
Ainacha, *low, below.*
Ainachata, *from below.*
Ainiña, *to dispute or argue.*
Airu, *a plant.*
Ajipa, *an esculent root.*
Ajlliña, *to select.*
Ajllita, *a thing selected.*
Ajsarãña, *to fear.*
Ajsarayaña, *to terrify.*
Akanu (ajanu), *the face.*
Alacpacha (? Arajpacha), *heaven.*
Alala ! *exclamation of coldness, indifference.*
Alaña, *to buy.*
Alata, *a purchaser.*
Alcamari, *a sort of buzzard.*
Alchiha, *grand-daughter.*
Ali, *a branch.*
Aljiri, *a seller.*
Allchicha, *nephew of one's grandmother.*
Alloja, *much.*
Alloha, *a wife's younger brother.*
Altaña, *to stoop or crouch down.*
Altata, *dejected, low spirited.*
Aliyaña, *to increase, or to make to grow.*
Amauta, *wise, prudent.*
Amaya, *dead.*
Ampara, *hand.*
Ampata, *high.*
Amtosiña, *to arrange or agree.*
Amu, amuta, *dumb, silent.*
Amuquiña, *to be silent.*
Anoco, *a woman's robe.*
Anata, *the carnival.*
Anatañia, *to play,*
Anaturi, *a player.*
Anca, *toasted Indian corn.*
Ancu, *a nerve or sinew.*
Anccaru, *besides.*
Anccaro, *without.*
Anocara, *a dog.*
Antutiña, *to loosen.*
Antutata, *a thing loosened.*
Anu, *a dog.*
Anuchape, *a medicinal plant.*
Añatuya, *the skunk.*
Añay ! *exclamation of joy.*
Apacaña, *to remove.*
Apachi, *old (feminine).*
Apacheta, *a cairn.*
Apachiha, *grandmother.*
Apaña, *to fetch or bring.*
Apasanca, *a large spider.*
Apichu, *sweet potato.*
Apilla, *oca (root of Oxalis tuberosa), penis.*
Apsuña, *to take out a thing.*
Aptaña, *to fetch a thing fallen down.*
Apu, *fierce, brave ; also used for Mr. or Master.*

Aquiri, *this nearest.*
Arcaña, *to follow.*
Arctaña *to track.*
Araja, *above.*
Arajpacha, *heaven, the sky.*
Ari, *sharp, pointed.*
Aricoma, *an esculent root.*
Armoña, *to forget.*
Armosiña, *to forget oneself.*
Arpi, *the lap.*
Aru, *language, words.*
Arujana, *to foretell.*
Aruma *, *night.*
Arumanti, *morning.*
Arumaji, *in the morning.*
Aruntaña, *to salute.*
Arusiña, *to speak.*
Arttaña, *to shout after.*
Asaña, *to bring or fetch a hollow or concave object.*
Asque, *good, well.*
Atakh! *exclamation of grief.*
Atahualpa, *a fowl.*
—— ccachu, *a hen.*
—— urco, *a cock.*
Atha, *seed.*
Atipaña, *to overcome or conquer.*
Atipata, *a thing conquered.*
Atipari, *a conqueror.*
Aucca, *an enemy, the devil.*
Auqui, *father.*
Auquichiha, *husband's father.*
Aya-aya, *Aymara nightingale.*
Ayllo, *race, tribe, penis.*
Ca, *take hold of.*
Caara, *tomorrow.*
Caccaña, *to rub.*
Cachounasi, *a friend.*
Cachu, *husk of the Indian corn.*
Cachua, *an Indian round dance.*
Cachuaña *to dance in a ring.*
Cahuaña, *to put in order.*
Callaña, *to cure.*
Callachi, *shoulder.*
Callcu, *bitter, sour.*
Cama, *until.*
Camachiña, *to command.*
Camachitaaru, *a command, law.*
Camani, *worthy.*
Camisa, *how.*
Camisati, *how so.*
Campu, *the Puna spider.*
Canca, *roast flesh.*
Cancana, *a roasting-spit.*
Cancaña, *to possess.*
Cantatiuriuri, *dawn, break of day.*
Cañu, *a Titicaca fish.*
Cañamiski, *treacle.*
Capa, *a span.*
Carachi, *skin disease, also a fish.*
Carcatiña, *to tremble.*
Carhuachincha, *opossum.*
Caricari, *messenger of the devil.*
Caruru, *tomorrow.*
Catari, *a serpent, snake.*
Catatiña, *to bring dragging along.*
Catuña, *to take hold of.*
Cauna, *egg.*
Caucau, *fish-roe.*
Caui, *sweet prepared ocas.*
Cauqui, *where.*
Cauquijata, *from whereabouts.*
Cauquina, *in what place.*
Cauquinhama, *very seldom.*
Cauquipachaqui, *seldom.*
Cauquiru, *whither.*
Cauquita, *from whither.*
Cauquitaatassa, *from where are you?*
Caya, *chuño of ocas.*
Chaca, *a bridge.*
Chaccaña, *to loose oneself.*
Chacachaca, *a small snipe.*
Chacha, *a man, husband.*
Chachacoma, *a medical plant.*
Chacasita, *choked.*
Chactoña, *to nail.*
Chacuru, *a pole.*
Chahuichahui, *a large snipe.*
Chahuaña, *to suckle.*
Chaiña, *a goldfinch.*
Chairo, *soup made of chuño.*
Chajchuña, *to irrigate.*
Chaillallapi, *close at hand.*
Challa, *sand.*
Challichalli, *cantharides fly.*
Challua, *fish.*
Chama, *force.*
Chamaca, *dark.*
Chamani, *strong.*
Champa, *turf.*
Chanca, *thread.*
Chani, *value.*
Chapi, *a thorn.*
Chara, *leg.*
Charqui, *dried flesh.*
Chataña, *to denounce.*
Checa, *true.*
Checapuni, *truly.*

* The Indians, in conversation, say always "night and day," never "day and night."

Chectaña, *to split or break up.*
Checaptayaña, *to rectify.*
Cheka, *left.*
Checca, *a bird's wing.*
Chenque, *vagina.*
Chia, *measure of a span.*
Chiaña, *to split up, to break.*
Chiara, *black.*
Chica, *united.*
Chica aruma, *midnight.*
Chichi, *aquatic larvæ eaten by the Indians.*
Chichchipa, *fennel.*
Chichillanca, *bluebottle-fly.*
Chihua, *verdure.*
Chihuaña, *to express.*
Chihuancu, *a thrush.*
Chigi, *danger.*
Chijchi, *hail.*
Chijmana, *head-gear of an animal.*
Chilca, *ice.*
Chilque, *a step, a pace.*
China, *end, rump, buttocks.*
Chinasca, *endly, lastly.*
Chinanquiri, *hindermost.*
Chinchi, *red pepper.*
Chinqui, *younger sister.*
Chinu, *a knot.*
Chinuña, *to bind or tie.*
Chinta, *arriero's assistant.*
Chiñi, *a bat.*
Chipana, *bracelet.*
Chirhuaña, *to express.*
Chiroti, *a small bird.*
Chitua, *shade, shadow.*
Choca, *a water-hen.*
Chocque, *gold.*
Chocri, *a wound.*
Chocricata, *wounded.*
Chojni, *green.*
Chojnihuaicu, *green pepper.*
Choque, *potato.*
Choque, *raw.*
Chora, *urine.*
Choraña, *to make water.*
Choriti, *a small bird.*
Chua, *an earthen saucer.*
Chua, *bar-silver.*
Chucho, *a yearling llama.*
Chucchu, *tertian fever and ague.*
Chucuña *to sew.*
Chuima, *heart.*
Chuisaaña, *to be absent.*
Chumapusa, *a hollow thing.*
Chuluca, *a cricket.*
Chulluncaya, *snow.*
Chulpa, *a burial tower.*
Chulqui, *a sweet variety of maize.*
Chuma, *brushwood.*
Chuñu *potatoes prepared by freezing.*
Chupu, *a tumour or boil.*
Chupica, *brown-red.*
Churu, *a curve or circle.*
Chusaca, *an owl.*
Chusaaña, *to be absent.*
Cocahuanco, *a rabbit.*
Cochamasi, *friend.*
Colcque, *silver, money.*
Collachaa, *elder sister.*
Collaña, *to cure.*
Collocaya, *prepared frozen ocas.*
Concho, *dirty.*
Conduri, *condor.*
Coolu, Coolulu, } *a Titicaca fish.*
Coori, *gold.*
Capanaira, *blue eyes.*
Cora, *a leaf.*
Coraña, *to release.*
Corompila, *a small bird.*
Coya, *a queen.*
Coyo, *a bruise, contusion.*
Cquca, *cotton.*
Cqueiachaña, *to injure.*
Cquenaya, *a cloud.*
Cqueña, *to excite.*
Cquepa, *a woof, a species of trumpet.*
Cucata, *from above.*
Cuchuña, *to cut.*
Cuchicuchi, *a small bird.*
Cuchuchu, *an edible aquatic plant.*
Cucillo, *paralysis of the arms.*
Cucupa, *dried boiled potatoes.*
Cula, *air-dried brick.*
Culcataya, *a dove, pigeon.*
Culiaca, *sister.*
Culli, *dark-coloured maize.*
Cumu, *a load.*
Cuna, *what.*
Cunalaicu, *why.*
Cunapacha, *when.*
Cunata, *wherefore.*
Cunataicu, *because.*
Cunataque, *wherefore.*
Cunca, *voice, throat.*
Cupi, *right.*
Cupiampara, *right hand.*
Curcura, *cane.*
Curihualuru, *three days ago.*
Curmi, *a load.*
Cusca, *equal.*
Cuscachaña, *to match, to equalize.*
Cusicusi, *spider.*

Cusillo, *monkey*.
Cusisiña, *to rejoice, enjoy oneself*.
Cussi, *a witty saying*.
Cutinaña, *to turn, return*.
Cuuna, *this way*.
Cuuro, *yonder*.
Cuuta, *thereabouts*.
Cuyu, *that*.
Cuyuña, *to whistle*.
Kariña, *to lie*.
Kepi, *the lap*.
Kinchata, *heart-disease*.
Kirikiri, *a singing-bird*.
Kisimira, *a large woof*.
Kuitururui, *a water-beetle*.
Ccachu, *female, wife, woman*.
Ccahua, *Indian shirt*.
Ccaica?, *how much*.
Ccaira, *a frog*.
Ccala, *a stone, a rock*.
Ccalaña, *to commence*.
Ccalauchaña, *to pave*.
Ccamiri, *a thick coverlet*.
Ccamaki, *a fox*.
Ccana, *light, clearness*.
Ccantayaña, *to illuminate*.
Ccanaqui, *clearly*.
Ccanca, *how much*.
Ccapi, *fierce, brave*.
Ccapisiña, *to irritate oneself*.
Ccapu, *distaff, spindle*.
Ccapuña, *to spin*.
Ccara, *morning*.
Ccaruru, *morning*.
Ccarurumaca, *until tomorrow*.
Ccariña, *to tire oneself*.
Ccatua, *son-in-law by husband's side*.
Ccatahui, *lime*.
Ccauca, *how much*.
Ccaura, *llama*.
Ccauralliki, *llama-fat*.
Ccaysiña, *totora, Titicaca rush*.
Cchaca, *bone*.
Cchacausu, *syphilis*.
Cchara, *a leg*.
Ccoca, *a tree, plant*.
Ccocacollo, *a forest, plantation*.
Ccohoña, *to chant*.
Ccolla, *medicine*.
Ccollo, *a mountain*.
Ccolliña, *to plough*.
Cconaña, *to grind*.
Cconcari, *knee*.
Ccorahua, *deep*.
Ccorpa, *the end*.
Ccorpauta, *a resting-place, inn*.
Ccota, *a lake*.
Ccoto, *a wen, goitre*.
Ccoya, *a mine*.
Ccu, *there*.
Ccucha, *a corner*.
Ccumu, *humpbacked*.
Ccumuña, *to load a beast*.
Ccuña, *to snow*.
Ccuñu, *snow*.
Ccuri, *that furthest*.
Ccururu, *navel*.
Ccusa *chicha*.
Ccuti, *a flea, an illegitimate son*.
Ccuyaña, *to have pity*.
Ha, *my*.
Hacaña, *to live*.
Hacayaña, *to cure another*.
Hacha, *great, large*.
Hacha, *a tear*.
Hachaña, *to cry*.
Hachataña, *to revive*.
Hachausu, *the pest*.
Hachu, *a thousand*.
Haccu, *flour, meal*.
Hahuiri, *a river*.
Haitjaña, *to hang*.
Haipu, *night*.
Haipucama, *until to-night*.
Hairu, *idle*.
Haitaña, *to abandon*.
Halla, *yes*.
Hallam, *fly! run!*
Hallaña, *to run*.
Halpaña, *to lick or lap up*.
Hallu, *rain*.
Hallupacha, *rainy season*.
Hulyataña, *to assault*.
Hama, *thou*.
Hamachi, *a bird*.
Hamasata, *secretly*.
Hamattanca, *scarabæus beetle*.
Hampatiña *, *to kiss, to adore*.
Hampatita, *a kiss*.
Hampatua, *a toad*.
Hamppi, *toasted maize*.
Hamppiña, *to toast maize*.
Hanco, *white*.
Hanchi, *the body*.
Hancca, *quickly*.
Hani, *no*.
Hanicaruriri, *disobedient*.

* To kiss or adore are the same in Aymara; in ancient times they sent a kiss with their fingers to the gods or idols as a mark of adoration.

Hanihihuiri, *immortal.*
Hanihuchani, *innocent.*
Hanirara, *not yet.*
Haniraque, *neither, just as little.*
Hapusnacaña, *to pride oneself.*
Haqui, *a man.*
Haquimasa, *neighbour.*
Haquiri, *nephew.*
Harapi, *rib.*
Hararaña, *to untie.*
Hararancu, *a lizard.*
Harcana, *to hinder.*
Hariluraña, *difficult.*
Hariña, *to wash.*
Harita, *almost.*
Haru, *bitter.*
Haya, *for.*
Hayu, *salt.*
Hayunchaña, *to salt.*
Hemque, *pus.*
Heuque, *smoke.*
Hicani, *shoulder.*
Hicha, *now.*
Hichuru, *to-day.*
Hichpacha, *this instant.*
Hichpachahua, *this very instant.*
Hichat-acaru, *in advance.*
Hichi, *a handful.*
Hicco, *hiccup.*
Hihuaña, *to die.*
Hihuayaña, *to kill.*
Hihuasi, *us.*
Hila, *a brother.*
Hinata, *dead.*
Hinchu, *ear, handle.*
Hiñu, *orphan.*
Hipilla, *entrails.*
Hiquiña, *to bring or draw out* (iquina?).
Hiquisiña, *to encounter.*
Hisca, *small, little.*
Hiscaña, *to bring along* (iscaña?).
Hitisiña, *to envy.*
Huaca, *idol, ancient grave.*
Huacahampatiña, *to worship idols.*
Huacaichaña, *to keep the laws.*
Huacana, *a heron.*
Huachanca, *a vomipurge root.*
Huachoca, *dishonest.*
Huaculla, *a jug, jar.*
Huacca, *a sash.*
Huaccha, *poor person.*
Huahua, *a child.*
Huahuachaña, *to give birth.*
Huahuataya, *a vegetable condiment.*
Huaicu, *red pepper.*
Huaicataña, *to hang.*
Huaina, *a youth.*
Huaita, *plumage, feathers.*
Huajra, *horn.*
Hualique, *well, excellent.*
Hualqui, *pregnancy.*
Huallaque, *boiling.*
Huallata, *wild goose.*
Hualluru, *day before yesterday.*
Huallusa, *an edible root.*
Hualpa, *a fowl.*
Huampu, *balsa, raft or boat.*
Huaña, *to dry.*
Huanapaco, *soft thistle.*
Huanaña, *to amend.*
Huancara, *a drum.*
Huanco, *rabbit.*
Huanichaña, *to warn, correct.*
Huantahualla, *the devil.*
Huanti, *bubo.*
Huaraca, *a sling.*
Huaraña, *to pull down.*
Huarariña, *to shout.*
Huarahuara, *star.*
Huarapo, *juice of sugar-cane.*
Huarini, *a huanaco.*
Huasara, *desert, wilderness.*
Huasitoraqui, *another time.*
Huasuru, *yesterday.*
Huaticaña, *to waylay.*
Huayacca, *a bag.*
Huayronco, *a gadfly.*
Hucanca, *this way, hereabouts.*
Hucha, *fault, sin.*
Huchapuchasiña, *to sin.*
Huchha, *porridge.*
Huchusa, *a thin thing.*
Huccha, *the size of a thing.*
Huccahuaro, *deep.*
Huccanca, *a thick thing.*
Hucja, *so much.*
Hucjaqui, *enough.*
Huju, *a cough* (uju?).
Hucumari, *a bear.*
Huichinca, *tail.*
Huicu, *blind.*
Huila, *blood, the menses.*
Huiñaya, *ever, always.*
Huiñayataque, *for ever.*
Hiuntu, *the heel.*
Huipuru, *day after to-morrow.*
Huiru, *green stalk of maize.*
Huisca, *a chain.*
Huissa, *we.*
Huma, *thou.*
Humampi, *with thee.*
Huntu, *hot.*
Huntua, *heat.*

Huntihitua, *sensation of heat.*
Huntuchaña, *to heat up.*
Huntuusu, *fever.*
Hupa, *he.*
Hupa, *quinoa.*
Hupaccusi, *chicha from quinoa.*
Huri, *wet.*
Hurpuru, *day after to-morrow.*
Icanu, *shoulder* (?h),
Icha, *now* (?h).
Icma, *widow.*
Ichu, *long grass, thatch.*
Ichuru, *to-day* (?h).
Ihuicaña, *to lecture, to advise.*
Ilicata, *farm-bailiff, river-bird.*
Illapa, *lightning.*
Imaña, *to hide away.*
Imatisiña, *to hide oneself.*
Imilla, *girl.*
Inaja, *probably.*
Inata, *uselessly.*
Ipa, *aunt.*
Ipasari, *nephew.*
Iquiña, *to sleep.*
Iquihancataña, *to wish to sleep.*
Irama, *road on side of a mountain.*
Irańa, *to bring something round.*
Irnacaña, *to work.*
Irpaña, *to carry to a person.*
Isañu, *root of Tropæolum tuberosum.*
Isapayaña, *to make oneself understood.*
Iscallo, *cloak.*
Iscu, *sandals.*
Iscca, *small.*
Isi, *clothing.*
Iscaña, *to bring guiding along.*
Ispaña, *to hear, to understand.*
Ispaco, *twins.*
Ispi, *a small fish.*
Isquiña, *to ask, to inquire.*
Istoraña, *to open.*
Istalla, *bag of coca leaves.*
Istasiña, *to clothe oneself.*
Itapalu, *nettle.*
Itacaña, *to retire.*
Laca, *mouth.*
Lacacama, *toothache.*
Lacacchaca, *teeth, jawbone.*
Lacca, *earth.*
Lacco, *worm.*
Lahua, *wood.*
Laica, *witchcraft.*
Laicaña, *to bewitch.*
Laicu, *for, on account of.*
Lajra, *the tongue.*
Lampa, *spade.*
Lancaña, *to stumble.*
Lanccu, *fat, large.*
Lanti, *representative.*
Lappa, *louse.*
Lappi, *a leaf.*
Laquiña, *to distribute.*
Larama, *blue.*
Larca, *ditch, canal.*
Lariha, *male connexions of the wife.*
Laruña, *to laugh.*
Lattaña, *to climb.*
Lattoraña, *to come down.*
Lejhui, *brains.*
Lepitchi, *skin.*
Lercu, *squint-eyed.*
Liga, *a plant.*
Liuchu, *a cap.*
Lillicoya, *wild potato.*
Llacca, *a leaf.*
Llacllaña, *to cut wood.*
Llacota, *Indian garment.*
Llacatata, *perverse.*
Llalliña, *to benefit.*
Llamaya, *harvest.*
Llamcaña, *to touch, to try.*
Llapocha, *thunder.*
Llampu, *small powdery stuff.*
Llampuchaña, *to powder, to smooth.*
Llaqui, *affliction, pain.*
Llaquisiña, *to suffer.*
Llatayna, *envy.*
Llatunca, *nine.*
Llausa, *slavering.*
Llica, *aid.*
Lliki, *fat.*
Lliclla, *a woman's shawl.*
Lliellic, *a bird* (*Charadrius resplendens*).
Llinque, *clay.*
Lloclla, *inundation.*
Llucta, *ash used with coca.*
Locoto, *large green pepper.*
Luccana, *finger.*
Lukichoque, *bitter potato.*
Lulli, *humming bird.*
Lupataha, *fact, thing done.*
Lupi, *the sun.*
Lupimactri, *sunrise.*
Lupiusaracani, *sunset.*
Luram, *do so.*
Maa, *one.*
Maacuti, *once.*
Maamara, *next year.*
Maaqui, *at once, quickly.*
Macallo, *tasteless, insipid.*
Macamaca, *a black ibex.*
Macataña, *to approach.*

Macatiriusu, *contagion.*
Machaca, *new.*
Machacamara, *new year.*
Machacata, *again.*
Machaña, *to get drunk.*
Machata, *sober.*
Malliña, *to prove.*
Mallco, *corrigidor.*
Mama, *mother.*
Mamaccota, *sea.*
Mamani, *falcon, hawk.*
Mamoraya, *a fly.*
Manca, *food.*
Mancaña, *to eat.*
Mancayaña, *to feed.*
Mancataautjata, *hungry.*
Mancca, *within,*
Manccana, *inwardly.*
Mancaro, *below.*
Mantaña, *to enter, stoop, descend.*
Mantayaña, *to make to enter, &c.*
Mañu, *debt, debtor.*
Manuiña, *to lend.*
Manuuña, *to owe.*
Manutiña, *to lend oneself.*
Manupocaña, *to repay.*
Mara, *a year.*
Marca, *a village.*
Marcachaña, *to approach, to join.*
Maripacha, *buttocks, anus.*
Marmi, *woman, wife.*
Marmiasiña, *to marry.*
Maroma, *a rope to cross rivers with.*
Masana, *once upon a time.*
Masi, *comrade, like.*
Massanoha, *husband, brother.*
Masqui, *although.*
Masuru, *yesterday.*
Mati, *a small gourd or calabash.*
Mauri, *a freshwater fish.*
Maya, *one.*
Mayampi, *another time.*
Mayiña, *to ask.*
Maymara, *last year.*
Maymuru, *kidney.*
Mayni, *one.*
Maynimpi, *with another.*
Mayniqui, *only one.*
Maytaña, *to lend, to offer.*
Maytasiña, *to ask a loan.*
Mayurcu, *the other day.*
Micha, *bad.*
Michi, *bow and arrow.*
Michiña, *to shoot with bow and arrow.*
Minca, *a substitute.*
Mincaña, *to substitute.*
Miski, *treacle, syrup.*
Misqui, *ounce, puma.*
Mocco, *a knot, a small hill.*
Moccomocco, *knotty, hilly.*
Molle, *a tree, (Schinus molle).*
Mollemolle, *with current.*
Morocco, *round.*
Mpi, *with.*
Mujlli, *elbow.*
Mulla, *fright, alarm.*
Munaña, *to love.*
Muñapayaña, *to love at a distance.*
Munasiña, *to love oneself.*
Muñata, *loved.*
Muquiña, *to smell.*
Muspa, *pensive.*
Muspaña, *to be pensive.*
Mutuña, *to suffer punishment.*
Mutuyaña, *to punish.*
Muttu, *blunt.*
Na, *I.*
Na, prep., *in, with.*
Nacaña, *to burn.*
Nacata, *a thing burnt.*
Nacuta?, *hair.*
Nahatansa, *of my size.*
Nanaca, *we.*
Naña, *almost.*
Nasa, *nose.*
Naya, *I.*
Nayampi, *with me.*
Nayra, *first, in front, before.*
Nayra, *eye.*
Nayracata, *ahead, in front.*
Nayra huisca, *short sight.*
Nauccha, *of my size.*
Nia, *presently.*
Niapini, *only this moment.*
Niapinihua, *in a moment, instantly.*
Niaraque, *another time.*
Nicota, *hair of the head.*
Nina, *fire.*
Ninanina *dragon-fly.*
Ninquira, *lately.*
Ninquiraque, *very lately.*
Nuaña, *to beat, to knock about.*
Nucuña, *to shove, push.*
Nuñu, *breast, teat.*
Nuñuayaña, *to suckle.*
Nuñuiri, *wet-nurse.*
Nusaña, *to rot.*
Nusata, *rotten.*
Nusatahua, *to be decayed*
Nypa, *three days hence.*
Oca, a *wave.*
Ocana, *a pick.*
Ocque, *ash-grey.*
Ocquenaira, *light blue or grey eyes.*

Occaña, *to tie in a bow.*
Occara, *deaf.*
Ocallo, *frog-spawn.*
Ocoocao, *a muddy place.*
Oiso, *a sort of spade.*
Ojota, *sandal.*
Opopo, *a plant used for toothache.*
Oracci, *ground, land, estate.*
Ouranypa, *in four days hence.*
Pa, *two.*
Paca, *eagle, vulture.*
Pacalco, *seven.*
Pacariña, *to waken.*
Pacay, *fruit of a species of Inga.*
Pacha, *time or place.*
Pachacantati, *streak of day.*
Pachacha, *gypsum.*
Paco, *red.*
Pacoma, *captive, prisoner.*
Paccha, *fountain, waterfall.*
Paccoma, *old wood.*
Pacsi, *moon, month.*
Pacuti, *twice.*
Pallalla, *a small trowel, a flat thing.*
Pallaña, *to gather.*
Pampa, *a plain.*
Pampachaña, *to smoothen.*
Pana, *a waterfowl.*
Pancara, *a flower.*
Pancataya, *a beetle.*
Pani, *two.*
Panini, *between two.*
Panisa, *we two.*
Pantaña, *to err.*
Pantipanti, *a flower used as a sudorific.*
Paquiña, *to break.*
Para, *forehead.*
Parara, *stone for grinding on.*
Paraliuela, *a hand-barrow.*
Parpa, *eyelash.*
Pascana, *a storehouse.*
Pataati, *a stone bench.*
Pataca, *a hundred.*
Patapata, *a ladder.*
Patcaro, *above.*
Patunca, *twenty.*
Paura, *ear of corn.*
Paurnachata, *corn in ear.*
Paurnachasiña, *to shoot into ear.*
Paya, *two.*
Payampi, *two more.*
Payaña, *to cook.*
Payiri, *a cook.*
Payla, *large pot.*
Payco (?Pallco), *a species of Chenopodium.*
Pejicara, *bald.*
Piara, *the number of 33 llamas.*
Pichi, *spoon-shaped ornaments.*
Pichaña, *to sweep.*
Pichitanki, *a swallow.*
Picho, *a brand, a faggot.*
Pichuichaya, *a sparrow.*
Pillu, *a garland.*
Pilpinto, *a butterfly.*
Pinquillo, *a flute.*
Pinquilluña, *to play the flute.*
Pircuña, *to clean.*
Pirua, *a granary.*
Piruru, *a spindle, distaff.*
Pisacca, *a partridge.*
Pisi, *little, scarce.*
Pituña, *to mix or knead up.*
Poco, *an earthen pot or jar* (Ppucu?).
Pocota, *a ripe thing.*
Pongo, *a house-porter or male servant.*
Poroma, *virgin ground.*
Possoco, *froth.*
Puchu, *enough, more than enough.*
Pucyo, *a well.*
Puma, *a puma.*
Punku, *a door.*
Puraca, *belly, stomach.*
Puriña, *to arrive.*
Puruma (poroma?), *virgin land, deserts.*
Purtaña, *to lodge.*
Pusaña, *to blow on an instrument.*
Pusi, *four.*
Pusini, *in four parts, between four.*
Pusitunca, *forty.*
Putisiña, *sad, melancholy.*
Pututu, *a long trumpet.*
Putuncu, *a hole.*
Puyu, *a feather.*
Ppampaña, *to bury.*
Ppassa, *clay eaten by the Aymaras.*
Ppala, *rope cord.*
Ppapa, *marrow.*
Ppekei, *head.*
Ppia, *a hole.*
Ppiaña, *to make a hole.*
Ppiscca, *five.*
Ppiscatunca, *fifty.*
Ppisna, *a light thing.*
Ppoco, *a full thing.*
Ppocaña, *to fill.*
Ppucha, *a daughter.*
Ppucu, *an earthen pot.*
Quajra, *horn.*
Quelcaña, *to write.*
Quelhua, *a white gull.*

Quella, *ashes.*
Quella, *iron, steel.*
Quellacahua, *coat of mail.*
Quellahuisca, *iron chain.*
Quemisiña, *to discover.*
Queni, *farinaceous.*
Quenti, *humming-bird.*
Quenua, *a tree.*
Querari, *dirty, filthy.*
Quesi, *a freshwater fish.*
Quespi, *glass.*
Quespinaira, *spectacles.*
Quespiña, *to escape.*
Quespayaña, *to liberate.*
Quesphiru, *liberator, saviour.*
Quiatuha, *sister-in-law.*
Quichiña, *to strip.*
Quillimi, *charcoal.*
Quillpiña, *to kneel.*
Quilquiña, *a vegetable condiment.*
Quimsa, *three.*
Quimsacalco, *eight.*
Quimsatunca, *eighty.*
Quinocaya, *a species of diver.*
Quiqui, *self.*
Quistuña, *to chew.*
Quitaña, *to envy.*
Quiti, *who.*
Quitisi, *who is it?*
Sa (conj.), *and, as.*
Sama, *rest.*
Sampaña, *to rest.*
Samca, *sleep.*
Samcoña, *at night, whilst sleeping.*
Samcasiña, *to snore.*
Sana, *to say.*
Sañu, *a comb.*
Sanuña, *to comb.*
Sapa, *alone.*
Sapa sapa, *one by one.*
Sapacal, *woodlouse.*
Sapana, *a girl.*
Sappa, *a basket.*
Sappi, *a root.*
Saraña, *to go on a journey.*
Saram, *go! be off!*
Sari, *agouti.*
Sata, *seed.*
Sataña, *to sow.*
Satha *or* stha, *I wish, desire.*
Sau, *cloth.*
Sauña, *to weave.*
Sauri, *a weaver.*
Sauca, *nonsense, fun.*
Saucosiña, *to make fun of.*
Sayaña, *to stop.*
Sayri, *tobacco.*
Seposiña, *to live in concubinage.*
Sepi, *a cockroach.*
Sequei, *a freshwater fish.*
Sillu, *finger-nail.*
Simpla, *a maroma of hide rope.*
Sinti, *much.*
Sirca, *vein, lode.*
Siripito, *cricket.*
Sistasiña, *to stuff oneself in eating.*
Socoso, *reed.*
Sojta, *six.*
Sojtatunca, *sixty.*
Ssa, *ours.*
Suchi, *a freshwater fish.*
Suicho, *paralysis of legs.*
Sulla, *dew.*
Sullca, *elder brother.*
Sullu, *miscarriage.*
Sulluña, *to miscarry.*
Suluqui, *a small diver.*
Suma, *beautiful.*
Suncca, *hair on the face.*
Suni, *puna.*
Suntiña, *to wallow.*
Supay, *the devil.*
Suri, *American ostrich.*
Susuña, *to sift.*
Suti, *name.*
Sutiasiri, *a baptizer.*
Suteyaña, *to name, to baptize.*
Suyaña, *to hope.*
Tacaña, *to search for.*
Tachlli, *five fingers.*
Tacsaña, *to wash.*
Tacsiri, *a washerwoman.*
Tahuaco, *young woman, girl.*
Taiachas, *boiled frozen ysaños.*
Taica, *mother.*
Taipuuru, *noon.*
Taipi, *middle, centre.*
Taiquichi, *mother-in-law.*
Tajia, *Llama-dung.*
Tajo, *Algarrobo tree.*
Talaraña, *to shake a thing.*
Tanccatancca, *scarabæus beetle.*
Tansa, *height.*
Tanta, *united.*
Tantaña, *to unite.*
Tapa, *a nest.*
Tapachaña, *to nestle, to dwell.*
Tapathama, *suddenly.*
Taparacu, *a butterfly of ill omen.*
Taque, *all, every one.*
Taqueatipiri, *almighty.*
Taqueaiña, *to suffer.*
Taqui, *for.*
Taquiña, *to kick.*

Tarhua, *wool.*
Taripaña, *to judge.*
Taripiri, *a judge.*
Taruja, *a stag.*
Tasu, *calf of the leg.*
Tata, *father.*
Tatita, *do, diminutive.*
Taya, *cold.*
Tayhitua, *sensation of cold.*
Taycayestua, *catarrh.*
Tayutayu, *heel.*
Thia, *outside boundary.*
Thuca, *a clothes-moth.*
Tica, *air-dried bricks.*
Tilaña, *to weave.*
Timpiña, *a workman's apron.*
Tinca, *a fillip.*
Tincuña, *to fall.*
Tincya, *a guitar.*
Tipa, *dragon's-blood tree.*
Tipusiña, *to get in a passion.*
Tiquitiqui, *red-crested waterhen.*
Tironcayu, *beard.*
Tiscotisco, *grasshopper.*
Titi, *wild cat, tin.*
Tocoña, *to dance.*
Tocori, *a dancer.*
Tonco, *maize, Indian corn.*
Toncco, *a locker or cupboard.*
Toqueña, *to wrangle, to degrade.*
Toquero, *towards.*
Touhouacoma, *female friend.*
Tucsa, *stinking.*
Tucsaña, *to stink.*
Tuchichaña, *to finish.*
Tujru, *a stick.*
Tukuusu, *madness.*
Tullca, *son-in-law.*
Tunca, *ten.*
Tunqui, *a red bird* (*Rupicola Peruviana*).
Tupu, *a measure.*
Tupuña, *to measure.*
Tutuca, *a hurricane.*
Ttacaña, *to wean.*
Ttacu, *rough, foul, entangled.*
Ttanta, *bread.*
Ttaqui, *a road.*
Ttuca, *lean.*
Ttucaptaña, *to become lean.*
Ttucuña, *to admire oneself.*
Ttuna, *dirt.*
Ttuta, *moth.*
Uacho, *a furrow.*
Uarauara, *stars.*
Uca, *that.*
Ucalaycu, *therefore.*
Ucamaqui, *no more of this.*
Ucampi, *more.*
Ucampiru, *just lately.*
Ucapacha, *then.*
Ucasti, *also.*
Ucata, *after.*
Ucsa, *furthermore.*
Uihua, *a domestic animal.*
Uihuaña, *to breed.*
Uju, *a cough.*
Ujuña, *to cough.*
Ullico, *tubercles of Ullicus tuberosus.*
Ulupique, *smallest and strongest green pepper.*
Uma, *water.*
Umaña, *to drink.*
Umahui, *drunkenness.*
Umauma, *watery, juicy.*
Umacayá, *steeped ocas.*
Umachos, *ridges for planting between.*
Umacollo, *duck.*
Umanto, *fish from Lake Titicaca.*
Unancha, *banner, signal, image.*
Unanchaña, *to signalize, to advertise.*
Unuctayaña, *to move to another place.*
Uñjaña, *to look at.*
Uñisiña, *to abhor.*
Uru, *day.*
Ururi, *morning star.*
Uracque, *ground, foundation.*
Urpi, *pigeon, dove.*
Uscuña, *to place.*
Usu, *disease, illness.*
Usuña, *to be ill, to sicken.*
Usuta, *sandals.*
Uta, a *house.*
Utamasi, *a neighbour.*
Utjaña, *to sit down.*
Utachaña, *to build.*
Uyu, *a bed, an inclosure.*
Yaca-yaca, *woodpecker,*
Yacachaña, *to give birth.*
Yacallachi, *bladder.*
Yacona, *an edible root.*
Yacca, *urine.*
Yaccaña, *to make water.*
Yaccana, *separate, apart.*
Yahuiña, *to darken.*
Yalliña, *to surpass.*
Yaña, *a servant, domestic.*
Yanaña, *to attempt.*
Yanapaña, *to assist.*
Yancca, *bad.*
Yacpihaña, *to bind the hands.*
Yapiña, *to tie up.*
Yapu, *field, estate.*

Yareta, *Bolax glebaria.*
Yarhui, *arriero's needle.*
Yarhuihuisca, *chain of wire.*
Yasaña, *to believe.*
Yatjayaña, *to mend.*
Yatiña, *to know.*
Yatichaña, *to teach.*
Yatichiri, *a teacher.*
Yatiri, *an instructed man.*
Yatiyri, *Creator* (*all-knowing*).
Yepocca, *thunder* (Llapocha ?).
Yoaniha, *wife's connexions.*
Yocachaijiri, *midwife.*
Yocca, *son.*
Ysañu, *tubercle of Tropæolum tuberosum.*
Yupaichaña, *to obey.*
Yuta, *a partridge.*
Yuyu, *a young herb.*
Yyaña, *to grind.*

EXPLANATION OF PLATES XVII. TO XXIII.

Plate XVII.

Portrait of an Aymara man of the normal type; from the Department of La Paz, Bolivia. Reduced from a drawing from life.

Plate XVIII.

Portrait of an Aymara woman, from the Department of La Paz; more than usually good-looking, yet perfectly characteristic. Reduced from a drawing from life.

Plate XIX.

Portrait of an Aymara man of less usual type; from the northernmost part of the Aymara country, in Peru, on the confines of the Quechua district. Reduced from a drawing from life.

Plate XX.

Fig. 1, *a* and *b*. Figure (full size) of a silver image found in an ancient grave at Caquinhora, near Corocoro, in Bolivia.

Fig. 2, *a* and *b*. Representation of an idol at Tiahuanaco in Bolivia. This shows the character of the more primitive remains at that place when compared with the elaborately sculptured idols of later date and totally different character, some of which are figured in the atlas to D'Orbigny's 'Homme Américain.'

Fig. 3. Small clay stove used in cooking.

4. Forms of pottery in common use amongst the Aymaras.

5. Form of club-head of magnetic oxide of iron frequently found in the tombs.

Plate XXI.

Fig. 1. Neck-ornament of thin gold plate; found in a tomb near Corocoro, in Bolivia.

2. Figures of some of the small stone erections put up by the travelling Indians at the pass of Huaylillos, or Tacora, in Southern Peru.

3. Aymara plough.

PLATE XXI (*continued.*).

Fig. 4. Aymara wooden spade, or instrument for digging.
5. „ iron pick.
6. „ hoe, made of the shoulder-blade of llama or ox.
7. „ stone clod-breaker.
8. „ steel axe.
9. „ stone fox-trap.
10. Figure of llama rudely cut on the side of a hill at Peña, in the desert of Tamarugal, Tarapaca, Peru.
11, *a* and *b*. Spoon-shaped ornaments called *Pichi*. Usually the bowls are like ordinary spoons; but sometimes they are flattened out like round plates of metal: both shapes are shown in the figures.

PLATES XXII. AND XXIII.

Plate XXII. figs. 1 to 8, and Plate XXIII. figs. 1 to 7, represent the hieroglyphic markings seen on the sides of large stones (amongst others less elaborate) called *Las Campanas* or *La Biblioteca del Diabolo*, situated between Uchumaya and Vitor, in Southern Peru.

DISCUSSION.

The Hon. E. G. SQUIER, of New York, having been called on by the President, remarked that he found much to confirm, and little or nothing to criticize, in the elaborate paper of Mr. Forbes. His own investigations in Bolivia and Peru had been specially directed to the ancient monuments of these interesting regions, where once existed the grandest, and, in most respects, the most advanced of aboriginal American empires. He had nevertheless been able to give some attention to other matters—to the geography of the great Andean *plateau*, and the physical characteristics, habits, and languages of its occupants. The peculiar physical proportions of the people of Indian, and especially of Aymara stock, as pointed out by Mr. Forbes, had certainly impressed the speaker; but he had not tested his impressions by actual measurements, as Mr. Forbes had done. The speaker's own opportunities of studying the Aymaras had been far less than those of the author of the paper; but he probably possessed a somewhat better acquaintance with the Quichuas, the undoubted founders of the Inca empire, and alone entitled, of all the numerous families of which it was made up, to be called the Inca race. Between the Quichuas and the Aymaras were many marked physical and other differences. The peculiarities of the Aymaras, pointed out by Mr. Forbes, were probably less obvious in the Quichuas. These constitute a taller and better-proportioned race, with a much clearer complexion, and a more open and genial character, contrasting strongly with the smaller, darker, more reserved, sinister, and distrustful Aymaras. The basin proper of Lake Titicaca was undoubtedly the original seat of the Aymara family, being for the most part a high, cold, and barren region, with its severer features fairly reflected in the character of its occupants. Their conquest by the Incas was effected only after a severe and protracted struggle, and probably might not have been effected at all had the Aymara family been poli-

tically homogeneous; for, if we may judge from their descendants, the Aymaras were in no degree inferior to the Quichuas in warlike qualities. Indeed, the Aymaras are now regarded as among the best soldiers of all the mountain families. The Aymaras do not seem to have been, anciently, under a single head or authority, nor even to have had their various families or tribes united by any efficient alliance. Collectively, however, they were the most numerous of any of the various races or families that were brought under Inca rule, with the probable exceptions of the Scynis of Quito and the Yuncas or Chimus of the coast.

The territory occupied by the Aymaras, as already observed, does not appear to have extended much beyond the Titicaca basin—certainly not on the north, where their characteristic monuments are strictly limited by the "divide" between the head-waters of the Amazonian rivers and the streams flowing into Lake Titicaca. After their conquest by the Incas, the Quichuas seem to have pressed over this divide, and down the valley of the Pucura, almost or quite to the lake, besides flanking the Aymaras on the east, and lapping around them on the south. At present the region north of the city of Puno may be considered as having a nearly equal population of Quichuas and Aymaras. They exist in about even numbers in Puno itself, and there, as elsewhere, maintain a strict separation. The town of Huancané, on the northern shore of the lake, is the last strictly Aymara town of importance in the direction of Cuzco. This was the centre of the last uprising of the Indians, only three years ago, which at one time threatened to become general throughout the ancient Collas. It is said that it would have become so, had it met with the cooperation of the Quichuas, who, however, kept entirely aloof.

Mr. Squier could not agree with those writers who derived Inca civilization from the Aymaras. One tradition of the Incas places the origin of Manco Capac, the alleged first Inca, in the island of Titicaca, in the lake of the same name; and that island was certainly regarded as sacred by his successors. But the weight of tradition gives the Valley of Paucartambo, to the east of the City of Cuzco, as the place whence the founders of the Inca empire came. The very name "Paucartambo" confirms the tradition, signifying birthplace or homestead. The evidence of language does not go far towards a solution of the problem of origins, for the undoubted strong resemblances between the Quichua and Aymara can most readily be accounted for by the known practice of the conquerors in imposing their language on the conquered,—a notorious practice of the Incas, and one of the leading features of their policy.

If we consult the monuments of the Aymaras and Quichuas respectively, we find scarcely a trace of resemblance. In point of fact, except in their *chulpas*, or burial-towers, and their rude stone *pucuras*, or hill-forts, the ancient Aymaras have left few if any remains of importance—none comparable in design, skill, and magnitude with the numerous and massive monuments of the Incas. The most important regular structures of which remains exist in the Collas, such as the

Temple of the Sun and the Palace of the Incas, on the island of Titicaca; the Palace of the Virgins of the Sun, on the island of Coati; the structures at Arapa, and those found in connexion with the Aymara *chulpas* at Villustani, were erected by the Incas, and are unmistakeable types of Inca architecture. Of the remains of Tiahuanaco Mr. Squier declined to speak, regarding them as equally unique and enigmatical. He was entirely at a loss to know on what authority Mr. Forbes accepted them as relics of an ancient Aymara capitol. As far as the speaker's observations extended, they are wholly unlike any other remains in the entire Aymara region. Indeed, excepting a few of the *chulpas*, the monuments of the Aymaras are exceedingly rude, comparable only with those early remains which we have lately come to regard as the first efforts of man architecturally, and in the way of fortifications, throughout the world. He had elsewhere pointed out the resemblance between them and what are called, in Europe, "megalithic" and "prehistoric" monuments, but to which the term "non-historic" would perhaps best apply. And as regards monuments of this kind, he must admit they are far more numerous in the Aymara country than in any other portion of Peru or Bolivia that he had visited; but he was not, therefore, prepared to say that they indicated a higher antiquity for the Aymaras than for several other Andean families, whose earlier monuments had probably been displaced by works of a more advanced kind.

On one other point Mr. Squier felt constrained to differ from Mr. Forbes, namely, as to the existence of sun-worship among the Aymaras. He believed that all the Andean families were solar-worshippers, and very naturally so. After having shivered for months in the Collao, where little or no fuel is to be found, and where the natural heat of the system can only be reinforced by the direct rays of the sun, he had himself come to regard that luminary as the most beneficent, as it is certainly the most splendid, object in the physical creation, to which he, and everybody else, paid involuntary worship by always seeking the sunny side of rocks in the *punas*, and of houses in the towns. He would not undertake to say how far, or how clearly, the various "intihuatanas" or stone "sun-circles" which he had discovered in the Collao, and described elsewhere, were evidences of the prevalence of sun-worship, nor was he prepared to agree with all the speculations of an ingenious French savan, M. Angrand, as to the significance of the sculptures on the great monolithic gateway at Tiahuanaco; but, whether of Aymara origin or not, he fully concurred with M. Angrand that they are only explicable on the hypothesis of being solar symbols. He was aware that it was the pride and glory of the Incas to compel the acceptance of sun-worship by all the nations and families brought under their rule; and it might, therefore, be inferred that these nations and families had originally an entirely different system of religious adoration; but Mr. Squier was disposed to believe that the Incas sought only to inculcate and impose a more spiritual worship of the sun, whose descendants and ministers they affected to be, than had existed before, and to substitute a refined for a gross and material worship of the Day-god.

Mr. Squier agreed with Mr. Forbes in protesting against the looseness with which the designation "Peruvian," as synonymous with "Inca," was applied to crania taken from the political area denominated Peru. The Inca empire was, as every student well knew, a grand mosaic of families, tribes, and principalities, some of which might better deserve the title of kingdoms than a number of such so called in Europe, and which differed widely among themselves in many respects — physically, mentally, in language, and in social and civil organization. Most of the crania, probably ninety-nine out of every hundred, in museums and private collections, labelled "Inca" or "Peruvian," were from the desert, sandy coasts extending from Guyaquil, or rather Tumbez, to Cobija, and which were either Yunca or Chincha (speaking generally), but not Inca. Those found in and about Arica might be safely denominated Aymara, differing in their style of deformation little if at all from those found in the Collao, and occurring often in *chulpas*, themselves differing only in respect of material, being composed of *mamposteria* or indurated clay, instead of stone, as in the central seats of the Aymaras. The coast-families deformed the head in distinct and easily-recognizable fashions, as did also the Aymaras, who, by means of bandages, &c., gave the skull an occipital extension, while the Yuncas and some others prolonged it vertically by "fore-and-aft" compressions, thus giving it also great lateral expansion. Although there is reason to believe that the Incas themselves did occasionally deform the skull, for purposes of family or other distinction, yet Mr. Squier never found an instance of such distortion in or around Cuzco, nor in the seats proper of the Inca families. And while general among the Aymaras, it was not universal, for he had found in the same *chulpa*, burying-place, or family-tomb, skulls of normal or natural shape, others but slightly changed by artificial means, while some were extravagantly distorted, constituting most striking examples of "the long-headed race," which rapid generalizers have located on the shores of Lake Titicaca. Mr. Squier had in his collection several of the ancient (*chulpa*) Aymara *female* skulls, evincing in a marked manner the popular deformation, so that this evidence of beauty or distinction was certainly not limited to the male sex.

Mr. Squier here exhibited a photograph of an Inca skull, from a cemetery in the Valley of Yucay, on which the delicate and difficult operation of trepanning had been performed during life, the subject having lived for several days, perhaps weeks, thereafter. The removed section of bone had not been sawn, but cut out as with a graving-tool or burin.

The efforts of the Incas to assimilate the families that were brought within their empire by force or alliance, in respect of language, religion, and modes of life, were powerful and well-directed; but, however potential they may have been for the time, and notwithstanding the later influence of the Spaniards in the same direction, they had not been of lasting influence. The primitive families, in spite of every kind of repressive circumstances and of altered conditions, had vindi-

cated themselves with more or less energy and effect, exhibiting a constant tendency to revert to their original type. Were it not for this, the dream of the Quichuas to reestablish the old Inca empire would not be difficult of realization; but the Aymaras will not heartily cooperate with them, and *vice versâ*, nor will the remnants of aboriginal stock to the northward enter into the struggle that the attempts would involve. Should an understanding be come to by the various Andean families, and a general uprising take place, it may be regarded as certain that a great aboriginal state may once more be built up in the American Tibet; nor would such a result be greatly to be deplored by the civilized world. It would be a poor compliment to Inca civilization, or, for that matter, to the Inca system of religion, to say that they have been "*improved*" upon under Spanish dominion, imperial or republican.

Mr. R. CULL said that we had abundant information as to the habits and manners of the Aymaras, and were well informed as to their arts, religion, and language. D'Orbigny and Tschudi have described all these things of the present generation of Aymaras, as the Spanish authors described those of their ancestors three centuries ago. What we, as ethnologists, desire to know is the physical man. Now, all authorities are agreed that the Aymaras have large chests (by a large chest is commonly meant a broad chest), but Mr. Forbes spoke of the long body of the Aymara—indeed, so long as to be a deformity; and this great length of body is said to be the result of a chest which is disproportionately long. The speaker appealed to those gentlemen present who were familiar with this people to know if they agreed upon this point with the author of the paper.

Mr. W. BOLLAERT said that he became acquainted with the Aymaras in 1826, in the pampa of Tarapacá, South Peru, their villages commencing at an elevation of 4000 feet above the level of the sea, and extending to some 15,000. He agreed with Mr. Forbes in many of the details he had given, particularly in that they have short limbs and large trunks; and he admitted that the great capacity of the thorax might meet the requirements of better respiration at high elevations in the Andes. However, when surveying in 1826–7 on the boundary of Bolivia, and ascending the peak of Tata Jachura, its summit being some 18,000 feet high, the Aymara guides would not go higher than about 15,000 feet.

As to the antiquity of the Aymaras, it would seem that Manco Capac was of Aymara origin, and that the alleged secret language of the Incas may have been the Aymara.

The speaker's impression, as a polygenist, was, that the red man is peculiar to the New World, and that what he has produced in languages, &c., and particularly in architecture, is of his own creation; and probably he could not have made much further progress, even if he had been left to himself.

It is thought that the ruins of Tia-Huanaco are of an older date than are the people we know as Aymaras. The first Spanish writers speak of these Aymaras as the *Collas*-mountaineers, and as having been conquered by the fourth Inca, Mayta-Capac, who was the first Inca

to behold these ruins, and from him came the name of Tia-Huanaco. There is a tradition that a great chief named *Huyu-Sutu* built Tia-Huanaco, then called *Chua-chua*, clear streams. *Huyu* may mean halls, palaces, or city; *Sutu*, the name of the chief.

Mr. CLEMENTS MARKHAM observed that a study of the earliest accounts of the inhabitants of the Peruvian Andes had led him to the conclusion that the different tribes remained isolated for centuries, and that each tribe developed such a form of civilization as the peculiarities of the region where its abode was fixed rendered possible. As a race, all the tribes were probably about equal as regards capacity for improvement.

Thus the Yncas, who finally became the dominant tribe, lived in a region blessed with almost every variety of climate. On its bracing uplands were flocks of llamas and abundance of edible roots, while its sunny valleys yielded large crops of corn, pepper, and fruit. Under such favourable circumstances the inhabitants attained the highest degree of civilization of which the race was capable, and eventually became the imperial tribe. The dwellers on the lofty plateaux of the Titicaca region, on the other hand, were confined to a cold and bleak country, yielding nothing but potatoes (converted when frozen into the insipid chuñu), the oca, and a grain called quinua. These people gradually attained the physical characteristics so carefully recorded by Mr. Forbes; they multiplied enormously; their country became densely populated, and a civilization was developed peculiar to themselves, and not so high as that of the Yncas. There are vestiges of it in their beautiful monumental towers, and in the extensive ruins at Tia-Huanaco.

Mr. Markham spoke of the peculiar difficulties surrounding the ethnological study of these interesting Andean tribes, and especially as regards the dwellers in the basin of Lake Titicaca. It must be remembered that, for the last three centuries, they have been in a false position, owing to the domination of a foreign race, which has checked their natural development, and has had so baneful an effect upon their increase as almost to have annihilated them. When the Spaniards came, the Aymaras extended, in densely peopled villages, from Ayaviri to the provinces south of the lake. Now all that region is almost depopulated, and the Aymara race and language are not met with north of the little village of Paucar-colla, a few miles from Puno. But, even at the time of the Spanish conquest, the Aymaras were a conquered people in an unnatural condition. The very word *Aymara* is foreign to their language, and the earliest writers invariably call these people *Collas*. The name, too, by which their grandest monuments are now known is composed of two words foreign to their language, and commemorates an insignificant circumstance connected with their conquest. The real name of the ruins on the south of Lake Titicaca is lost. The object of these remarks is to show that the only way now left us of obtaining any correct notions respecting the Aymaras and other Andean tribes is a careful and critical study of the earliest Spanish records, combined with a knowledge of the languages, whereby not only all Spanish, but also all Quichua elements

may be eliminated. What remains, though the information may be small in quantity, will at all events be strictly connected with the Aymaras as a separate tribe. Our knowledge will be limited, but, as far as it goes, it will be accurate.

Mr. Squier seemed inclined to give the Aymaras a wider area than was assigned to them by Mr. Forbes, and spoke of having met with their remains within a short distance of the coast at Arica. This may be accounted for by the system of colonies introduced by the Incas, with a view to supplying the natives of the highlands with coca, pepper, maize, and other products of the low warm valleys. Thus the tradition is still preserved that the cholos of Arequipa are descended from colonists who were natives of the village of Cavanilla, near Puno. The colonists in Moquegua came from Acora and Ilave, on the shores of Lake Titicaca, and those of Tacna from Juli and Pisacoma.

With reference to the custom of flattening the heads of infants, Mr. Markham mentioned that both Cieza de Leon and Garcilasso de la Vega say that it prevailed among the Aymaras or Collas.

Mr. FORBES, after premising that the object of his communication was to place on record, for the use of ethnologists, the facts he had collected during a residence of several years amongst these Indians, confined his further remarks to those points on which the speakers appeared to differ from him.

Mr. Squier asked why he regarded Tiahuanaco as formerly the seat of government of the Aymaras. In reply, he did so in deference to the traditions of the Indians themselves; because they were, without exception, the most important of the ancient Aymara remains, and because, as D'Orbigny had also laid stress upon, the very name itself, taken in conjunction with the occurrence of the central figure in the great Monolithic Portal, which holds two sceptres, one in each hand, has long been interpreted as indicating that this was the seat of both the temporal and spiritual power of the nation*.

Again, Mr. Squier disputes the opinion that the Aymaras were not originally sun-worshippers like the Quichuas. Mr. Forbes, although he also believes that all these tribes had a profound veneration for this luminary, still does not think that its worship ever assumed amongst the Aymaras any such pre-eminent position as it did amongst the Quichuas under the Inca dynasty. It required too great a stretch of imagination to suppose that any of the figures on the Tiahuanaco ruins (a most complete set of illustrations of which were on the table before him) were actually intended to represent the sun, especially when it is remembered that the most unmistakably characteristic representations of the sun were common, and it might be said even peculiar, to the Incarial remains, but rarely or ever met with on those of undoubted Aymara origin. In addition to

* Tiahuanaco, from "*Tiahua*," seated, and "*naca*," both; or, according to another version, the name was due to one of the Incas having on this spot addressed *Tia huanaco*, "sit down Guanaco," to an Indian courier who had just arrived from Cusco in a wonderfully short time. The word "*kunanaco*" is Quichua, the name for this animal in Aymara being "*kuarini*."

this, all the words relating to sun-worship which he found in use amongst the Aymaras were derived from the Quichua "Inti," and not from the Aymara "Lupi," which fully confirmed the statements of old Spanish writers that the Incas had introduced this worship into the Titicaca region. Padre Alonzo Ramos, who wrote in 1620, after describing the temples built by the Incas for the worship of the sun on the Titicaca Islands, states that the neighbouring Indians, who appear to have been regarded as pagans, were not allowed to assist in the ceremonies or even to enter the temples of the sun.

In reply to the extraordinary remark of Mr. Markham, "that the very word Aymara is foreign to their language, and that the earliest writers invariably called these people Collas," I may state that the Aymara Indians of both Peru and Bolivia do not know themselves under, or admit that they ever were, called by any other name; and a mere reference to the earliest writers on the subject (such as, amongst others, Alcobaca, 1585, Bertonio, 1603, or, somewhat later, Torres del Rubio, Garcilasso de la Vega, &c.) will fully bear witness not only to the antiquity of this name and nation (admitted to be in all probability more ancient than the Quichua), but also show that the Aymara language was one of the first to occupy the attention of the early Spanish writers on Peru.

Any person acquainted with the history of Peru will at once perceive how the name "Colla," often used in older writers, has been misunderstood by Messrs. Markham and Bollaert. Every Aymara is naturally just as much a Colla Indian, as a Greek or Spaniard is a South European, although it does not necessarily follow that a South European must be a Greek or Spaniard; the term "Colla," or, more correctly, "Colla-suyo" (of much more recent origin than Aymara), being merely a geographical one, the name of one of the four great divisions or quarters of the Peruvian Empire, which were called respectively: Chincha-suyo, the Northern; Anti-suyo, the Eastern; Cunti-suyo, the Western; and Colla-suyo, the Southern, which last division, for shortness commonly called the Collao by the Spaniards, embraced the whole of the empire situated south of Lake Titicaca*, and inhabited by numerous distinct Indian nations, the names of which will be found in the 'Historia de Copacabana' by Ramos (1620), and who collectively were known as Colla Indians.

* At the time of the Spanish conquest, the Inca Empire reached as far south as the River Maule in Chile, lat. 35° S., or more than a thousand miles south of Lake Titicaca.

Ordinary Meeting, March 8th, 1870.

Professor Huxley, LL.D., F.R.S., *President, in the Chair.*

New Member.—Captain Walter Campbell, R.E.

The following paper was read by the author :—

XXIV. *On the* opening *of* two Cairns *near* Bangor, North Wales. By Col. A. Lane Fox, F.S.A., Hon. Sec. Ethno. Soc.

In 1868, whilst on a visit at Penrhyn Castle, my attention was drawn to two conspicuous cairns upon the summit of Moel Faben.

Moel Faben is a spur running down southward from Moel Wnion and the still higher mountains to the north-east; it is about four miles south-east of Bangor as the crow flies, and three-quarters of a mile to the south-east of the village of Llanllechid. Both cairns are marked upon the ordnance map.

The hill-side to the east and south is covered with the remains of prehistoric habitations, some of which have been described by Mr. Elias Owen in the 'Archæologia Cambrensis,' in which a detailed map of the remains in this neighbourhood is given*. The foundations of several circular huts from 9 to 20 feet in diameter, and some oblong ones, may be seen here and there on the barren waste to the eastward; and several large rectangular inclosures towards the bottom of the hill, on that side, show that this part of the hill must have been under cultivation at a remote period. Further to the south stands the curiously marked stone called "Carreg Saethau," the incised lines upon which are believed to have been made by the old people in sharpening their metal arrow-heads†.

The whole of the top of the hill, in a line running in a north-easterly direction, is covered with angular fragments of felspathic rock, brought down and deposited by ancient glaciers from the high mountains to the east. It is from the materials of this drift that the cairns and other prehistoric remains on the mountain have been constructed. Reference to Mr. Elias Owen's useful archæological map will show that the whole of this district is teeming with objects of prehistoric interest, all of which invite the careful attention of archæologists, pending the destruction which it is to be feared inevitably awaits them through the agricultural improvements which are yearly ex-

* 'Archæologia Cambrensis,' vol. xii. 3rd series, 1866, p. 215; vol. xiii. 3rd series, 1867, p. 102.

† *Op. cit.* vol. ix. 3rd series, 1863, p. 331.

tending in all directions throughout the area of Lord Penrhyn's estate.

The cairns, more especially, stand out so conspicuously upon the hill top, that I was unable to resist the temptation of examining them. Accordingly, on the 16th of October, 1869, I ascended the hill, accompanied by three gardeners whose services Lady Penrhyn had kindly placed at my disposal.

We commenced with the more northern of the two cairns which stood on the ridge of the mountain, some hundred yards or more to the north of the highest peak.

It was composed entirely of loose stones, varying from 6 inches to 2 feet across, without any superficial covering of earth or moss; it was about 50 feet in diameter and 8 feet high; and we found that two large holes had already been made in the cairn extending nearly to the bottom. This was not promising; but knowing how often implements of the roughest kind have been overlooked by former explorers, it did not deter me from continuing my search.

I was shortly afterwards joined by Archdeacon Evans and Mr. Elias Owen.

We soon cleared away with our hands the stones which lay piled up between the two previous openings, when to my surprise, at a depth of 4 feet from the apex of the cairn, we came to the top of a small cist.

The cist may be roughly described as a cube of 1 foot 10 inches interior measurement; but it was not quite square, the north side being contracted to 1 foot 4 inches; the east side extended to 2 feet, and the remaining two sides, and the depth, 1 foot 10 inches. It was formed of six flags of the same stone as the cairn, four on the sides, and two top and bottom. The bottom stone was slightly tilted up on the north side as if by some animal burrowing in from beneath: the floor was strewed with a thin coating of brown mould, amongst which I could detect no trace of burnt bones, nor could I find a trace of them in any part of the cist. In the south-east corner the urn (Pl. XXIV. fig. 1) was found, broken in several pieces. Unfortunately the workman who first found the cist put in his hand and took up several pieces of the urn, so that I am unable to say whether they lay in such positions as to denote that the fragments had been piled up by hand after being broken, or whether they were in positions in which they might have fallen, had the urn been upset by a rat or some other animal that had obtained an entry into the cist: fragments of gnawed bones found in different parts of the cairn showed that it had been infested by these animals. All the pieces were found capable of being united, an operation which was kindly undertaken and efficiently executed by one of

the ladies in the house, so that we are not left in doubt as to the original shape of the urn, respecting which I will add a few words presently. Suffice it to say for the present that it is of a flowerpot shape, 8 inches high, small at the bottom, and widening to 6½ inches at the top; two roughly formed welts run round the urn at 2 and 3 inches from the top: the rim is bevelled in the inside, and a row of punch-marks along the bevelled surface forms the only ornament. The material is black in the inside, of a reddish-brown colour where exposed to the fire, ½ an inch thick, imperfectly baked, and without any trace of sand, stone, or shell in its composition. It will be seen that a great part of one side and the bottom are wanting; the edges of the parts where the missing pieces occur are not cleanly broken like the other bits, but much rounded and weathered, showing that in all probability those parts had decayed before the urn was broken, and, very possibly, the fracture of the remaining portion may have been produced by the natural decay of the vessel, causing it to fall on one side. This is the only way in which I am able to account for the missing pieces, supposing it to have been found intact and to have escaped the notice of previous explorers. The position of the cist between the two holes previously opened in the cairn would lead to the inference that this may have been the case; it was a little to the southward of the centre of the cairn, but the shape may very probably have been altered in recent times, and I am inclined to think it must have been the central interment. The floor of the cist was raised 2 feet above the surface of the ground.

The object of most interest, however, connected with this interment consists in the discovery on the floor of the cist, near the urn, of five small worked *stones* composed of the same materials as the cairn, three of which appear to have been intended for arrow-heads, and the other two have the appearance of flakes, such as in other parts of the country often occur in *flint* in connexion with prehistoric interments, but which had not, to my knowledge at the time of the discovery, been previously found in *stone*. The artificial dressing is distinctly visible on one of the arrow-points (fig. 4, Pl. XXIV.), but less so on the other two. One of the flakes (fig. 6, Pl. XXIV.) is clearly polished and rubbed into several distinct surfaces on one side. They were mixed with the brown soil before mentioned on the floor of the cist; and had I not been especially on the look-out for implements in this material, I should certainly not have noticed them. In those districts in which *flint* was used for this purpose, the smallest fracture made by the hand of man is at once recognized, but the absence of conchoidal fracture generally in trap and felspathic rocks, greatly increases the difficulty of dis-

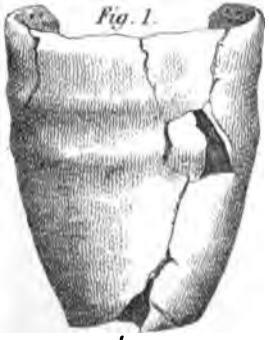
Fig. 2.

1/3

Fig. 3.

1/2

Fig. 1.



1/3

Fig. 4

Nat. Size

Fig. 5.

Nat. Size

Fig. 6.

Nat. Size

URN & STONE IMPLEMENTS

MOEL FABEN (NORTH WALES)

E. Weller Lithog.

tinguishing natural from artificial surfaces; and on this account I am inclined to think that implements of this class may have been frequently overlooked in this district.

The cairn was cleared out to the natural surface of the ground; and beneath the cist, mixed with the material of the cairn, a number of other stones were found flaked by hand: amongst these was a pointed stone representing a spear-head (fig. 2, Pl. XXIV.) with a tang, formed apparently by rubbing, at *a a* fig. 2; another stone, resembling a scraper, was also found in the cairn, one of the edges of which was distinctly worn by use.

I brought away a number of these stones, a detailed description of which, by Professor Ramsay, will be given hereafter.

The adjoining cairn to the south was next examined, but it produced no trace of an interment, and it had evidently been turned over before.

Some of the hut-circles were examined; but nothing of interest was found in them, except a pointed stone nearly resembling the spear-head found in the cairn, but considerably larger, which was turned up in the soil excavated from the interior of one of them. Its size, and a doubt whether it was in reality an implement, or a form produced by accidental fracture, deterred me from bringing it away.

A small cist to the north-east of the gully called Ffos Rhufeiniaid had been opened by former explorers; the superincumbent cairn had been scattered around; the cist had been excavated beneath the surface. On clearing out the rubbish I found a flat stone trimmed into the form of a leaf-shaped spear-head (fig. 3, Pl. XXIV.).

This concluded my investigations upon Moel Faben.

The next I examined was a large cairn on the opposite side of the River Ogwen, about a mile south of the village of Llandegai and close to the back of the keeper's house at Llys-y-gwynt. It was called "Carnedd Howel" from the popular belief that it was the resting-place of a prince of that name: but it is hardly necessary to say that these associations of prehistoric burial-places with historical personages are generally mythical; they date probably from a comparatively recent period, when history itself had become somewhat legendary, and when past events had become jumbled together in the traditions of the people. Readers of the 'Archæologia Cambrensis' will call to mind examples of this jumble of dates in the tumulus called Yr-orsedd-wen near Selattyn, supposed to be the burial-place of Gwên, one of the sons of Llywarch Hen, who was prince of the Cambrian Britons during the sixth century*.

* 'Archæologia Cambrensis,' vol. ii. 2nd series, p. 9.

The tumulus on the banks of the Alaw in Anglesea, attributed to Bronwen, sister of Brân the Blessed, the father of Caractacus, A.D. 50*, and the cairn called "Twr-Gwyn-Mawr," in Montgomeryshire, considered to be the burial-place of Trahearne-ap-Caradog, who fell here in a battle in the tenth century†, have been proved by their contents to belong to a period long prior to history. Howel-ap-Jeuaf, if this is the prince referred to, appears to have been Lord of Arwystli in the twelfth century‡; but the name cannot be an uncommon one I presume, Howel-ap-Howel being corrupted into "Powel" in modern times.

An old man of 80, named Robert Roberts, told me that, as a boy, he was much afraid of passing here by night, as he had often seen lights dancing about on the Carnedd.

The cairn was a large one, 108 feet in diameter; but its form had been materially altered during the construction of the keeper's garden, and I have no doubt exceeded its original size by the accumulation of stones carried from adjoining fields. I had a pit sunk in what was marked as the original centre by a circle of stunted trees.

On the first day, October 26th, nothing of consequence was discovered, and the bottom was reached at 5 feet 5 inches from the top. On the second day, October 27th, digging further to the eastward, fragments of an urn were found at 4 feet from the top, surrounded by particles of burnt human bone; the urn was broken into so many fragments, and scattered about amongst the stones of the cairn in such a manner, that it was impossible to determine its original position; but a piece of shattered slate was found amongst the bits, which, no doubt, had served to close the mouth of the urn. The interment had been placed in the cairn without any protection of flags or cist, and the bones and fragments of pottery were separate from each other and scattered over a space of from 1 to 2 square feet, varying also more than a foot in depth.

It was evident the grave had been previously disturbed. Marks of fire extended down to the bottom of the cairn at 6 feet.

A sufficient number of pieces have been restored to show the shape of the urn. It is of rather unusual form, being shorter and wider than the average of urns. It is 8 inches high, 4½ in diameter at the foot, widening to 8¾ inches at the height of 5 inches, and 9¼ inches in diameter at the rim; it contracts slightly below the rim. It is ornamented, to a depth of

* 'Archæologia Cambrensis,' vol. xiv. 3rd series, p. 235-239.
† *Op. cit.* vol. iii. 3rd series, p. 301.
‡ *Op. cit.* vol. xiii. 3rd series, pp. 178–300.

4½ inches from the top, with parallel lines formed by the impression of alternately plain and twisted thongs passing round the urn. The interior of the rim is also ornamented with the impression of twisted thongs in three rows. Its size and form appear to me indicative of a late period. On the third day the bottom of an incense-cup was found at 4 feet 7 inches from the top and 2 feet south of the find of the 27th. This fragment is recognized as belonging to the class of vessels called incense-cups, from the fact of the bottom being ornamented with two rows of cuneiform markings, formed by the impress of some sharp-pointed implement and arranged in concentric circles, surrounded by three circles of incised lines; it is of a light-red colour all through, mixed apparently with particles of sand, but it has not the cruciform ornament so frequently found on the bottoms of vessels of this class.

One small fragment of a second urn was also found; it was marked with alternate bands of horizontal and vertical lines both on the outside and on the inner side of the projecting rim, and from the style of ornamentation may very possibly have been the rim of a drinking-cup.

A few fragments of fractured stone were found in this cairn and are included in Professor Ramsay's description; but they are hardly of a character to be worth noticing.

Before speculating upon the evidence afforded by the examination of these cairns, it may be well to notice briefly the results of former explorations in cairns, tumuli, and megalithic monuments in Wales. We shall then be in a better position to judge of the inferences to be drawn from the peculiar nature of the rough stone implements discovered on Moel Faben.

In turning over the pages of the 'Archæologia Cambrensis,' I find the following notices of interments associated with implements of *bronze*.

In a tumulus on a farm called Yr-Orsedd Wen near the village of Selattyn, in Denbighshire, close to Offa's Dyke, Mr. W. Wynne Ffoulkes found, in 1850 or 1851, a piece of a *bronze* dagger associated with an interment by inhumation. This was a cairn covered on the top with about 18 inches of soil. A piece of iron was also found above this interment; but it seems doubtful whether it was connected with it. This was the tumulus supposed to be the burial-place of Gwên, one of the sons of Llywarch Hen, prince of the Cambrian Britons*.

About forty-four years ago some *bronze* chisels were found in digging beneath a cromlech, near Trefarthin, in Anglesea†.

In the second volume of the 'Archæologia Cambrensis'

* 'Archæologia Cambrensis,' vol. ii. 2nd series, 1851, p. 9.

† *Op. cit.* vol. i. 1st series, 1846, p. 467.

(3rd series), Mr. Albert Way mentions a *bronze* socket-celt found under a cromlech or Druid's Altar in Brecknockshire*.

In 1855, Mr. D. Davies opened a cairn, called Tur-gwyn-mawr, in the parish of Carno, Montgomeryshire. In the cairn, 6 feet from the top, and beneath three flagstones, were found burnt bones and a small piece of *bronze*. Near it a cist or grave was found, 9 feet in length by 2 in breadth, and 2 feet 6 inches in depth. It contained fragments of burnt bone and ashes, numerous river-pebbles, two well-formed barbed *flint* arrow-heads, and a *flint* knife. The grave lay north and south. This cairn was locally considered to be the grave of Trahearne-ap-Caradog, who fell in a battle in the tenth century †.

In the sixth volume of the 'Archæologia Cambrensis' (third series), mention is made of a *bronze* dagger found with two small urns in a cairn at Meinau'r Gwyr, in Llandyssilo parish, in Pembrokeshire ‡.

Mr. W. O. Stanley, in a paper published in the fourteenth volume of the 'Archæologia Cambrensis' (third series) § "on Interments and Sepulchral Urns in Anglesea and North Wales," with additional notes by Mr. Albert Way, mentions eight other instances in which articles of *bronze* have been found with mortuary urns, or in cists, viz.:—

At Porth Dafarch, in Holyhead Island, in 1848, a fragment of bronze, with a *bronze* rivet, was found in or close to a cist, associated with two large inverted urns, each containing a smaller vessel, and an interment by cremation.

In 1813, on the banks of the river Alaw, in Anglesea, an interment by cremation was discovered in a mortuary urn, and in conjunction with another urn of the form called a drinking-cup. On one of the bones a slight stain of *bronze* was discovered by Professor Rolleston. This was the grave attributed to Bronwen, the aunt of Caractacus.

In, or about, the year 1860, a cinerary urn was found at Tolmen-y-mûr, 2 miles south of Ffestiniog, Caernarvonshire. The urn contained burnt bones, a triangular-shaped *bronze* dagger, a fractured *flint*, and a wooden bodkin.

In 1864, two urns were found, with an interment by cremation, a *bronze* pin, and a *bronze* blade, near the landing-place for steamers at the Menai Bridge.

In 1851, Mr. Wynne Ffoulkes found an urn with burnt bones and a *bronze* dagger in a tumulus at Rhiwiau, between Pentre-

* 'Archæologia Cambrensis,' vol. ii. 3rd series, 1856, p. 123.
† *Op. cit.* vol. iii. 3rd series, 1857, p. 301.
‡ *Op. cit.* vol. vi. 3rd series, 1860, p. 33.
§ *Op. cit.* vol. xiv. 3rd series, 1868, p. 217.

foelas and Denbigh. The urn was covered by a flat stone, but not placed in a cist.

In 1851, a large cairn, 16 yards in diameter, was opened at Penyberth, or Gloucester Hall, five miles north of Aberystwyth. It contained a cist, in which was found an urn with burnt bones and a *bronze* pin.

Two interments were discovered at Bryn Crûg, near Llanfair Isgaer, about two miles from Caernarvon, on the Bangor road, each containing objects of *bronze*, and one of them an incense-cup. One of the bronze objects was a palstave.

This makes thirteen interments in which articles of *bronze* have been discovered, nine of which were by cremation, one by inhumation, and three unknown. Two of the latter were in cromlechs, the sepulchral remains of which, if any, had probably long since been dispersed.

The following are notices, extracted from the same source, in which interments in Wales have been associated with *flint* implements only:—

In 1851, Mr. Wynne Foulkes published an account of the opening of a cairn covered with about two feet of soil at Bryn Bugailen Fawr, in the parish of Llangollen, to the east of Selattyn, Denbighshire. Six inches below the surface he came to the top of a cist, 17 inches by 19 inches, interior measurement. It contained a flowerpot-shaped urn, ornamented with a cuneiform pattern. The urn was inverted; it contained burnt bones and a *flint* knife *.

In August 1851, Mr. James Dearden opened a tumulus called Hay's or Carew Beacon, near Tenby. He found an interment by inhumation, accompanied by an earthen vessel and a *flint* arrow-head †.

In 1868, Archdeacon Wynne Jones showed me about one hundred *flint* flakes which had been found some years before in a cist composed of slate slabs at Gwatchinai, in Anglesea. The flakes averaged about an inch and a half in length; all showed bulbs of percussion, and several had traces of secondary chipping on one side. Amongst them were three or four scrapers, two of which, kindly presented to me by Archdeacon Jones, were exhibited at the meeting. I was unable to obtain any further information respecting this interment.

In 1851, Mr. Wynne Ffoulkes opened a cairn at Plas Heaton, two miles south of Denbigh. He found four skeletons in or about the cist, contracted, and a drinking-cup. Above this was a secondary interment by cremation in a cinerary urn. No

* 'Archæologia Cambrensis,' vol. ii. 2nd series, 1851, p. 219.

† *Op. cit.* vol. ii. 2nd series, 1851, p. 291.

relics were found; but I include this amongst probable stone-period burials on account of the position of the body.

At Rhosbeiro, in the north of Anglesea, a drinking-cup was found, with an unburnt body in a cist, contracted; but no relics were noticed as accompanying this interment.

Of the five interments above mentioned, three were accompanied with implements of *flint* only; but as flint knives, scrapers, and arrow-heads are frequently associated with implements of bronze, they afford no proof that the graves in which they occur are of the stone age. In the remaining two, no relics were noticed; but the contracted positions of the bodies point with great probability to an early period. Each of the latter was accompanied by an earthen vessel of the form known as a drinking-cup.

I now come to notices of three interments discovered by Mr. Wynne Ffoulkes, which have an important bearing on the relics found in the cairn upon Moel Faben. I read the account of them with particular interest, because I was not aware, at the time of my examination of that cairn, that rough *stone* flakes and implements had been previously noticed in connexion with burials in Wales. Mr. Ffoulkes's observations may therefore be compared with my own as the result of independent investigation.

In 1852, Mr. Wynne Ffoulkes published an account of the opening of a cairn at Goleuern, in Merionethshire. It contained a rectangular cist, 3 feet 8 inches in length by 1 foot 9 inches, and 1 foot 5 inches in depth, divided by a flag, placed across, into two unequal parts; the long side lay nearly north and south, and the top was 1 foot 7 inches beneath the apex. The following is Mr. Ffoulkes's account of the contents:—"On first removing the covering stone, we were struck with the singular appearance of the deposit, which presented an even surface, carefully strewed with flakes or chippings of *stone*, resembling in character the ordinary stone found upon the mountain; these covered a deposit of moist, clammy, yellowish, gravelly soil, with which the cist seemed to have been filled up to the height of 3 or 4 inches. This soil we carefully looked through, but without discovering any remnants of bone, or any thing resembling a relic, either ornamental or warlike, excepting one piece of *stone*, now in the possession of W. W. E. Wynne, Esq.,—a piece which was convex on one side, flat on the other, and rudely pointed at one end; the nature of the stone it was made of we are unable to describe geologically; we can only say that it was not of *flint*, but of a common and rather soft *stone*. We found it on the western side, and at about the centre of the cist, not, as far as we could ascertain, deposited with any care."

Mr. Ffoulkes concludes from this that the cairn must be of comparatively great antiquity, both on account of the rude nature of the stone chips found in it and from the fact of all trace of bones having disappeared. From the size of the cist he supposes the body to have been burnt; but from the absence of an urn in this and other cairns in the neighbourhood which he examined, he concludes that they belong to a period when men were strangers to the fictile art, or to a race amongst whom the cinerary urn was not in use *.

In the same year Mr. Ffoulkes opened another carnedd at Cwm Llwyd, in the parish of Llanegryn, Merionethshire. It contained a cist, measuring 2 feet 4 inches by 1 foot 8 inches, and 1 foot 3 inches deep; the bottom was covered with a cake of brown soil, in which a few fragments of burnt bone were discovered with the aid of a magnifying-glass; in the soil beneath the cist were a number of *stone* flakes or chips resembling those observed in the carnedd of Goleuwern; some of these chips resembled the rudest form of arrow-head or knife. In a footnote Mr. Ffoulkes adds—"I regret that I did not preserve some of them. We took some home with us, but after some discussion and examination of them we thought that they were mere pieces of broken stone. Their presence, however, in the cist was remarkable, and the fractures appeared fresh and not at all worn by attrition"†. We see from this that the stones found in this cairn must have been of the same rude form as those discovered on Moel Faben. Their form and their position was sufficient to attract the notice of a careful observer like Mr. Ffoulkes, but the nature of the *stone* makes it impossible to determine, as in the case of *flint*, the design of the fabricator in constructing his tool. It is only by *repeated observation of the same class of facts* that we are able to arrive at the truth in cases of this kind.

Mr. Ffoulkes subsequently opened another cairn on Ffridd Eithynog, in the parish of Llanddwywe, in the same county. It contained a rectangular, but ill-formed cist, measuring 3 feet 1 inch in length, by 2 feet 5½ inches broad; it was filled up to within 5 inches of the top with a dark brown soil, in which were found flakes or chips of hard *stone*, of a greenish-brown colour, and burnt bones, broken into small pieces and much decomposed. "The stone flakes or chippings," he says, "which were three or four inches in length, bear a faint resemblance in outline to the rudest form of flint knife, so rough, however, and unwrought that I cannot bring myself to the conclusion that they were knives, or implements of any kind; but I consider that design, not accident, placed them in the cist; for although I am

* 'Archæologia Cambrensis,' vol. iii. 2nd series, 1852, p. 65.
† *Ibid.* p. 96.

not geologist enough technically to describe the stone with which the carnedd was built, I think I can safely assert that it differed from that of which the relics in question were chipped. I think I can also safely say that they are not pieces of stone accidentally splintered*, but, on the contrary, that they have been purposely severed from a larger mass. It seems that in North Britain flakes of flint have sometimes been found deposited with some care in the corner of a cist, as if intended to furnish the deceased with more darts, should he have occasion for them on the passage into the future state. In this part of Merionethshire I believe that *flint* is scarcely to be met with. It may therefore be suggested that these *stones* were deposited with the same object that the *flint* flakes in the north are suggested to have been. It may be so; but the stone is here of a coarse kind, not, I should say, the best that could be found in the neighbourhood for the manufacture of weapons and knives. In this carnedd, too, they did not appear to have been laid in the soil of the cist with any more care than to give them a horizontal position; on the other hand, at Golenwern and Cwm Llwyd, they were laid horizontally all together on the surface of the deposit in the cist, for the most part pointing in the same direction as the length of the cist. In addition to this, their presence in the cist is a peculiarity that I have not noticed in any other sepulchral mounds in North Wales"†. Some of the animal bones found in this cairn having been submitted to the late Prof. Quekett, of the Royal College of Surgeons, he detected amongst them one fragment which he believed to be probably part of a fallow deer. Should this be so, I apprehend that comparative anatomists would consider this as indicative of a late period.

In this stage of the inquiry it will be desirable that I should give the detailed and valuable description by Professor Ramsay of the stones submitted to his inspection from the cairns upon Moel Faben and Carnedd Howel.

Professor Ramsay *to* Colonel A. Lane Fox *relative to some artificially worked stones found by the latter in cairns upon Moel Faban and Carnedd Howell, near Bangor, North Wales.*

Having twice examined the stones collected by you from Moel Faban and Carnedd Howell, and being familiar with the geology of the district, from having mapped it, I have no doubt that they all belonged originally to rocks native to that part of Caernarvonshire.

* Some of the pieces were submitted to Mr. Tennant, of the Strand, London, who came to the same opinion about them.

† 'Archæologia Cambrensis,' vol. iii. 2nd series, 1852, pp. 100–103.

But none of them seem to have been quarried or broken by art from the massive slates, grits, or igneous rocks *in place* that form the mountains and valleys of the country. On the contrary, they appear to have been picked up from the superficial covering of drift or boulder-clay that covers much of the ground up to the height of about 2000 feet, and which, as a general rule, consists of material derived from the waste of the hills in the neighbourhood during the Glacial period.

The next question that suggests itself is, whether the fragments are in the natural state in which they might occur on the surface of the drift, or whether they have afterwards been more or less fashioned by art.

At first, I felt doubts upon this point, but the longer I handled them the more convinced I became that the majority of them, though somewhat weathered, present forms and fractures such as we should not expect to find either in the miscellaneous rubbish composing the drift, or in gravels of watercourses. The latter are generally smooth and water-worn; the former, though often angular, are yet apt to present natural forms and surfaces not easily mistaken for works of art, however rude, even when accidentally fractured by frost, the treading of beasts, or by impinging on other stones while rolling down hill.

Moel Faban.

No. 1 (fig. 2, Pl. XXIV.) seems to be a fragment of very compact grit, brought to a point at one end and rudely bevelled at the sides into rude edges, which are quite unlike the effects of natural wear. On one side it presents three distinct fractured faces; and the whole, though weathered, has an aspect rather fresh.

No. 2 is a fragment of felspathic ash, common in the Silurian rocks of the country. One end is broken, the broad side flat, and one of the remaining sides is smooth; the other end is rounded in a manner suggesting that it was artificially produced, though possibly it may have been selected because of its natural shape. The surface is somewhat weathered.

No. 3 (fig. 3, Pl. XXIV.). Of felspathic ash, has been very symmetrical till fractured on one side; somewhat egg-shaped, but more sharply pointed at one end than the other, where it is bevelled; but possibly these bevellings indicate the surface of a pebble before the stone was split. There are surfaces of three ages,—1st, the narrow sides converging towards the point; 2nd, the flat sides; 3rd, the broken side, which shows marks of a blow.

No. 4, about 5 inches long, seems to have been flaked off by a blow. The convex surface seems partly natural, from which a flake has been struck; the inner surface is the concave surface of a flake. These flaked surfaces are less weathered. It is probably of felspathic trap.

No. 5. A split piece of felspathic ash. It also is more weather-worn on the original outer rounded surface than on the split side.

No. 6 looks like a thick weather-worn flake of the same kind of material as no. 5. It has been roughly dressed on the edges.

No. 7. An ashy fragment of irregular rhomboidal form, like a flake. Outside natural and weathered.

No. 8 has a doubtfully flaky look, split off in a cleavage-plane, and is equally weather-worn all round.

No. 9 looks like a flake knocked off a piece of felspathic trap, one side being the original rounded surface of a pebble. Edge roughened by subsequent blows.

No. 10. Another flake-like body, roundish, weather-worn on the back, and much fresher inside where fractured.

No. 11. Of felspathic trap, about 3 inches long, slopes to the sides, as if by fractures, very artificially. I cannot think this form could have been produced by any natural process. Very fresh, and has no natural weathered surface.

No. 12. Of fine compact grit, slopes to an edge, and has been equally weathered all over, excepting on the surface of more recent fractures. The point is broken as if by use. A very bad stone to make a tool of.

No. 13. Felspathic trap, about 3 inches long and 2 wide, pear-shaped in outline, has a very artificial-looking outline, and is weathered all over.

No. 14. A short oval pebble, about 3½ inches long and 2 thick. Looks as if it had been water-worn and afterwards ground.

No. 15. Grit? Rudely triangular, the acute angle broken off, and the opposite side, which is curved outwards, bevelled by a number of blows. The broader sides split in the plane of stratification, one naturally. The straight side seems to be a natural joint, and is *clearly* ground on one side of its edges.

No. 16. Of long, narrow, regular form, about 6 inches long; siliceous and felspathic ash. One face is a natural surface, and the opposite face has been split in the plane of stratification or cleavage. The narrower sides are natural joints, sloping up towards the narrower end; the opposite end is bluntly pointed and bevelled off by chipping.

No. 17. A fragment with a conchoidal fracture that has been given by a blow; outer side natural, with faint traces of glacial scratches.

No. 18. A flake of fine greenish compact Cambrian grit, about 3½ inches long.

No. 19. A flake of felspathic ash, about 4 inches long. Both of the above flakes have very characteristic forms to the practised eye.

No. 20. Rudely pear-shaped in outline, looking like a flake; dressed at the edges by blows. It has been burnt.

No. 21. Weathered and rounded, but has an artificial hatchet-like shape. Fine grit.

No. 22. Like a flake struck from an oval pebble of felspathic trap.

No. 23. A small flake formed by three blows, and having a natural surface on the end struck.

Nos. 24–28 (figs. 4, 5, & 6, Pl. XXIV.). Apparently three arrow-

points and two flakes. One flake, of felspathic trap, is *polished* on one side. One arrow-point of slaty rock; the other two of Silurian grit, which seem both artificial and weathered.

CARNEDD HOWELL.

No. 29. An igneous rock, very artificial in form; of a thick, short, broad-edge "hache"-shape, smooth, and very much worn; weathered and rounded on the edges; broken at the broad end on one side as if from use, or to form an edge. The other surfaces may be natural.

No. 30. Felspathic porphyry; an oval pebble split on two sides; one side seems fresher than the other, and appears to have received several blows.

No. 31. A flake of grit, about 5 inches long, from a water-worn pebble.

No. 32. Angular flake subsequently broken at the edge.

No. 33. Ball of greenstone. Seems natural, as if waterworn and afterwards a little weathered.

No. 34. Quartz, about 2 inches long. Fresh-looking, fractured, and flake-like.

No. 35. A piece of grit; on one weathered side showing faint signs of glacial scratches; split naturally on the plane of a joint, and broken at the more pointed end.

The next point to be considered in connexion with the interment on Moel Faben is the shape of the urn.

Urns have been divided by Mr. Bateman* into four classes; and subsequent archæologists have adopted this classification.

1. *Cinerary urns.*—These are of various shapes, but usually small at the bottom, from 10 to 18 inches high, widening towards the top, and frequently furnished with an overhanging rim, which measures in many cases more than a third of the entire height of the vessel. These usually contain the burnt bones. They are found in interments associated with both flint and bronze. In their composition they are frequently mixed with small fragments of pebbles or sand.

2. *Incense-cups.*—Small vessels varying from 1 to 3 inches in height, and broad in proportion; the colour is lighter and the texture finer than that of the larger urns. Mr. Birch† has suggested that they may have been used as lamps; others have supposed that they were intended to burn incense in during the funeral rites. From the circumstance of the bottoms being ornamented, and from their being sometimes furnished with loops at the side, it has been suggested that they were intended for suspension. They are often found with the larger cinerary urns, but never with the earliest interments.

* 'Ten Years' Diggings in Celtic and Saxon Grave Hills,' by Thomas Bateman.

† Birch, 'History of Ancient Pottery.'

3. *Food-vessels.*—Small vessels averaging from 4¼ to 6 inches in height, occupying, in point of size, an intermediate place between the urns and the incense-cups; the foot small, the mouth wide. They are often quite plain, though some are highly ornamented. They occur not unfrequently with incinerated remains, but more usually with unburnt bodies.

4. *Drinking-cups.*—Larger vessels, from 6 to 9 inches in height; somewhat globular towards the foot, and contracted or nearly cylindrical in the upper part; generally highly ornamented and of comparatively fine well-baked clay. As already noticed, in the examples above mentioned, these cups occur usually with unburnt bodies.

It has been generally supposed that these several classes of urns were manufactured expressly for mortuary purposes; but Mr. Stanley and Mr. Way* are of opinion that they represent the ordinary household utensils of the period; and that the ancient Britons, like the Romans, used any vessel that might be found convenient in which to deposit the ashes of the dead. In point of form, the one found in the cist upon Moel Faben, fig. 1, Pl. XXIV., most closely resembles one figured in Mr. Stanley's paper, from a grave near Tenby: it is there classed as a *food-vessel*; but no mention is made of the associated remains, except that the graves in the neighbourhood were all found with burnt bodies, and that the contents denoted a poor and degenerate race. It will be seen, however, that although this vessel has not the overhanging rim common in the cinerary urns, and is of smaller size than the majority of them, it nevertheless approaches closely to the flower-pot shape of those *urns*; and the fact of its being found alone in a small cist, such as would have been formed only for an interment by cremation, shows that in all probability it must have contained the bones, notwithstanding that all trace of them had disappeared.

In point of fact, I believe that the evidence upon which the classification of British pottery has been based is, as yet, very insufficient. Being composed of the most fragile materials, archæologists are necessarily restricted to the examples that are preserved in the graves. No two urns, however, hitherto discovered exactly resemble each other; and I have little doubt that if a sufficient number of any given period could be brought together, it would be found that, like all other prehistoric remains, without exception, the several classes passed one into the other in such a manner that it would be impossible to draw any hard and fast line of separation between them. This is the normal characteristic of the products of all early and savage races, and should serve as a guide in classifying the relics of past

* 'Archæologia Cambrensis,' xiv. 3rd series, 1868, p. 283.

ages where the evidence is doubtful or incomplete. There seems to be little doubt now that the ancient Britons, like the Greeks, at one time practised both cremation and inhumation contemporaneously; and if, as is suggested by Mr. Stanley and Mr. Way, the vessels found in the graves were those in ordinary use for domestic purposes, it would be natural that the larger vessels should be used to contain the ashes; whilst the unburnt bodies would be placed, in accordance with the traditional customs of a savage people, with those smaller vessels which the deceased was in the habit of using for eating and drinking.

The conclusions to which we are led from a consideration of the facts adduced in this paper appear to me to be,—that in some parts of North Wales, where none but rocks of the primary geological formation occur, the inhabitants used the *stone* of the country for the same purposes which, in other districts, were served by *flint*; that the use of these stones occurred at a time when cremation was practised, when the fictile art *was* known, and when vessels were occasionally, but not invariably, deposited with the dead; and that the stones used were not of the materials best adapted for implements, although such materials were readily obtainable in the mountains close by; the stone selected seems rather to have been that found in the drift-rubble on the spot, and which was capable of being easily worked. We might infer from this that the implements were used only for some temporary purpose, possibly merely as votive offerings to the dead; but on the other hand, the arrow-heads, the flakes found in the cist, and the rubbed, scraper-like implement discovered in the cairn upon Moel Faben, afford unmistakable evidence of having been actually in use for some purpose. It appears, therefore, not unreasonable to suppose that they may have been the work of a people driven to the hills by war, and who, not having the tools necessary for quarrying the hard rock of which the hills are composed, and hemmed in within a very circumscribed area, may have been compelled to employ in the fabrication of their weapons the drift-rubble that lay scattered upon the surface. The signs of cultivation that are found high up on the hill appear confirmatory of this hypothesis. In the Island of Zetland, the late Dr. Hunt found a large number of stone implements quite as rudely constructed as those under consideration; but he was unable to form any opinion about them further than "that they were found on the surface of the ground, and in connexion with an underground structure"*.

As regards the relative antiquity of these implements, we are not, I think, in a position to form any definite opinion on the

* 'Memoirs of the Anthropological Society of London,' vol. ii. 1865–66, p. 335.

subject: they have not, as yet, been found associated with *bronze*; but as *flint* flakes of the rudest kind have been found in interments with *bronze* weapons, it is possible that these *stones* may hereafter be found associated with *bronze*. The forms of the implements, if they are to be dignified with the term, in so far as we are enabled to judge of them from the extreme rudeness of their construction, are not characteristic of the early stone age, but approach towards, although they cannot actually be identified with, the types common in the bronze period. To future explorers must be left the credit of determining this point, I would only suggest, in conclusion, that it might be worth while to reexamine, with this object, some of the cists in which bronze weapons have been previously discovered.

EXPLANATION OF PLATE XXIV.

Fig. 1. Urn found in a cist on Moel Faben, Caernarvonshire.
Figs. 2 to 6. Rudely worked stone implements found in the cist on Moel Faben.

Discussion.

Prof. Ramsay was of opinion that though the supposed identification of many of the Welsh tumuli as the burial-places of historical persons was probably mythical, yet he felt strongly that an exception must be made in the case of Bronwen in consequence of the many circumstantial details attending her story, including her burial.

He believed that most of the stone implements found in the tumuli described by Col. Lane Fox had not been made for actual use, but were rudely made, perhaps, from stones picked up on the spot, and were then thrown into the tumuli as they were formed; it being probably a point of ancient etiquette to offer something presumed to be useful to the dead as a token of respect to his memory.

Sir John Lubbock thought there could be little doubt that most of, if not all, the specimens exhibited showed unmistakable traces of human workmanship. At the same time he agreed with Prof. Ramsay in doubting whether they were intended for actual use, and he was disposed also to regard them as having been deposited with the dead in accordance with the pious feeling so widely, not to say universally, prevalent, that objects buried with the dead could be used by them in the Land of Spirits.

Mr. J. Evans agreed with most of what had been advanced by the author and by the previous speaker, though he pointed out that the rubbed parts of some of the stones were much less weathered than the rest of the surface.

While the worked character of most of the presumed implements was not very manifest, there was little doubt of some of their surfaces having been artificially produced. One of them also had the appearance of having been scraped by metal.

He thought it would be a great error to suppose that the rudeness of the implements was in any way proportionate to their antiquity;

as for many purposes the stones which came nearest to hand might be utilized even after an acquaintance with metal. He considered that the deposit of such objects in graves might be connected with some ancient funeral custom. In assigning an antiquity to such interments, he suggested that the urns afforded the safest criterion, and if sepulchral vessels, of precisely similar character, occurred in the same district associated with bronze, those without any metal were probably of the same date.

Mr. J. W. Flower observed, with reference to the position of the cist close or near to the circumference of the barrow or cairn, that the same thing had been noticed in several other barrows or cromlechs in Wales, and that it was of frequent occurrence in Algeria.

With regard to the suggestion that the rude coarse implements produced were "*ex votos*," and merely imitations of those in use by the deceased person or persons, it rested only on the slightest possible conjecture. It seemed to him most unreasonable to suppose, upon such imperfect grounds, that the comparative modern usage of throwing into the graves the arms, implements, and ornaments of the deceased should have prevailed also in prehistoric times; and it was still more unreasonable to suppose that that rude people should have been so sentimental as to make use of imitations of weapons and tools as votive offerings.

Dr. Nicholas said it was quite possible that the name of the elevated place where the barrow was situated had some relation to the interment. *Moel* was Celtic, ancient and modern, for a bare and rounded eminence; and *baban*, in like manner, was the word for child. If the exact form of the local name, therefore, was *Moel-faban*, it meant literally and in perfect analogy with Welsh name-giving, "the child's hill-top"; the initial letter of the second word, to mark the genitive or possessive case, undergoing the well-known mutation into *f*. They all knew how vital and persistent were local names, and how they continued, from age to age, to mark particular spots as the scenes of events of high and special interest long after all traces of the events had disappeared from the spots and even from the tradition of the locality. In the present case, there seemed to be now exhumed from the heart of that barrow a trace which he ventured to suggest threw some light upon the name. Col. Lane Fox had been careful to take exact measurement of the encisted grave, and from the smallness of the dimensions it would appear, unless the burial was wholly by cremation, that it was the resting-place of a very young person,—the child, perhaps, of a king or prince.

It was very remarkable that of the many barrows opened in Wales, very few were reported to have yielded any such prehistoric stone implements as had been discovered in the instance now before the Society, and he was afraid that this lack was the result of a too careless and unscientific exploration. As to the object of placing such articles in the grave with the dead body, much was conjectured because so little was known. It was not necessary to associate the custom with superstitious ideas, or with any ideas, about a future state. The motives of human action in the remote past might some-

times be interpreted from watching the processes of their own thoughts. Human nature, in all time, was actuated by certain common sentiments and feelings which could only be slightly modified by circumstances. Respect for the dead was a universal sentiment, and it was not a superstitious or a frivolous one. Judging each from his own consciousness, could they not easily conceive that the sentiment of respect and affection might lead the survivors to place with the body of their friend such objects as were valued or used by him while in life? The act was not to be referred, of necessity, to religious motives, but might be simply the impulse of mere human affection.

Mr. Rowland Hamilton remarked with reference to the doubts expressed as to whether the stone instruments found could be supposed to be symbols placed in the cairn rather than articles having any real value, that the Chinese of the present day were certainly in the habit of using symbols in the most direct manner; especially bars or "shoes" of silver very rudely made of paper were used for ceremonial observances. Nor could he concur in the idea that the notion of using such symbols was of too refined a nature to be found among a comparatively rude people. The very earliest records of ideal beliefs were of a very elevated character. Such beliefs in later ages lost much of their power, not from any growth of intellectual scepticism, but from ignorance and decay. To such a state the superstitious observance of the form would be quite natural, though the feeling of reverence would be insufficient to overcome the promptings of selfishness; and there thus seemed nothing inherently improbable in the offering of such worthless substitutes, even where the higher perception of their symbolical significance was lost.

He had little experience in such matters; but one of the stone instruments had certainly struck him as an imitation, being of a form into which metal hammered out to a sharp edge would naturally be formed, while there was no object in making or selecting a stone instrument of that shape.

The following paper was then read by the Assistant-Secretary:—

XXV. *On the* Earliest Phases *of* Civilization.

By Hodder M. Westropp, Esq.

(Abstract.)

The author traced the progressive development of man through the earliest phases of civilization, and sought to show that an invariable law of progress attends the development of the higher races. As the individual man passes from a state of infancy through the successive stages of childhood, youth, and manhood, so man collectively ascends from a state of barbarism to one of high civilization through a definite sequence of phases.

Emerging from the barbarous phase, which is the lowest stage of development, man gradually becomes a nomadic hunter and fisher. By slow degrees the hunting-phase gives place to the pastoral, and the wild hunter becomes a shepherd and herdsman; still, however, continuing to some extent a nomad, wandering with his flocks and herds. At length he settles down to a stationary life, and devotes himself to the culture of the soil. From this agricultural phase man rapidly advances towards the highest stages of development. The author adduced a number of illustrations tending to show that different races have passed in regular sequence through these several phases of civilization.

Ordinary Meeting, March 22nd, 1870.

Professor Huxley, LL.D., F.R.S., *President, in the Chair.*

New Member.—R. S. Newall, Esq.

Mr. W. Topley, F.G.S., exhibited a collection of stone implements from various localities in England and France.

The following paper was read by the author:—

XXVI.—*On* Current British Mythology *and* Oral Traditions. By John F. Campbell, Esq., of Islay.

I have been asked by Col. Lane Fox to read you a paper half-an-hour long about *Traditions*.

My chief difficulty was to chose a branch of this vast subject upon which to perch and prate for the specified time; but after due consideration I have settled upon my own particular branch, about which I really know something, and leave the rest of this tree of knowledge to your learned Society to cultivate as you think best.

Let me then tell you, as shortly as I can, how it happens that I know something about Traditions of any kind.

I was "raised" in the highlands of Scotland, and as soon as I was out of the hands of nursemaids I was handed over to the care of a piper. His name was the same as mine—John Campbell—and from him I learned a good many useful arts. I learned to be hardy and healthy, and I learned Gaelic; I learned to swim, and to take care of myself, and to talk to everybody who chose to talk to me. My kilted nurse and I were always walking about in foul weather or fair, and every man, woman, and child in the place had something to say to us. Thus, I made early acquaintance with a blind fiddler, who could recite stories. I worked with the carpenters; I played shinny with

all the boys about the farm; and so I got to know a good deal about the ways of Highlanders by growing up as a Highlander myself.

As times went on, Dr. MacLeod, of Campsie, whose name is well known, suggested to me, then a lanky boy, the gathering of Highland lore.

In 1847 I had begun to gather a few traditions, and these I have still. In 1859, on the publication of the translation of Popular Tales from the Norse, the author of that excellent work, who has now come to rule over Civil-Service erudition, suggested that I might do for Scotland that which others had done elsewhere; and acting under his counsel, upon my own knowledge, I set to work in earnest, in January 1859, to gather the popular tales of the West Highlands. [The book was laid on the table.]

The fourth volume was published within two years of the first start: I have manuscripts enough to make four volumes more, and I know where to find traditions enough of this kind alone to fill a small library. All that I need is a short-hand writer who knows Gaelic, and I will undertake to find stuff enough in a summer tour in Scotland to surfeit the greatest glutton that ever devoured popular lore.

When my own work was done, my chief, the Duke of Argyll, at my suggestion continued the collection of traditions, but of a different kind. I have his collection in manuscript, made chiefly by one man. He was a woodman, and is a precise, accurate, old fellow, of the most matter-of-fact disposition. He goes wandering about the country, and he writes down exactly what he hears as popular traditional history of real people and real events. I have this collection; one bound volume is on the table. I have about as much more unbound, and the collector is now wandering and working away in the Highlands amongst men of his own class. I hear from him occasionally. Thus I have acquired considerable knowledge of Tradition as it actually exists amongst one set of people—the Highlanders of Scotland.

Whilst engaged on this work I was led to read everything about my subject that came within my reach in all the languages of which I know anything; and, further, I learned to know the kind of man who contains a store of knowledge, and how to get it out of him.

I will give you one example, to show that traditions abound even here at your very doors, and that any one who chooses may pick up a harvest by gleaning after me.

In March 1861, I was driving to my office in a "hansom," when I happened to see a knife-grinder near the Knightsbridge

Barracks, who seemed to be a field worth cultivation; so I stopped my cab and jumped out.

The knife-grinder was somewhat startled, but he was speedily convinced that I was not a disguised policeman, and he soon understood what I wanted, and that something was to be got out of me. He said that he was not good at telling stories himself, but he had a brother who was exceedingly good. I made an appointment, gave my card and a shilling, promised half-a-crown, and drove off to my office.

Thence I wrote to my friend, who is now Civil-Service Commissioner, and next day, March 9, 1861, we held a meeting at No. 7 Milbank Street, in the office of the Lighthouse Commission, to which learned body I then acted as Secretary. All my guests came. I had tobacco and long clay pipes, beer, and bread and cheese, and a good fire; but it took some time to thaw the ice between us. I knew well enough that my men would be shy and awkward in a room; but as we could not hold our colloquy in the open street, we did the best we could.

William and Soloman Johns, tinkers and gypsies, were not at ease off their own beat. First one told a ghost-story which was devoid of interest or point: that would not do at all. So I told the story of a tinker and a cutler, which I had learned from a London tinker some time before: that thawed the ice and raised my harvest. The key-note made harmony and a concert; it opened my "book in breeches," and from that moment we read him freely for some hours.

He told us seven long rigmarol popular tales, of which I wrote the names and some references only.

(1) A story about a lad and some dancing pigs. It is like "Hacon Grizzlebeard" in Norse, the "Mouse and the Bee" in Gaelic, and a whole series of stories and ballads which can be traced back to Dunbar and 1488, or thereabouts, in Scotland.

(2) He told a long story which turned upon the subterranean world, in which are castles of copper, silver, and gold, full of magic and mystery, princesses and adventurers; in all of which the principal character was an Irishman with a black-thorn stick, which thrashed people of its own accord. I knew every single incident; we all knew the stick, for it is in Grimm. It is well known in India; see "Old Deccan Days," by Miss Frene, p. 141.

(3) Next came the story of the five hunchbacks, which I did not then know. Last year, in looking through a curious library of rare books in Cheshire, I hit upon my story in Italian.

The history of the three hunchbacks is the first in *Novelle de Messer Anton Francesco Doni*, edi. 1815. The book from which this is taken is in the Index of prohibited books, printed in Rome. The story was printed in 1544–45–52.

A queen has a daughter, and swears not to give her a husband till a lizard which the daughter throws on her back is as big as the child. The nurse nourishes the lizard, which grows as big as a "civet." Then the queen kills the beast, takes out its liver, and offers her daughter and half the kingdom to the man who can divine what liver it is. The nurse sends a hunchback to tell the secret to a prince suitor; but the hunchback tells it for himself, and wins the lady, who hates him. The bride entertains three hunchbacks who dance and play, and by mishap she smothers them in hiding them in a chest. She and her nurse send for a porter, who takes the dead hunchbacks one by one in similar sacks to the river. He peeps into a sack and finds a "gobbo." Returning from the river he meets the bridegroom gobbo and takes him to the river and drowns him, thinking that the same hunchback had returned to be carried a fourth time. The widow marries the Duke of Milan, to whom she had sent the message at first.

In all essential points this story was told me by the London knife-grinder, who said that he could not read. The "facchino" was made an Irish "porter;" the queen an eastern potentate; the lizard and the liver were not there; but the smothering of the hunchbacks and the death of the "gobbo" by mistake were told exactly.

There was enough of difference to make it quite certain that my knife-grinder did not borrow from Doni's Italian; enough resemblance to make it certain that Doni and the knife-grinder, the Italian and the English gypsy, more than 300 years apart, had got the same story to tell, each in his own fashion.

There is a version of this story in a book illustrated by Cruickshank, but it differs from the oral version.

(4) He told us a long story about a strap, a hut, a cane, a Jew, and a sailor; which we recognised in stories known to us in Gaelic, in Norse, and in the Italian of Straparold.

(5) A story called the Art of Doctoring, which none of us had ever heard before, and neither will care to hear again. It had the very rare feature of coarseness.

(6) A long story about a poor student who travelled with a black man. They dug up a dead woman, got into a church, made a fire there to roast a sheep, and terrified the parson and clerk. We knew all the incidents in "Goosey Grizzle" in Norse, and in Gaelic stories now told in the Highlands, especially a joke in which one asked if the sheep were fat, which the listening parson understood to be a prelude to his own roasting by "the black man."

(7) Then came a story about another poor student and a parson, and a man with a cat, which was exceeding uncanny. This we did not know; and I have never heard it since.

By this time we had had enough. The beer was dry, and the "baccy" done; so I gave the men half-a-crown apiece, and I have never set eyes upon them since. I have met many of their class elsewhere, and from them I have often heard popular tales.

Having said this much to gain your confidence by giving you mine, I may now begin to talk of current British Tradition, as one who knows something about his subject.

British Myths.

It is now an established fact that certain classes of traditional stories always bear a general resemblance one to another when faithfully collected from people who tell, repeat, or recite them; and that fact is variously explained.

Some hold that nursery tales and more remote elaborate stories, which are the novels and romances of untaught men and women, are separate creations of the human mind, which have been invented over and over again in all quarters of the globe. In like manner it was anciently held that a child who had never heard human speech would nevertheless speak the "primeval language" at a certain age, and it was even maintained that the experiment, when tried, resulted in Hebrew. But that theory exploded; and every deaf mute who has the faculty of speech in abeyance, proves the fallacy by his dumb eloquence till he is taught to articulate.

Others strive to trace myths through books to some one author; but this explanation will not now suffice to account for all the facts known.

The "primitive language" nowhere exists; for languages alter, grow, and decay: they are "traditional," and so are myths.

"Continuity" which explains so much, best explains the development and diversity of modern speech; and Continuity of the same kind best accounts for the strange resemblance which certainly exists in popular tales of different races and nations. As whole families and races of men resemble each other, as whole tribes of languages, by their affinities, indicate a common ancestral speech, so whole collections of childish stories and wild myths are related to each other in various degrees, because, like the people who tell them, and like their words, they all came from distant sources or from one source. Ethnologists, philologers, mythologists, and their disciples now generally believe in a common origin for many European languages and myths, and in continuous successive migrations of so-called Aryan tribes, who set out from Central Asia and spread like waves from a pebble tossed into a pool. Those who followed the setting sun early are now found in the British Isles, still speaking the modern forms of their ancient speech, mingled with

older races whom they found in possession, and with younger Aryans who followed and drove them to the great sea, which was a mystery to all at first. If this be true of races, tongues, and myths, then genuine British traditions orally preserved in Celtic languages probably are old Aryan myths, mingled, it may be, with pre-Aryan myths, and with newer versions of old Aryan myths brought from the starting-point by successive waves of emigrants from Central Asia, of whom the Gypsies are the last. Fragments of bone, chips of flint, obsolete weapons, slang, and nonsense all have scientific value for men who know how to use them. Like them, British traditions ought to interest anthropologists who seek to reconstruct "primeval history" from relics of all kinds.

Few of the educated know how very abundant genuine oral British traditions still are. I can say this from experience.

(1) Amongst gentlefolk, the mass of nursery lore is now taken from books; but almost every family has some traditional story, which goes on from generation to generation, from mother to child. Of these, many were traditions before simple tales were thought worthy of print and gay bindings; but of these, many are now printed in collections published of late years.

(2) Amongst well-to-do people who have ceased to be children, story-books and stories are alike despised as a rule.

(3) Settled people, who have work to do, generally know nothing about stories.

(4) Certain classes of wandering, idle vagabonds—tinkers, knife-grinders, broom-sellers, vagrants, nomads in this land of civilization—often have great collections of genuine oral traditions, which they repeat for the entertainment of working people at idle times. Such men are to be found in all parts of England, in the country, in London, and in the great towns. It is supposed that two hundred thousand vagrants now wander in the British Isles; and most vagrants of my acquaintance can recite tales, and delight in them.

(5) Wherever an Irish colony exists, there Irish traditions may be gathered in abundance. As a wave returns when it has reached the shore, so waves of human thought return with returning men eastwards, while the wave itself rolls on westwards over the sea.

(6) Wherever a cluster of Scotch Highlanders have got together anywhere, there also a skilful collector may reap a harvest.

(7) In the lowlands of Scotland a great deal that never was in a book is still to be gleaned, but chiefly in nurseries or amongst wanderers.

(8) Old castles and old dwellings have traditions attached to them; and old people who live about these places know and preserve traditions as family relics, which are in fact common to similar places all over Europe.

(9) In Wales some traditions are preserved; but I know little about them.

(10) In Ireland and in the Isle of Man traditional stories abound. That I know.

(11) These are all accessible to English collectors; for they are told in English. Mr. Robert Hunt has published a book of Cornish tales. Miss Dempster is about to publish a collection of Sutherland tales. An Irishman, Mr. Denney, has published a set of Irish tales.

(12) In the Highlands of Scotland, and in Ireland, where Gaelic is the language of the people, a stranger might suppose that nothing could be gleaned. The richer classes, the gentry, clergy, sheep-farmers, factors, and such like know little or nothing of popular lore. But in these districts any body who can speak Gaelic, and who can make himself pleasant and companionable with cottars and workmen, will find that oral tradition supplies the place of literature, and that whole volumes of all sorts of queer lore could be written from the dictation of men who never learned to read, and who speak only Gaelic, be it the Scotch or Irish dialect. Though familiar from childhood with the people of the West Highlands, my collectors were quite unprepared for the abundance of the harvest, and I was, and still am, somewhat puzzled how to deal with my sheaves, when my gleaners had garnered a lot and I saw how much remained unreaped.

In these distant islands, where men live slowly, and live long, probably because they do not live fast,—in queer rude hovels built of turf and boulders, where men of fourscore years have spent the most of their quiet lives,—in these quiet still pools in the current of life, old thoughts accumulate like gold-dust in a Sutherland burn, and there they are preserved. There on winter nights children, with wondering eyes and mouths agape, sit in the ruddy light of the peat-fire, under the grey canopy of smoke, and listen breathless to these weird old myths. They cease to be ragged, bare-legged lads and lasses, with shock heads of dark or flaxen hair, unkempt and unshorn; they hear how the bold bard fought the dragon, and won the princess and the kingdom, and their spirits are up and doing like him. Potatoes and milk, wooden noggins and good horn-spoons cease to exist; while the golden basin and the giant's stores are spread before them by the eloquent voice and gesture of some grey wrinkled old man. And when the story ends, and

the fire burns low, and they coil themselves up to rest in their cribs, lads and lasses dream on, and so they dream till they grow up, and grow old, and the old tale becomes a part of their quiet lives. The child's dream of romance is the bright spot in a dull round of hardship and toil, and the man never forgets it while he lives.

Those who know the inner life of a Highland hut, and the power of association, eloquence, and imagination in Celtic minds, cease to marvel at the abundance of oral tradition which is still preserved at the end of the Aryan journey in the British Isles.

The volumes on the table are the gatherings of two years; they contain my museum, my collection of rubbish, my prehistoric history.

And now I will strive to give you some notion of the contents, and a sample or two to indicate my classification.

Oral History.

A real incident must happen before it can be described; if described, the event must become a prose narrative. Such narratives of real events are continually growing up, and, as daily gossip grows old, it becomes a kind of personal oral history.

Because human memory is subject to decay, and is only capable of retaining a limited quantity, minor incidents drop out, and the most conspicuous incidents approach each other, and get worn by use as time goes on. So the incidents of last year and last century, and it may be incidents which happened before written history began, get strung together like some old necklace of coins. The string of incidents becomes a "story," as coins, beads, bones, and jewels may become a "bracelet" and adorn an arm.

Let me give you shortly a sample of popular oral history, to show what I mean. In 1863 John Dewan Forster sent me a story which he got from Mrs. George Cameron, of Paisley, a native of Glendavad, in Argyllshire, where the scene of the story is laid.

The black knight of Loch Awe had three sons by his first wife, of whom the eldest was "Cailean Mor" (Great Colin, from whom the Argylls take their patronymic). By a second marriage he had a son called Duncan the Cross, who was fostered at Baile Ghuirgean, now Poltalloch.

When the boys were men the Maccallum clan, wishing their foster brother to be heir to the Black Knights, waylaid Colin, who was returning from some expedition alone, armed with

helmet and coat of mail. Colin fled to a barn, which he defended with his sword. They fired the roof. He stood the heat till his metal armour began to burn him, and then he broke through the back-wall of the barn, and jumped into a pool in a river, where he slipped off his armour, swam over, and so escaped. The pool is called the pool of the "luireach" to this day,—that is, the pool of the patched shirt of mail; in Latin *lorica*.

In this story there is no date; but we have the name of a real man, and a dress of a certain period, and no end of family histories from which to extract dates.

From one manuscript history I find that "Colin the Great" was slain in a fight with Mac Dougal of Lorn, at the Red Ford, between Loche Awe and Loch Skamadil, and that his tombstone is in Kilchrennan churchyard, on Loch Awe side.

He witnessed a charter of Malcolm, Earl of Lennox, in 1281; and the present Duke, as 28th Baron of Lochawe, has set up a monument to this ancestor. I find the same thing in an old family history taken from Camden Castle, which ends in 1770; and Colin the Great was at the battle of Largs, fought 1263. So here are,—1st, a conspicuous name; 2ndly, an incident; 3rdly, a locality; and 4thly, a dress,—strung into a "story" with a date added by means of the man's signature to a deed 1281. But between 1770 and 1863, between my two written versions of this narrative, the date had altered 150 years, and the name had changed.

The story is told in the genealogy of 1770 of the fourth "Mac Callan Mor," who was styled for his eccentricities "Queer Colin," and who died 1426. The burners are named Clan Calluin Ariskodnish in 1770; in 1863 they are called Clann Challum Bhaile Ghuirgean.

As for the main incident, it is in the Icelandic saga the story of 'Burnt Njall,' vol. ii. p. 179:—"Kari ran [out of the burning house] till he came to a stream, and then he threw himself down into it, and so quenched the fire on him."

Now the first settlers in Iceland were Irishmen and priests. The colonists about the end of the ninth century were Scandinavians, many of whom went from the Hebrides, and with the Hebrides communication was always kept up.

"Colin Mor" was at the battle of Largs, which was fought in 1263, between Scots and Scandinavians; but the burning of Njal was in 1012,—250 years earlier.

I have stood by the river into which "Kari ran to quench the fire" in Iceland; and the pool in which somebody else cooled his armour is in Corval. All is vague and old.

To get at the origin of this tale, there remain but the in-

cidents which are necessary to each other, and these are the heavy dress, the armour, which had first to be cooled, and then thrown off to admit of swimming.

That dress is commonly sculptured on stones in Iona and elsewhere. The upshot of the whole thing is that this "story of the burning" may be as old as 1012, when Njal's house was burned in Iceland, or as late as 1426, when the writer of the family history put Colin the Queer into Linne Na Luireach, in Corval. It has a date within about 414 years.

To use my illustration once more; here is a story which is made up of true or probable incidents arranged in order, like a chaplet of beads, or a necklace of coins. We know that it was ranged in this same fashion a hundred years ago, and that it has changed but little in a hundred years; we know that it must be as old as the last use of body armour and helmets; but, for aught we know, the event narrated may have happened to some one of the first wearers of shirts of mail anywhere.

The bit of family history may be true of some one member of the family, but it cannot be true of *Colin the Great* and of *Colin the Queer*. We must be content with tradition as it is: it is a very pretty ornament and a great aid for history. It is wonderfully true and accurate in one sense; but history cannot be taken from tradition alone, as it now exists. This is a fair sample of one kind of tradition which is very abundant.

Oral history as it now exists is something quite different from written history. Current stories are "anecdotes;" family traditions about individuals, their acts and deeds, their adventures at battles which were fought, their private adventures at home and abroad. Popular oral history is ancient gossip, not history. The popular view of great events, looked at from below, is microscopic, and accurate for details, but hazy and vague, distorted and mythical, for all that is beyond and above "the people." "The people," and their traditions, know as little of the upper classes and their inner life, as the upper classes generally know of the inner life of the people and of the popular mind, when they begin to talk or write about them.

The speakers who held forth in Hyde Park, in May 1867, talked utter nonsense when they spoke of other classes; and their hearers seemed to know less than they did, even in these days of newspapers. The Highland people who followed chiefs to battle in 1745, and earlier, knew less of politics; but they knew accurately what happened to their own relatives at Culloden, or after it, and their descendants remember and tell stories which have been told over winter fires ever since, on the same spot where the first narrator told his tale fresh from the event. Tradition, so far as I have gone, seems to have no

power of preserving history entire. I have never found a trace of Bannockburn.

But the popular mind, especially in an old country where people vegetate, has an almost unlimited power of retaining fragments of history, which, like fragments of glass in a kaleidoscope, take strange forms, and become myths.

I find that personal anecdotes are common property, and that one anecdote gets localized in many places. It often occurs that a story told in Argyllshire of the chief Mac Calain Mor, is elsewhere told of some other chief. Thus for example, a story which is told in Argyll of the founder of the family of Ardkinglas, is told in Moray of the founder of the Camden family; but the main incidents in that story were told to me in Shropshire by a brawn-seller. The scene was laid by him in the south of England, and the hero of the tale had no name at all. The story is in the Red Book, a Welsh MS. about 360 years old.

In this case real events probably get jumbled up with an Aryan myth, which here turns upon the discovery of a treasure hid under a tree.

Take one more sample: an incident recorded in a manuscript of the reign of James the Sixth, as part of the story of a real battle which was fought in the Western Isles, is now told in Eastern Ross, and is there localized, and made mythical and magical. It is a story of a dwarf who was despised by a giant before the fight, and who slew the giant with an arrow in battle. The dwarf had become a fairy in Ross.

Popular history is thus devoid of geography and dates and accuracy, where it can be brought to book; but it is singularly accurate in minute details. An incident, as told in the reign of James the Sixth, is so told in this reign as to be certainly recognized for the same account of an event. But when and where the real giant met the real dwarf is not to be learned with certainty from oral tradition.

In these few samples of one large class of traditions I have tried to show how a legend sprouts from a fact. The story is put into words, and narrated at the place where the event happened. It is accurately told at the place at first, and becomes a "local tradition" there. As time passes, even local narrators become uncertain about dates and persons. When the locality is changed, uncertainty extends to local incidents, to geography, to dates, and to persons. Finally, after long time and far travel, nothing remains to the wandering tradition but incidents in a certain order.

The narrative becomes a thing like thistle-down, which may settle anywhere and grow; the flying seed will always become a thistle, but the plant may be stunted or luxuriant, according to

climate and soil. In the course of ages varieties may increase, so as to puzzle those who try to classify weapons, men, and legends.

Vagrant Traditions.

I will next produce a sample of a local tradition changed into a flying rumour, a personal narrative become impersonal, personal property given to humanity in common.

I take a story which has never been published, so far as I know, and which was sent me in Gaelic by John Davan in December 1862.

This is the outline of it:—There was a man, at some time or other, who was well off, and had many children.

This at once disposes of dates and geography, and personalty.

When the family grew up the man gave a well-stocked farm to each of his children. This subdivision of land by tenants is the dress and declaration put on by the class who now tell this tale; but it will be seen that the backbone of the thing might equally well support a farmer's body clad in any legal dress that happens to fit the knowledge of the narrator and his audience.

When the man was old, his wife died, and he divided all that he had amongst his children, and lived with them turn about in their houses.

This points to the old Highland cluster of houses, and to the farm worked by several families in common. In this the man acted King Lear, and, as Shakspeare's plays are widely known, a natural but mistaken inference would be that in Shakspeare's mind was the origin of this story. This sequel is not the sequel of the play; this is comedy, not tragedy.

Like Lear's children, this man's sons and daughters got tired of him and ungrateful, and tried to get rid of him when he came to stay with them. At last an old friend found him sitting tearful by the wayside, and, hearing the cause of his distress, took him home; there he gave him a bowl of gold, and a lesson which the old man learned and acted.

When all the ungrateful sons and daughters had gone to a preaching, the old man went to a green knoll, where his grandchildren were at play, and, pretending to hide, he turned up a flat hearthstone in an old stance, and went out of sight.

He spread out his gold on a big stone in the sunlight, and he muttered "Ye are mouldy, ye are hoary, ye will be better for the sun."

The grandchildren came sneaking over the knoll, and, when they had seen and heard all that they were intended to see and hear, they came running up with "Grandfather, what have you got there?"

"That which concerns you not, touch it not!" said the grandfather; and he swept his gold into a bag, and took it home to his old friend.

The grandchildren told what they had seen, and thenceforth the children strove who should be kindest to the rich old grandfather.

Still acting on the counsel of his sagacious old chum, he got a stout little black chest made, and carried it always with him. When any one questioned him as to the contents, his answer always was, "That will be known when the chest is opened."

When he died, he was buried with great honour and ceremony, and then the chest was opened by the expectant heirs. In it were found broken potsherds, and bits of slate (to chink pleasantly, I suppose), and a long-handled, white, wooden mallet, with this legend on its head:—

So am favioche fiorm,
Thabhavit gnoc annsa cheann,
Do n' fhear nach gleidh maoin da' fein,
Ach bheir a chuid go leir d'a chlann.

Translation.

Here is the fair mall,
To give a knock on the skull,
To the man who keeps no gear for himself,
But gives his all to his bairns.

This is a fair sample of a very large class of traditional wisdom now current in Scotland. The story must have been invented after agriculture and fixed habitations, after laws of property and inheritance; but it may be as old as the lake-dwellings of Switzerland, or Egyptian civilization, or Adam, whose sons tilled the earth.

In this class I would place the works of Doni, Straparold, Boccaccio, and early prose writers of "novels." With the class I would place modern novels, which are but luxuriant elongated specimens of the same mental growths. These are tales of the human understanding, and belong to a certain stage in progress and civilization.

Compositions, Ballads, &c.

It will be observed that my last specimen differed from the rest by having a bit of composition at the end. A great many current traditions carry with them a pithy sentence, which becomes a proverb, or a bit of jingling rhyme, which is a kind of artificial memory. This helps to keep the incidents on their string, and preserve the unity of a story. I venture to say that all who have heard even my translation will remember the last

story all the better for this bit of composition. We may, then, conclude that poetry is a good vehicle for preserving facts. If Homer, or others in his name, had not turned Trojan "local history" and "flying Greek rumours" into verse, no one could hope to remember entire the long story which must have been narrated after the events which happened at Troy. I therefore class together all ballads which are orally preserved; and of them a considerable number seem to preserve the memory of historical facts which have no other record.

I have seen a large troop of Faroe islanders, men and women, great girls, young men and little children, holding hands and winding about a house like a great snake, each joint in the tail singing chorus to a ballad, of which the head man sang the verses. The subject was an ancient Scandinavian story, and it has been orally preserved in the ballad, as the Greek story of the Iliad was preserved in verse before it was written.

In the Highlands of Scotland a great number of ballads are remembered and repeated. Of these, some were written down in 1530; many are "Ossianic," and attributed to Ossian. I wish I could add that the Epic Ossian is orally preserved. I have not found it, and I believe that all epics are founded upon ballads which were vagrant traditions, and oral history of real events.

The sequence which I have thus attempted to show is,—

1st. An event.
2nd. A narrative.
3rd. A narrative broken and distorted.
4th. A narrative helped by a form of words.
  (*a*) A proverbial saying.
  (*b*) A measured prose.
  (*c*) A verse of some kind.

The next class may be called Popular Romance.

Popular Romance.

Popular romances are, as I believe, compounded of fragments of narrations of real events which have taken a form which suits fancy, and is easily remembered. They are like plants which are made of chemical bases, or of "protoplasm."

The story which is now told by word of mouth in the highlands of Scotland by men who cannot read, and who understand no language but their own, is told in the lowlands by highland drovers, and is taken up by thousands of vagrants and spread abroad. The story which the gipsy vagrant tells at a wake, is carried back to his distant home in the islands. The emigrant carries his story to the antipodes; and so vagrant

traditions wander over the world. The very same collection of incidents, woven into a story, is told in Norse, in Scandinavia; and of these queer myths many are also told in various dialects of Lapp, in the north of Russia. The story is Aryan, and non-Aryan at once. We know that the very same incidents in the same sequence, differently dressed up and put on the stage, were made to act in Italian by Straparold, by Doni, and by other early writers. Further, some of these are known to black races in Africa.

The reason why some animal has a stumpy tail, is told in an African language, in Norse, in Gaelic, in Lapp, and in some South-American form of speech. It is the same story all over the world, but it is differently told everywhere.

After trying every theory that has come within my ken, I hold that popular tales are, in the widest sense of the word, human.

The story about the stumpy tail is neither Aryan nor Turanian; it is common to the human race. White and black now, I believe it to be impossible to say what race first strung this rude chaplet of beads, as it is impossible to find out the first owner of a vertebrate skeleton and fix its date*.

The author of the preface to the translation of Norse tales has said that a nation dreams all its history in its popular tales. With my present experience I hold that he said well, but that he did not say enough. A man dreams bits of his life and of all that he has learned of the past, with all that he thinks about the future. Like a man, a race of men dreams its longer life, and all that it learned from still older ancestors, and learned to think about the unknown future in its religious beliefs.

All that I learn of the past from the beginning of human thought seems to hang together with popular traditions. The more I learn, the more points of contact I find between mythology and popular tales. As a man can often anatomize a dream, and assign each incongruous element in it to something which happened in waking hours; so, when I sit down to examine traditions, I seem to find shivered fragments of history, of manners and customs, religions, and laws of all times, so far as they are known to me. I believe that the same thing has been found by every one who has worked for himself on his own bough in this great tree of knowledge. I believe that the same thing will prove true if ever we get to know all the current traditions of the world.

And now, one word in conclusion. It seems to me worthy of your Society to take up this withered branch of ethnology, and treat it on scientific grounds, to see if it will grow.

* The author here read samples of Popular Romances.

While every man is his own architect, the result is a sorry hut; but if every man who finds a stick or a stone brings it to a builder, he may help to raise a goodly cairn. I have brought you some pebbles and drift, which are but rubbish till sorted. If put in their places, these waifs and strays may help builders and architects who construct theories out of rubbish and old bones. If you accept my rubbish, and use it, you will do me great honour. The catch-words, the keynotes to this harmony of popular tales I take to be "Continuity" and "Evolution." No big work of any kind is ever done without combination: it would take many able workmen and much hard labour to gather and to make good use of current oral tradition, even in the British isles. No single man, be he Solon in wisdom and Hercules in strength, is fit to accomplish the whole work in a life as long as that of Methusaleh. If the work be worth doing, let us combine.

When my friend Col. Lane Fox asked me to read you a paper about the migrations of popular tales, to last for half an hour, I knew that the task had kept me working half my life, and that I could not yet see half the size of it.

I hope that I have now said enough to show you what a gigantic many-headed dragon of a subject has to be fought and conquered before you can hope to taste the golden fruit of this tree of knowledge, and drink a draught from the weary well at the world's end.

The following note was then read by Dr. A. Campbell, Vice-President:—

XXVII. *Note on a* Cist *with* Engraved Stones *on the* Poltalloch Estate, County of Argyll, N. B. By the Rev. R. J. Mapleton.

In the glen that extends from Loch Awe to the Crinan Canal are several sand- and gravel-banks rising among the moss, in many of which cairns and cists have been found. One such gravel-bank contains a very interesting cist. It is skirted on the east by moss, and on the west by reclaimed pasture-land, which was loose moss about forty or forty-five years ago; at that time the bank was trenched for the purpose of planting, and it is now occupied by a small plantation.

There are remains of the cairn; but as some houses were built on the spot, it is not easy to ascertain the limits or size of the cairn. The situation of the plantation is in the middle of the flat extent of land between Callton Mor, the residence of Mr.

Malcolm, of Poltalloch, and the village of Kilmartin. Three cists were found at the time of trenching, one of which was partly destroyed, and all that deserves mention of it is that the side slabs were grooved to admit the end slabs. The second cist is situated nearer to the north edge of the cairn, about 22 or 23 feet distant; the cover of this had been partially rolled away some years back, and probably the urn, if there was one, was then removed. This cist also had grooved sides like the other; but altogether it was a more finished and neat structure than cists usually are. Its position was N.E. and S.W. The outside measurement was 5 feet 6 inches long, the cover being 10 feet by 4 feet; the inside measurement was 4 feet 4 inches long, 2 feet 2 inches wide, and 4 feet 3 inches deep. The chief feature in this cist is, that instead of the usual rough pavement of pebbles or broken stone, there was a fine slab at 1 foot 9 inches from the top, of the same length as the cist, viz. 4 feet 4 inches, but not quite so wide, being only 1 foot 9 inches. The spaces were neatly filled in with pebbles. The whole structure was very neat. It contained burnt bone, but no implements or weapons.

The third cist is placed to the south of both these, 27 or 28 feet from one, and 5 feet from the other; apparently it occupied the centre of the cairn. A supposed "Ogham" stone (fig. 11) was found at the east end, and another stone, with marks like the shape of bronze celts (fig. 12), at the west end. These axe-heads are very perfect in shape and beautifully executed, though worn at the edges and points. They show most evident marks of tools, which seem not to have been iron, and probably not flint; most likely they were bronze tools; yet flint would have produced them. They are very shallow, but not mere outlines; for the whole of the inside space is tooled away. Nothing can be gathered from the edges: they have the appearance of having been chipped away, and not cut cleanly; but this may be the effect of time and abrasion. Were these intended merely as representations of axes instead of the axe itself? Their position and combination seem to point to their having been symbols; if so, were the axes used as letters instead of the more usual eastern form of arrows? or are these some modification of cuneiform letters?

Fig. 11. Fig. 12.

On another stone there occur about ten or eleven artificial "pits," each the size of a fourpenny piece. They are much worn,

but clearly artificial, and are irregularly placed, although very close together.

It is evident that both the east and the west stone are of the nature of inscriptions. Can any light be thrown upon them? No pottery, no flint, no charcoal, no burnt bone; but there were evident signs of an unburnt body having been placed there, from the very dark and unctuous clay on the pavement. The men who first peeped into the cist complained of a close bad smell. Some of the stones of the pavement are coated with a dark greasy substance.

DISCUSSION.

Col. LANE FOX suggested that the axe-shaped markings (fig. 12) were probably moulds in which copper or bronze celts had been cast. The figures are not merely incised outlines, but the entire area within the outline has been worked away, so as to form a shallow depression corresponding in shape and size to a common flat form of celt. If this were the case, the stone must have originally lain in a horizontal position when the moulds were used.

The speaker was not disposed to regard the markings on the other engraved stone (fig. 11) as an Ogham inscription, because the horizontal strokes were confined to one side of the fleasg, while the Ogham letters extend some to the right and some to the left of the vertical base-line.

ORDINARY MEETING, April 12th, 1870.

PROFESSOR HUXLEY, LL.D., F.R.S., *President, in the Chair.*

New Members.—Dr. BONAVIA; Dr. CARL SEMPER, of Würzburg, Honorary Foreign Member; and Lieut. S. P. OLIVER, R.A., Corresponding Member.

The following paper was read by the Honorary Secretary:—

XXVIII. *On the* TRIBAL SYSTEM *and* LAND-TENURE *in* IRELAND, *under the* BREHON LAWS. By HODDER M. WESTROPP, Esq.

As the land-system in Ireland is engaging much public attention at the present moment, a short notice of the tribal system of land-tenure in Ireland in the early and primitive times may not prove unacceptable.

The social condition of the early Irish people was patriarchal and pastoral. The Brehon laws, which enable us to realize the society in its prehistoric state, and the frequent number of the *raths*, or homesteads, enclosed by a ditch and rampart for the protection of flocks and herds in the wide pasture-grounds, amply testify to this.

Prior to the Anglo-Saxon invasion, Ireland was solely governed by the Brehon law, so-called from being expounded by judges named in the Irish language, *Breitheamhuin* or *Brehons*. *Feinachas*, however, and *Breitha-neimeadth*, words signifying respectively ancient laws and sacred ordinations, are terms commonly applied to the collection of the ancient laws of the Irish by the native writers. There is abundant evidence to prove that some of the collections of the Breitha-neimeadth are of equal antiquity with the oldest manuscripts of Irish history, whether civil or ecclesiastical,—an antiquity which carries us safely back to the earlier ages of the Christian era. The language in which they were written has become obsolete; and two successive commentaries remain, written themselves in two successive antiquated dialects. They evince, it is true, a very primitive state of society, but still they are, for the greater part, the work of Brehons, conformable to Brehon law, and afford indisputable evidence that the native Irish not only possessed a fixed and written code by which to regulate the judgments of their Brehons, but also that these functionaries duly committed their judgments, such as they were, to writing. Archbishop Usher speaks of the Brehon laws as being in his day contained "in large volumes, still extant in their own [the Irish] language." A collection, which now fills two large quarto volumes, is deposited in the library of the Royal Irish Academy. They are now in course of publication by the Government.

The following is a brief notice of the social system and land-tenure of the old Irish under the Brehon laws, such as their available fragments, compared with the general history of the country, would point out to the reader of the various accessible authorities on the subject.

It is well known that Irish society was formed upon the tribal system. The tribal system is the first shape into which human society is moulded. It arises from the condition and necessities of the earliest immigrants or wanderers. Most nations may be traced back to this primitive form, and it still subsists over a large portion of the world. The tribe-system is the development of the family. The first wanderer from the original seat of the people strays forth into foreign lands at the head of his family: the father is at once the priest, the judge, and the king. He rules his children, as the ablest and the wisest; round the original family gather their slaves and dependants. All the members of the original family and their followers form a single unit. No individual has an existence except as a member of this body; their flocks and herds form a common property. They possess no clear idea of individual ownership. The tribe exists upon the assumption of common descent.

Suppose a tribe of this nature to abandon its wandering life, and conquer for itself a district in some foreign country; the principles upon which the land would be occupied flow from the ideas on which the tribe is constituted. The tribe is an undivided whole. The land would be conquered by all for the benefit of all, and would belong to all in common. For the convenience of cultivation, separate lots might be appropriated to individuals, but none would gain an absolute ownership in his allotted portion. His occupancy would be subject to resumption by the tribe; and the arable land might be from time to time divided, as would suit the convenience of all. The pasture-lands would remain open for the cattle of the tribe, subject to such rules as from time to time might be thought necessary.

Most of this system we find developed in Irish tribal history. The districts occupied by an Irish tribe generally amounted to about the area of a modern barony, and belonged, as a rule, to the tribe. This common land seems to have been divided into common pasture-land, common tillage-land, private demesne-land, and demesne-land of the tribe; each man of the tribe had a right to pasture as many cattle as he possessed on the common grazing-land; and in proportion to the number of cattle thus pastured by each, was the share of the common tillage-land assigned to him upon the annual partition. The private demesne-lands were the distinct property of individuals, who were entitled to acquire and transmit by certain qualifications not very clearly explained. The demesne-lands of the tribe were set apart for the maintenance of the chief elect or tanist, the bard, the doctor, and Brehon; the four offices of the chief, bard, doctor, and Brehon were descendable in distinct families, but not necessarily from father to son, rather the contrary. Upon his demesne-lands the chief established his tenants, many of them not members of the tribe; he thus provided for his military followers, whom he also had a right of quartering from time to time on the members of the tribe itself.

With regard to the nature of the property enjoyed in these several estates, the tribe at large possessed what is called the allodial or original indefeasible property in all the lands, *and could not be ejected out of them in consequence of any arrears of tribute,* inasmuch as the superior lord claimed only a proportion of the increase of stock upon the pastures, and was bound to take the same away at certain seasons; this rent was precisely a lay-tithe, being one-tenth of the increase. As to the common tillage-lands, every member of the tribe possessed a life-interest in them, proportioned to his stock in cattle. In the private demesne-lands individuals had a permanent inheritable interest. In his separate portion of the demesne-lands of the tribe, the

chief had a life-interest, of which the reversion lay with the tanist, *i. e.* the *second man*, or chief-elect; and in like manner the tanist, bard, &c. possessed life-interests in their several portions.

The distinctions of the tribe, corresponding to the above territorial divisions, were, so far as can be gathered from the confused authorities on this head, the *In-finnè*, holders in common, and the *Dathaig-finnè*, those individuals alluded to above who were entitled to separate inheritable possessions. The *In-finnè*, or commonalty of this pastoral corporation, appear to have been of one rank; but the *Dataigh-finnè* were divided into several classes, of which the three most intelligible were, the *Deirbh-finnè*, or class, as the commentators explain it, nearest to succession, who had the right to inherit the whole patrimony of their kin without deduction; the *Gall-finnè*, who inherited three-fourths of their patrimonial estates; and *Sar-finnè*, whose right of inheritance extended to only one-fourth of the property left by their relations. These privileged classes were, in every tribe, limited in number; but it does not exactly appear what was the qualification for admission, or the rule of exclusion, or whether the *Deirbh-finnè*, for instance, became disqualified on the election of a tanist less nearly related to them than to others; although it is evident that a man might rise from the condition of a tenant of common tillage to that of a freeholder, or, *vice versâ*, descend from the higher class to the lower. As to the chief himself, he was usually elected before the death of his predecessor, and the rule seems to have been invariably that the eldest of the candidates, if not incapacitated by age or infirmity, should have the preference, the brother being commonly chosen instead of the son, and the son rather than the nephew. His revenue arose, as has been said, from the tenths of the increase of cattle, and from the revenues of his demesne-lands. In addition, he had certain claims of entertainment for himself and household, at stated times, in the houses of his tenants, in the same manner as his superiors, at certain seasons, quartered themselves or their soldiers upon him. These claims were sometimes compromised by both for an equivalent in tribute.

So far of the Finnè, or original members of the kindred, who constituted the great majority of the tribe. But in every tribe there was another class, less numerous and generally less honourable, but in many respects peculiarly interesting and important, particularly as regards the origin of the *feudal law*. The subject of feudal tenures has occupied the attention of the most distinguished English lawyers and historians. The origin of the system has been in all cases referred more or less to the necessities of military conquest, and its genius has been inva-

riably considered as quite distinct from that of any pastoral constitution. The remains of the Brehon law, however, would go far to show that the feudal and pastoral systems, if not to some extent identical, have been in their origin closely and necessarily connected. The system laid down above is so far calculated for the government of a society composed of tribes, each tribe possessing the allodium of its own district, and the mass of its members holding in common. But coexistent with the first practical development of such a system, if not actually contemplated in its very rudiments, arises the necessity of providing for those members of the community who, either by chance, or choice, or compulsion, have been separated from their particular kindreds, and have thus no proper *Finnè* with whom to claim a share. Such individuals could not expect to participate in the rights of blood enjoyed by those tribes among which they might be dispersed, neither could they be received by the commonalty of those tribes as tenants on their fluctuating possessions. To provide for them, it was necessary that a certain portion of the land should be set apart for the reception of strangers. To prevent the confusion of many landlords, the profits of these tenements were allotted to the chief, who could thus afford to exact a higher tribute from the *Finnè* of his tribe. To induce the better sort of strangers to settle among them, the chief was empowered to grant some of these tenements in perpetuity; but the greater portion was usually let at will. As for those who had only their labour to offer in lieu of the chief's protection, they were received on his private demesne-lands and became his serfs. Admission to the upper class depended on the stranger's ability to pay the entrance-fee on one or more of the disposable tenements. These tenements consisted of a homestead, with a certain extent of ground annexed: the homestead was denominated a *Rath*: to constitute a legitimate rath, five things were requisite, viz., a dwelling-house, an ox-stall, a hogsty, a sheep-pen, and a calf-house; these buildings were generally surrounded by a ditch and rampart, and formed, if necessary, a place of defence as well as residence. There is one very prevalent error with regard to raths in Ireland, viz. that they were Danish erections, and designed solely for military occupation. The term "Danish rath" is altogether a misnomer. The original titles of raths, according to the classification of the Brehon law, were drawn solely from the circumstance of their erection and occupation by the natives themselves,—as, for example, among many others, the *Finnè-rath*, a homestead occupied by the original kindred; a *Mer-rath*, one rented by stranger tenants for the first time; a *Sar-rath*, one occupied by stranger serfs on the chief's demesne-lands. The entrance-fine of such a

tenement was denominated *fal*, and, for the legitimate rath, amounted to fifty head of cattle. As distinguished from the Finnè, or original clansmen, the stranger-tenant was called *Fuidhir*, and his tenure *Fuidh*. These terms are pronounced respectively *Feuer* and *Feu*.

Thus, then, it would appear, that the country was occupied by kindreds called *Finnè*, holding for the most part in common, and by *Feuers*, who were either tenants by rent and service, or vassals of the chief. The tributes of chief to superior chief, up to the supreme king of the whole island, were regulated by established precedents. The collection of these rules for the kingdom of Munster is entitled 'The Book of Rights,' and is still extant.

It has been seen above that in proportion to the number of cattle possessed by each member of the tribe was his share of the common tillage-lands. Thus cattle were not only the standard of value, but the qualification for, and a necessary concomitant of property. The land was thus, by a sort of legal fiction, an appurtenance of the stock; so that to say of a person under this system, that he possessed a hundred cows, implied not only that his herds amounted to so many head of cattle, but that in addition, and as a necessary appurtenance of his estate in them, he also possessed the *grazing* of a hundred cows, and the share proportioned to a hundred cows in the common tillage-lands of his tribe. Every addition to the number of a man's cattle was therefore a virtual accession of land and produce, and *vice versâ*; and thus a mulct of cattle fell as heavily on the granary, as on the larder or dairy of the fined individual; for these proportionate partitions of the land took place at stated periods, and each man's harvest fluctuated with his herds, as they bore a greater or less ratio to the aggregate of all the cattle of the rest. The division of the ground into portions so uncertain, precluded the use of permanent fences on those arable commons, which were probably separated from the pasture by only one exterior circumvallation, while each man knew the portion that was to fall to his reaping-hook within. The adjustment of these portions must have been a matter of some difficulty. It would appear that the plan usually formed was this:—The land was divided into equal shares, in the proportion, each to the whole, of the herd of the least proprietor to the whole *creaght*, or common stock of all their cattle. These shares were drawn by lot, in order to give to all an equal chance of getting the worse or better land. He thus, it is supposed, whose herds were thrice as numerous as those of the least proprietor, drew three such aliquot parts; he possessing ten times as many, ten such, and so on, the shares being taken here and there, as they turned up,

and every man cropping his own portion as he thought fit. The system is still remembered in some parts of the country, and a mode of expressing the extent of land among the Munster peasantry is still to say "so much as *follows* so many cows;" hence in all likelihood, the term *Bally-boe*, i. e. "cow-land," a term which has perplexed many writers, in consequence of the varying extent represented by it at different times and in different districts.

Such, so far as can be collected from the present ill-arranged and defective materials, would appear to have been the old tribal system and land-tenure which prevailed in Ireland prior to the invasion of the Anglo-Normans in the twelfth century. The Brehon law, however, prevailed in every part of Ireland not immediately subject to the English power until the reign of James I., when the ancient Irish laws were abolished.

DISCUSSION.

Col. A. LANE FOX said that there was one part of the paper which appeared to him to be very valuable, and that was the explanation which the author had given of the *Raths*. If the information on this subject contained in the paper was derived from the Brehon law, it appeared to him to be conclusive, as it entirely tallied with the evidence afforded by the Raths themselves. That they were not constructed exclusively for defensive purposes was shown by their positions, being sometimes commanded within short arrow-shot from the outside; that they were the dwelling-places of an agricultural and pastoral people was shown by the querns for grinding corn, and by the animal remains that have been found in them, by their being almost invariably in the vicinity of a good spring, and by their being situated generally in the most fertile parts of the country. The Ordnance Survey Map showed as many as 10,000 of these Raths in Munster alone, and although many of them had been since destroyed, a considerable number yet remain. It was very desirable that an accurate record should be kept of the relics found in these earthworks. Col. Fox exhibited maps reduced from those of the Ordnance Survey, showing the position of every Rath in Munster, and pointed out their distribution over the more fertile parts of the country.

Mr. GEORGE CAMPBELL said it occurred to him that the description of the old Irish land-laws was not taken wholly from the Brehon code, but was supplemented from other sources. So far as he knew, all old written codes of the Aryan nations were singularly deficient in land-laws, and the Brehon code was no exception. In fact, he might hazard a doubt whether that code was all genuine, and whether much of it was not a corruption of the Roman law introduced by the early Christian priests.

He doubted whether Ireland was correctly described as exclusively a pastoral country. The descriptions of Spenser and Davis showed

that before the introduction of the English system, there was much agriculture; so much so that, in some parts of the country, the land was already excessively subdivided to the degree that "every acre hath its freeholder."

The speaker's Indian experience of similar customs further led him to doubt whether the repartition of the land was so constant as had been supposed, and especially, he believed, that the repartition was not "*per capita*" but "*per stirpes*;" that is, it was not a fresh repartition to all the males of the clan equally, but only a readjustment according to ancestral shares, for the purpose of redressing inequalities and inexactitudes which had crept in. For the purpose of expressing such shares, some unit must be taken; in agricultural communities it is generally a plough-land; where pasture prevails, it is a cow's-grass.

There was, he thought, a good deal of contradiction and confusion in various accounts as regards the relative position of chief of tribes and Tanists; but he had found in one passage in Davis a clear and circumstantial statement which seemed to him the most reasonable, viz. that while there was one chief of a whole tribe or clan, the Tanists were subchiefs of the subdivisions of the clan. The descriptions in the paper brought very vividly to his mind the extreme similarity of Aryan institutions in Europe and Asia. He believed that nothing was more hereditary, or had better marked ethnological affinities, than social and political institutions, and much that was said in a paper on the Irish customs would apply word for word to a Jat or Rajpoot village in India. The system under which the lands were distributed was very much the same: there was the same assignment of lands for official duties, the same partition among the men of the tribes, and the same system under which the surplus lands were cultivated by strangers. Even the name applied to these latter was the same, as the Irish called them *Fuidirs* or *fugitives*, while in India they were called "Foot cultivators," implying that they were not freed and settled inhabitants, but people who came and went at pleasure.

The PRESIDENT asked Mr. Campbell on what authority he regarded the village-system as an Aryan institution. It appears in India in the midst of a population in which there is a strong Dravidian element; for, basing his observations on physical characters, he regarded all who possessed true Hindoo features (whatever may be the language they now speak) as having a large infusion of so-called "Dravidian" blood. He believed that the Aryans, when they invaded India, were a nomadic people without a village-system, that they found an agricultural people already possessed of the soil, and that the conquerors adopted the institutions of the conquered.

Mr. CAMPBELL, in reply, said that he attributed the institutions known as village institutions to the Aryans, because wherever we find Aryans settled, whether in the east or the west, there we find these institutions. It was clear that they did not belong to the Indian aborigines, because nothing in that country was more marked than the distinction in this respect between Aryans and aborigines. Wherever Aryan features, Aryan languages, and an Aryan civiliza-

tion showed that the Aryan element prevailed over the aboriginal element in the people, there these people exhibited attachment to the soil, and established themselves in fixed settlements governed by village institutions: whereas all the tribes whose features, language, and manner showed that the aboriginal element remained tolerably pure, were incapable of attachment to the soil; there was no fixing them to it; they were incorrigible wanderers from one part of the jungle to another, and they had nothing like village institutions. He believed that mankind might be divided into people who fixed themselves in the soil and those who did not. You have the contrast between Kabyles and Arabs in Algeria, between Affghans and Turcomans in Central Asia, between Aryan Hindoos and aborigines in India; the Kabyles, Affghans, and Hindoos fixing themselves in the soil and adhering to it with the utmost tenacity, while African Arabs, Turcomans, and Indian aborigines are incorrigible wanderers. The distinction in India between Aryan and aboriginal features is such that, if you see two naked men walking on the roadside, you can say at once that is an Aryan Hindoo, that is an aboriginal, just as you can tell a short-horn bullock from a black Highland bullock. So distinguishing, you may further affirm that the Aryan-featured man is a land-lover, and has a home where he is governed by village institutions.

Mr. J. F. M^cLENNAN observed that the paper contained not a little that was new to him. The accuracy of some of the statements, however, he ventured to doubt; against others he desired to protest. It was said that the social condition of the early Irish was patriarchal. He could not reconcile that with the early Irish relationships and laws of succession as we know them, or with the fact that the chiefs were elective. It was said, again, that early Irish society was founded on the tribal system, and it was stated, as a general proposition, that the tribe was the development of the family. In this he could not concur. He held that in social development the tribe came first. The tribe existed before the family, and was resolved, by the operation of causes that could be assigned, first into gentes or septs, which, again, owing to causes that could be assigned, were resolved very gradually into family groups. He thought there was much evidence, though this was not the place to discuss it, that this had been the order of evolution in Ireland. We had now two volumes issued of the ancient Irish laws, as we possessed them in 'The Senchus Mor' modified by Roman law and Christian influences. What the ancient Irish laws really were before this modification took place would probably never now be known; but it was obvious that parts of the code were more primitive than others, and he appealed to the law of fosterage developed in the second volume as being very primitive, and as showing that the early Irish family system was in a transitional state—not yet solidified into any thing like the modern family. Fosterage, as a system, implied alterage as a system; both systems prevailed in Ireland, and they could imagine what families were in which there were no children belonging to the heads. As to the account that had been given of land-laws he could say nothing of

it confidently, as that part of the code which regulated it had not as yet been issued. He doubted, however, the explanation that had been given of the meaning of cow-lands, and the alleged right of parties to a share of tillage-land proportioned to the stock they possessed. He was, on the whole, disposed to think, with Mr. Campbell, that the Irish tribe resembled the Indian village community; but he could not agree with Mr. Campbell in regarding the village system as peculiarly Aryan. It was found among purely Tatar races, *e. g.* among the hill-tribes round Munnipore, whom none would suspect of being Aryan, and in Russia, in districts, as, he believed, purely Tatar. He was not aware of any custom or institution that could be claimed to be distinctively Aryan. Caste certainly was not, though Mr. Campbell said it was. Mr. Campbell, in his paper on the Ethnology of India, read before this Society, had used the words *caste* and *race* as synonyms. If that was correct, caste could *not* be distinctively Aryan, seeing there were various races of Turanians and Semites. Caste and race were not, however, synonyms; and the literature of India disclosed to us the growth of caste distinctions among a people of one race within the period of the growth of the literature. There were caste distinctions in Peru, where the Incas were a caste; and no one claimed the Peruvians as Aryan. For himself, he believed that the linguistic classification of men in families as Aryans, Semites, and Turanians had no proper foundation; it had served its day and fell to be abandoned.

Mr. Hyde Clarke remarked that the subject required the application of the comparative knowledge of similar institutions. Many such illustrations would be obtained from this island during the Anglo-Saxon time. The *rath*, as an enclosure, corresponded with the *ton* or *town*. Like institutions will often be found under like circumstances. There did not appear to be as yet a sufficient explanation of the position of the older aboriginal or serf population in Ireland.

The following paper was then read by the Assistant-Secretary:—

XXIX. *On the* Danish Element *in the Population of* Cleveland, Yorkshire. By the Rev. J. C. Atkinson.

The occurrence in a dialect of English of a very large number of words, of which *garsel, flan, segg, scare on, cuvvin, cuvvin-scar, grim, kirk-grim, kelps, kenspack* are types—words which have not only no place but no representative in the English dictionary, but yet which, allowing for nothing beyond a little phonetic alteration, inevitable under the circumstances, still maintain their hereditary place in the Scandinavian dictionaries and word-books—the occurrence of a host of such words is a fact which calls for the attention, not merely of the philologist, but

also of all such as are interested in tracing the fluctuations and mutations and successions of the races or tribes or peoples who may (or must) in former days have occupied the land, or indeed any portion of it, whether more or less definite.

But in Cleveland we not only find *garsel* (hedge-sticks), represented by S. G. *gardsel*, Sw. *gärdsle*, Dan. *gjerdsel*, S. Jutl. *gardsel*; *grim* (a death's-head, as sculptured on a grave-stone or monument), by O. N. *grima*, a mask, O. Sw. *grima*; *kirk-grim* (a bar guest), by Sw. Dial. *kyrke-grime*, Dan. Dial. *kirke-grim*; *cuvvin*, *cuvvin-scar* (the periwinkle, and the flat surface of rock which is the habitat of that mollusk), by O. N. *kufungr*, Norse, *kuvung*; Norse *skjer*, O. N. *sker*, a rock rising to the level of the water-surface; and so on of other words to the number of many scores, but we also meet with a very large proportion of personal names which are not only not English in their origin, but most certainly Scandinavian. I take as types of this class of names (and only a few out of many) Milburn, Mewburn, Osburn, Allison, Jordison, Towlson, Lockson, Colson, Birkell, Aiskell, Thirkell, Horne, Horden, Gill, Keld, Rigg, Ness, Lax, Scarth, Scar. Most of these exist in the district to this day, and all of them, with the rest of the large class to which they belong, and of which they are fair samples, are met with in continual iteration in all the older parochial registers to which I have so far had access.

On passing from personal to local nomenclature, the impression produced by such facts as those already adduced on the mind of any inquirer roused to observant attention cannot fail to be deepened. Not only do *-by's*, *-thorpe's*, *-thwait's*, *-griff's*, *-dale's*, *-um's* (all demonstrably O. Norse or O. Danish datives plural), and a host of others not admitting of classification, besides the manifold prefixes furnished by such personal names as Kell or Ketel, Dane, Norman, Ugelbard, Leising, Orm, Ingialld, Bergulf, Grim, Grimkell, Baldr,—not only do such local names as are distinguished by the presence of one or more of these characteristics meet us in preponderating numbers at every glance we cast over the map, but we find, as a rule, admitting of only a few exceptions, the geographical or physical features of the country described or distinguished by such terms as *gill*, *foss*, *scar*, *finkel*, *dale*, *rigg*, *botton*, *head*, *brae*, *sike*, *houl*, *bank*, *nab*, and the like; and this without dwelling on such words as *garth*, *intak'*, *houe*, &c., which are perhaps rather dialectic than classifiable as making an element in local names. Facts such as these now stated are obviously not accidental, and, taken in mutual connexion and combination, they are surely such as are likely to provoke inquiry and suggest a part, at least, of its method and direction.

For, to a student of such matters, though but little practised, one of the most obvious facts connected with names, either local or personal (so obvious that it seems almost impertinent to do more than simply state it), is, that not a few of them have been subjected to the distorting and disintegrating influences of corruption. Take Marsey, Parsyble, Breckon, Hebron, Cowtus, Stanas, personal names borne by many families within the present century, and all, save one, existing at the present day in the forms given; or take Moorsholm, Coatham, Ugglebarnby, Aislaby (pronounced Hesselby by the country people, both in Yorkshire and Lincolnshire) as samples of local names, and it seems very difficult by mere inspection to make any thing of them. In fact, two or three of them are simply misleading, if regarded only in connexion with their form and sound, and one in particular, Moorsholm, is a coupling together of contradictions. Obviously, in the former instances, the inquiry becomes —What was Marsey's father's, grandfather's, or great grandfather's name? what Hebron's, Breckon's, Parsyble's, Cowtus's, and Stanas's? And in nearly every instance the inquiry, if duly pushed, meets with its solution: Marsey is found to be Mercer; Hebron, in 1596, was Abram; Parsyble, in 1691, Persibell, and, two or three generations before that, Persivallus; Breckon, Braican or Braykan, sending us further back and afield still for its origin, while Cowtus and Stanas (found with eight or ten variations of each) resolve themselves ultimately into Stonehouse and Colthurst. In fact I can specify but one current and special Cleveland name which, three centuries since, was as much corrupted (at least presumably) as at the present day. That name is Hartas, then Hartus.

But researches of the same kind, touching such names as Moorsholm, Hesselby, Yarm, and the like, pushed back over a space of no more than 300 years, produce almost absolutely nothing in the way of light or explanation. Some strange illustrations of change or corruption in local names commenced and completed within that space certainly do by chance occur, such as the conversion of a name that was written Armitthwate in 1623, Armthwaite about 1720, into Ainthorpe of 1820, and sounded, in 1870, Aintrup. This is in the parish of Danby. But Moorsholm, Yarm, Coatham, Ugglebarnby, &c. were unaltered, except in being, in some instances, spelt rather more phonetically, 300 years ago. Moorsholm fluctuated between Moreshame, Moorsham, Mooresome, Moresum, &c., and Coatham might be found written Cotham; and this was all. Further inquiry, therefore, but in the same direction, not only became necessary but was distinctly indicated. For this purpose all ancient deeds and documents, espe-

cially such as owed their existence to acts of apportionment, settlement, definition, or the like, of landed property would obviously be available; and although, most unfortunately, by far the larger part of the most ancient deeds connected with the district seem to have been lost, still, what is left of the MSS. (or copies of the MSS.), once belonging to the great conventual establishments of Whitby and Guisborough, together with the Hundred Rolls and *Inquisitiones post mortem*, and especially with Kirkby's Inquest and Domesday Book, was found, if not fully adequate, yet strangely instructive and helpful; for they not only illustrate the manner in which Moorsholm of the 19th century passes through Moresum of 1540 into Morusum of 1340 and Morehusum of Domesday times, or how Coatham and Tocketts resolve themselves into Cotum and Tos-cotum, Ugglebarnby into Ugelbardby or Ugleberdebi, but they clear up the obscurity about Aislaby or Hesselby, by revealing the fact that Aislaby near Whitby was originally Asuluesbi (that is, Asulf's-by), while another place like-named near Yarm, and a third near Pickering (a fourth also near Sleaford in Lincolnshire), were all three, in 1088, Aslachesbi, or Aslachebi; and this, besides incidentally suffering it to appear that Aslac, Asulf, Uglebert, or Ugelbard (one or several of each name), were owners of land in the district at the time of the conquest, even if not continuing to be so long after. Professor Worsaae, avowedly basing his calculation upon the authority of "Walker's maps," published in 1832, gives as the result of his examination the conclusion that there are 100 places in North Yorkshire with names ending in *-by*, 18 ending in *-thorpe*, and 2 in *-thwaite*. But a very cursory examination of the sources of information I have specified above, and especially as combined with careful inspection of the 6-inch Ordnance maps, supplemented by a little accurate local knowledge, shows immediately that Mr. Worsaae's calculations fall greatly short of the actual state of the case, while a more systematic investigation, and an exacter reckoning, give the following list of name-endings in *-bi* (or *-by*), *-thorpe*, and *-thwaite* for the small district of Cleveland (inclusive of Whitby Strand) alone:—

Alewardebi or Elwordebi (now Ellerby).
Asuluebi, Asuluesbi (Aislaby).
Badresby (Battersby).
Barnebi (Barnby).
Baldebi (Baldby).
Bergelbi, Bergebi (Borrowby).
Bordalebi, Bordlebi.
Barnodebi.
Bernodebi (Barnaby).
Berguluesbi, Bergolbi.
Bollebi, Bolebi.
Buschebi (Busby).
Cherchebi (Kirby).
Colebi (Coleby Manor).
Crossebi (Crosby).

Danebi (Danby).
Dragmalebi (Dromonby).
Englebi (Ingleby Hill).
Englebi (Ingleby Arncliffe).
Englebi (Ingleby Greenhow).
Eseby (Easby).
Feizbi, Fezbi (Faceby).
Grimesbi.
Haxby.
Irby.
Lachenebi, Lackebi (Lackenby).
Lesingebi, Lesighebi (Lazenby).
Maltebi (Maltby).
Michelbi (Mickleby).
Netherbi (in Whitby).
Newby.
Normanebi (Normanby, near Whitby).
Normanebi (Normanby, near Eston).
Overbi (in Whitby).
Ormesbi (Ormesby).
Prestebi (in Whitby).
Rodebi (Hutton Rudby).
Roscebi, Roxebi (Roxby).
Sowerby (in Danby).
Sourebi (in Whitby).
Staxebi (Stakesby).
Steinesbi (Stainsby).
Swainby.
Tollesbi (Tolesby).
Turmozbi, Tormozbi (Thornaby).
Turoldesbi, Toroldesbi (Thoraldby).
Ulgeberdesbi, Ugelbardebi (Ugglebarnby).
Westingby, Westonby.
Wragby.
Yearby.
Ainthorpe.
Arnodestorp.
Boythorpe.
Hailthorpe.
Linthorpe or Leventhorpe.
Roscheltorp, Roschetorp.
Torp (Kilton Thorpe).
Torp (Nunthorpe).
Torp (Pinchingthorpe).
Sneaton Thorpe.
Fyling Thorpe.
Ugetorp, Ughetorp (Ugthorpe).
Braithwaite.
Huthwaite.
Midthwaite.
Millthwaite.
Stubblethwaite.
Raithwaite.
Bertwait, Berthwait.
Setwait.

In this list, then, which still I do not believe is altogether exhaustive, there are 49 names ending in *-by*, 12 in *-thorpe*, and 8 in *-thwaite*, these last being more by 5 than Prof. Worsaae assigns to the whole N. Riding, while the *-by's* are only one short of his total number.

It may, of course, be assumed that the statistics, on which Worsaae grounds his argument at the part of his work to which reference has been made, are alike understated with reference to other parts of N. Yorkshire, as well as Cleveland; and, indeed, as far as my own investigations have gone, the assumption would appear to be exceedingly well supported; but, passing that by with the bare mention, it is more to my point to observe that the list just given is very far indeed from exhausting that class of Cleveland local-name-endings of which *-by*, *-thorpe*, and *-thwaite* are special instances. Thus, to specify one or more others, besides Basdale, Basedale (Baysdale), Childale (Kildale), Camisedale, Commondale, Glasdale (Glaisdale),

Handale or Grendale, Iburndale, Westerdale, all names of townships or parishes, there are no fewer than 55 local designations in Cleveland ending in *-dale*. To the name-endings in *-um* also it is well to draw special attention. Of these we have the following list:—Achelum, Aclum (Acklam), Laclum, Lelum (Lealholm), Ergum, Jarum (Yarm), Morehusum, Morhusum (Moorsholm), Locthusum, Loctusum (Lofthouse), Cotum (Coatham), Toscotum (Tocketts), Westlidum, Lithum (Kirkleatham), Uplium, Lyum, Uplithum (Upleatham), Lid, Lithum (Lythe), Florun, Flore, Arusum, Harhusum (Airsome), Thacrum. About such names as Arusum (cf. Aarhuus, S. Jutland), Morehusum, Locthusum, Cotum, Toscotum, it is not possible there should be any uncertainty; the first-named proclaims its original as markedly as Upsal (one place of the name in Cleveland, a second a few miles beyond the borders to the west) or Baldersby; the others are all Old Danish datives plural. The same seems to be true of Lithum and the other two names ending in *-lithum* (all depending on O. N. *hlid*, the flank or side of a hill or mountain); and it is worth notice that that district of Cleveland in which these names occur is to this day, by those who live on the higher levels of the dales among the hills to the south of it, called "the low *side*." Yarm, in its old form Jarum, bears a singular resemblance, which can hardly be accidental one would think, to a place-name in S. Jutland, the phonetic form of which is written Jarum, the true form being Hjardum (due to O. N. Hjarðaheimr: Kok's 'Danske Folkesprog in Söndergylland,' ii. 179). Aclum and Laclum probably depend on O. N. *holmr*, and Ergum is uncertain.

Even yet there is much of the same kind requiring to be noticed. While the name of the district at large is the little altered *Kliflond* of the Saga writer (Flateyiarbok, iii. p. 389), there are, besides Crumbeclif (or clive), Roudeclif (or clive, two of the name), Gerneclif or Erneclive (two of the name), all in Domesday or Kirkby, about a dozen other names with the same termination, though many of them corrupted by phonetic abuse; seven or eight ending in *-grif* or *greve*; *holms* so many, both in composition and uncompounded, as to render counting a work of some trouble (I estimate them as not under 50); on the coast several *wykes* (O. N. *vik*); nearly as many *-stys* (O. N. *stigr*, Dan. *sti*, a path, especially an ascending one); besides *-borgs*, *-becks*, *-hows*, *-gills*, *-scars*, *-kelds*, &c., to such a number collectively as to make enumeration simply tedious. Some of these compounds, however, deserve especial notice, as, for instance, Trenholm, side by side with S. Jutland Tranholm (two of the name); Houlbeck, Holebec, Holbeck, with S. Jutl. Holbk, Holbek (several places so named,

as also in Cleveland); Scalebeck, S. Jutl. Skellbæk; Hellæwath, S. Jutl. Hellevad; Hellscar, S. Jutl. Helleskar, and very many others.

One large class, however, containing 39 or 40 names, yet remains to be mentioned; I mean that of those ending in *-ton* or *-tun*; and it is remarkable that the prefix in not a few among these is of the same character as in the case of names ending in *-by*, *-thorpe*, *-thwaite*, or other unmistakable O. Danish suffix. Thus, Kilton is in Domesday Chilton, Chiltune, provoking comparison with Childale (Kildale), where the Chil is simply the Norse Kell as in Thorkell, Arnkell, &c. So also in Skelton, Domesday Sceltun, Schelton; the first syllable is the same as in Scalebeck, S. Jutland Skelbæk, while Astun (now Eston), Steintun (two of the name), Carltun, Blatun, &c. suggest comparisons of the same kind. In fact *tun* is as much Scandinavian for a farm inclosure as it is Anglo-Saxon, and the Icelandic *tun* meets with its exact analogue in many parts of ancient Northumbria at the present day.

Reference was made a few pages back, but with less precision than might have been used, to the occurrence of such names as Arusum (Aarhuus) and Upsal; but there is one other to which it will be well to direct special attention, and it seems strange that the local historians and antiquaries of Whitby should have left it to the present writer to do so.

In the "Memorial of Benefactions" to Whitby Abbey, recapitulating the grants of land and other property made to that body by Wm. de Perci and his son Alan, the list begins thus:—"Villam et portum de Witebi; Overbi; et Nethrebi, id est Stainsecher; *Thingwala*; Leirpel; Helredale; Gnip, *i. e.* Hauchesgard, &c." Young (Hist. of Whitby, ii. p. 912), after giving this memorial *in extenso*, proceeds to remark on some of the local names involved. "Overbi," he says, "is probably High Whitby, *Thingwala*, Highgate-houe," and so dismisses the name. Prof. Worsaae deals otherwise with Shetland Thingwal ["Tingwall, hvor, som navnet (þinga völlr) antyder, Öernes Hovedthing gjennem Aarhundreder blev holdt," is his notice of the place so named]; and but for the remarkable dimness of vision besetting the Whitby historians, their local Thingwal would, long ere this, have taken rank with those of Shetland, Orkney, Chester, Ross-shire, and demanded coordination in significance alike with them and with Norwegian "þing vellir, now Tingvala; and with Islandic þingvöllr." The fact, taken by itself, that a Thing-place existed at Whitby, would have amply justified the presumption that the entire district to which access is thence afforded by the sea must have been not only to a notable extent under the influence of, but occu-

pied by, men of Northern or Old Danish origin; but, coming as it does as a sort of practical commentary on the enumeration given above of local names, all bearing the impress of Scandinavian coinage, and prevailing to the extent of something like 9 out of 10 of the whole, it is difficult to overrate its significance.

If further illustration of the same character be requisite, I ask a moment's attention to the following list of Owners or Lords of the Soil, as extracted from 'Domesday':—

Aldred.
Archil (Arnkell).
Aschel (Askell).
Altor (Althor).
Alver (Alfr).
Carl (Karl or Karle).
Edmund.
Gamel (two of the name).
Gospatric.
Hauuard.
Lieuenot.
Leising or Lesing.
Ligulf.
Magbanec.
Malgrim.
Norman.
Orme or Orm.
Uctred.
Walteof (Valtheofr).
Siward (Sigurðr).
Suuen (Sweyn).
Tor (Thor).
Torchel (Thorkell).
Turorne (Thorarinn).
Ulf.
Ulchel (Ulfkell).

But this list, in which Old Danish names preponderate (without allowing for duplicates, the existence of which I suspect in two, if not in three cases) to the extent of 85 per cent., is not the only list of the same kind available. A reference to the list given (pp. 354, 355 of this paper) supplies the following, as identifiable:—

Alfgerdr.
Asulf.
Bödvar.
Björn.
Baldr.
Biarnvardr.
Bergulf.
Bolli.
Ir, Iar (Ivar).
Kole, Kolli, or Kollr.
Dane (the name occurs in Lincolnshire Domesday).
Ingialld (three of the name).
Esi or Asi, or Asa.
Grimr.
Norman.
Orm.
Steinn.
Sweyn.
Toli.
Thorwalldr.
Uglebard.
Vesteinn.
Arnodr.
Leuuin.
Hrosskell.
Uggr.
Jur.
(Ivar).

besides two or three others, which are, at least, open to conjecture.

Further, the last is a list admitting of considerable amplifica-

tion: every such name of a farmstead, as Butterwick in Danby; of a house, as Grinkle Park in Easington, or Gunnergate in Marton; of a natural or geographical feature, as Kettleness in Lythe (and they are not few), adds one item more to it.

I will adduce but one other piece of evidence of the same nature as that which has preceded it, and I do not know that I can put it in a more compressed form than as it appears in a note to the introduction to my Cleveland Glossary. In the works connected with the rebuilding of Kildale Church during the latter part of 1867, while "digging for the foundations of the new north wall, and also along the middle of the nave for the reception of the warming-apparatus, a number of skeletons in perfect preservation were disclosed, in company with several of which were objects of bronze and weapons of iron (swords, daggers, and a battle-axe), of such a distinctly marked character that there could be as little doubt of their origin as of their antiquity. They were unmistakably Danish, and there could be no room left for uncertainty as to the fact that the mediæval church, the last remains of which had been so lately removed, had been built upon the site of a cemetery which had been such from the ninth century downwards."

The general conclusions deducible from the statistics which have been thus in succession detailed, seem to be clearly, not only that the district in general was occupied at an early period by Danish colonists, but that, both as a whole and in its several and constituent parts—I mean what are now parishes, townships, farmsteads, or merely local peculiarities of geography or configuration—it was named by them, to the amount, it would seem, of not less than 85 or 90 per cent. of the local designations known to have existed in mediæval times. The existence of the names which are not Scandinavian, but assumably Anglian, perhaps suggests the question, Are they the only names of the sort which were in existence when the imposition of the Danish names just reviewed took place? or, in other words, Did the old Danes merely take up and occupy and name the parts of the districts hitherto unoccupied and unnamed, or did they enter on other men's possessions and *re*name as well as take possession?

The materials for the answer of such a question are unhappily very scanty; but, as far as they go, they tend to the conclusion that these northern invaders and colonists overcame and killed or ousted the former possessors of the lands, which they then proceeded to rename. Certainly the name of Whitby itself, probably much the most important place at that time in the Cleveland district, was thus changed. In the times of Anglian possession it was Streoneshalh, or Streoneshalc; and it

was reserved for its new northern masters, not only to replace that name by Whitby, but either to rename existing divisions of ancient Streoneshalc, or to create new local distinctions with the characteristic appellatives, Priestby, Overby, Netherby, Stakesby, Normanby, Gnipe, Berthwait, Sethwait, and Thingwall.

A like change took place in respect of one of the most marked natural features of the entire Cleveland district, namely, what is now called Roseberry Topping. Between the dates 1119 and 1540, I find the name of this conspicuous hill written Otneberch, Ohtneberg, Othenbruche, Othenesbergh, Ornbach, Ounsbery, Onesbergh, and, more corruptly, Hensberg (1119), Hogtenberg, Thuerbrugh, Thuerbrught, all (except the two last) manifest corruptions of an original Odinberg (a name which could only have been imposed by Danes), but never written Roseberry. Camden (according to Mr. Graves, Hist. Clevel. p. 215) calls the mount Ounesberry Topping, Thoresby designates it Rosebury Topping, while Roseberrye Toppinge is its name in the Cott. MS. It is impossible to suppose that the name Roseberry was new-minted in the 16th century or later. It is almost certainly the old Anglian name, which had never been completely lost from popular recollection, but had maintained itself coordinately with Othenbergh, and at last succeeded in completely excluding its would-be supplanter. This has certainly been the case with Thornborough between Northallerton and Thirsk; Hundulftorp is the name of the manor in question, as it appears in 'Domesday,' and no mention is made of Thornborough; and except that Hundulfthorpe exists in some old lease or other territorial document belonging to the present owner, the very name would be lost. To be sure Haigh (A.-S. Sagas, pp. 45–85) and, following him, Prof. Morley identify Roseberry with Hreosnabeorh in Beowulf. But there is not a tittle of tangible evidence to support the identification, and criticism is almost thrown away on the discernment which detects the name of Hygelac in Ugglebarnby, "an easy contraction of Beowulfesbeorh" in Boulby, and Ravenwood (Hrefna-wudu) in Robin Hood's Bay,—a name of which, as far as I can ascertain, no trace exists up to the time of the dissolution of the monasteries.

That very distinct traces of Anglian nomenclature remain in the district, or close upon it, is indisputable; and it is somewhat interesting that, in several instances, these old names are connected with the ancient burial-mounds of former occupants of the country. Among these, Glap-howe, in the parish of Skelton, is one of the most prominent, as reproducing a name so well known as that of Glappa or Clappa. Carling-howe, in Guisborough parish, I look upon as another instance of the

same kind; Basin-houe, a name local antiquarians account for, some of them on the ground that it has a large basin-shaped cavity (the result of former opening) on its summit, others from the absurd fable that a silver basin had been dug out of it, may be yet a third case; Lilhoue, there can be little doubt, contains the name Lilla, while Nean Howe, Nanny-houe, and the ancient boundary-stone or mere called the "nan-stone," all seem to involve an old Teutonic name, which has furnished, in part or in whole, not a few both German and English personal appellatives.

The Basin (for Basing), Carling, and possibly Nanny (regarded as a corruption from Nanning), I look upon, of course, as Teutonic patronymics. The first occurs in Yorkshire Domesday, in both the forms Basinc and Basin, together with the place-name Basinghebi; the second, in Carlingford and Lincolnshire Domesday, Carlentone, as well as in three or four other local names in Cleveland; while the simple names Besi or Basi and Carle are of perpetual occurrence in Yorkshire and Lincolnshire Domesday and elsewhere.

Other marked Anglian names of places in Cleveland seem to be Hildreuuelle, Esington, Himelingetun, Lentune or Levington, Neuham or Neweham, Mideltun, Neutone, Broctun, and some others. And yet, with respect to one or more of these, it should be observed that speculation or inquiry is suggested. Thus we have the name Esebi, of purely Danish form, the personal name Esi (Asa, Asi in Yorkshire Domesday) supplying the first element. But this same name, with the generally recognized A.-S. patronymic ending *-ing*, furnishes also the former element in Esingetun, as well as in Esingewald (Easingwold), and it is perplexing to think of Esi as a Dane, and Esing as an Anglian. The same difficulty occurs in the case of Besi or Basi, in a somewhat altered form; for the Lincolnshire D. Basingeham would seem to be distinctly Anglian, while Yorkshire D. Basinghebi (Besingby in Whitby Charters), Linc. Basingthorpe, must equally be regarded as distinctly Danish. In this case the elementary name Besi or Basi is met with in the names Beswick, Besthorpe (two), all three of which are of northern form. Lentune or Levington is another name beset with the same difficulties, though in a minor degree; for we have the apparently Anglian Leving, not only in combination with the probably Anglian *-ton*, but also prefixed to the certainly Danish *-thorpe* in the 12th century, Levingtorp, Leuyngtorp, now Linthorpe near Middlesbrough.

I suppose the difficulty is more apparent than real, and admits of easy solution by recalling to mind that the termination *-ing* is by no means exclusively Germanic any more than *-ton*.

The mere recollection of the title Ynglingla-saga, and of who the Ynglings were—descendants of Yngir, another name for Freyr —and of such names as Hasting (as that of one of the most distinguished of the Viking leaders), is sufficient to suggest that if Esi, Leue or Levi, Besi or Basi were Northmen by birth, or even by adoption, their sons or descendants might, with no violation of Northern tongue-rules, be called Esing, Leving or Leuing, and Basing or Besing; and thus there would be no difficulty or inconsistency in such names as Basinghebi, Basingthorpe, Levingthorpe, Esebi, in contrast with Basingeham, Levington, and Esington.

All this, I am well aware, is but a sketch of a subject requiring careful handling and elaboration; but I have been compelled to write the greater part of it under pressure for time, and with the materials (on which I depended when I became responsible for the paper) still left in a crude state, owing to circumstances involving absences from home, and much unforeseen business of a painful and onerous nature both at home and away. Still, I trust it will be thought that enough has been advanced to show the interest attaching to the subject, and to prove that the views brought forward are not unsubstantiated by facts; and, in conclusion, I will only add a little in the way of statement, confirmatory and illustrative, of the circumstances to which attention was directed in the opening paragraphs of the paper.

Under the conditions of preponderating Danish occupancy and nomenclature noticed at a preceding page, and of less extensive but still distinct Anglian presence and influence, also above noticed, it would obviously be reasonable, so long as the inhabitants of the district in question continued in their mutual intercommunication to make use of what might with reality be termed a "dialect," to look for distinct evidences in such dialect of its indebtedness, on the one hand, to the Old Danish tongue, and, on the other, to the original folk-speech intruded on by the Danish-speaking colonists. It is of course an unsatisfactory matter to venture, without actual enumeration made, an estimate of the number of words which appear jointly in the Cleveland and Scandinavian vocabularies, but do not appear in the English dictionary or south-country word-books, but I have no hesitation in saying that they are to be reckoned by hundreds. In a very hasty inspection of the Cleveland Glossary, under letter S, I find (and with rather a tendency to underrate than to overestimate) I have jotted down 94 words to which such a character belongs. A few among the most characteristic of these are *scow* (the sheath of a horse's penis), *segg*

(a male animal, ox or swine, castrated after having arrived at maturity), *scug* (to hide), *scud* (to pare off a surface from the ground or floor), *smout* (a hole at the bottom of a hedge or wall used by sheep, hares, &c. to pass through), *snod* (smooth, even, trim), *snog* (tidy, trimmed up), *steg* (a gander), *stoven* (the stool whence a sapling tree has been cut), *swagger* (a pennon, vane), *swid*, *swidder* (to smart, tingle with pain), *swidden* (to burn), *swip* (likeness), *swipple* (the striking part of the flail), *swang* (a boggy piece of ground), *syke* (an oozing stream), &c.

But besides words such as these, the idiom of the pure vernacular is in many instances still markedly un-English, the deviations from English, however, meeting with their exact counterpart in the speech of the Scandinavian countries. "I do not object," or, "I have no objection to this or that," is, in Cleveland, put thus, "Ah hes nowght agen that," which is simply a translation of Dan. "*Jeg har ikke noget imod det.*" "I ran as fast as I could" is "Ah ran what ah could;" Dan. "*Jeg randt hvad jeg kunde.*" "Will you do so and so?" may be asked of a Clevelander, and if so, the circumstances being such as to justify the rejoinder "Why not?" or "Why should I not?" his reply would be most likely "What for not?" It is an idiom I have heard a hundred times, and with it I collate the Dan. use of *hvad for*. Nay, in many instances, the old proverbial sayings of the district meet with their exact counterparts in those of some Scandinavian district. The S. Jutlander says of the man whose outward appearance may be described as fat and well-liking, "*Han lever int'ved dövv Nödr;*" the Cleveland saying, in like case, being "He deean't luik as gin he lived upo' deeaf nuts."

Illustrations of this kind might be compiled to the extent of many pages, and such compilation might not be without its interest. Here, the amount of notice already given will suffice; but it is to our point to observe that, while northern words, idioms, and proverbs occupy the prominent position they do in the familiar speech of the genuine Cleveland people, some (as to their nature) equally marked instances of what must be regarded as the old Anglian tongue and modes of expression are to be discerned by the observant inquirer. Such words as *sackless* (dull, heavy, spiritless), *shaffment* (the circumference of the wrist), may be found among the words beginning with S, and a list may be made numbering perhaps one-tenth of the words in that of Scandinavian words just now adverted to, and of which no counterpart shall be found in the Scandinavian word-books. But that is all, and I think that estimate almost too high.

Something to the same effect is true of Anglian idioms. Thus,

in nearly 23 years of familiar intercourse with my parishioners, I have never once heard a true Clevelander, intending to say what is expressed by the English "kneel down," use any other phrase but "sit thee doon o' tha' knees," or, "sit o' tha' knees;" and the frequency with which I have heard it may be estimated by the fact that, if children are present when a visiting clergyman is about to kneel by the sick person's bed, the direction to them is given in the form specified. Only the last sick visit I paid, the person visited being sadly weak and infirm, the doubt was expressed whether he were physically able to "sit on his knees." In Layamon, ii. p. 506, we read,—

> Þeos here-þríges þreo
> Comen to þan kíge
> & *setten an heore cneowen*;

while in the Coke's Tale of Gamelyn, l. 1397, it stands,—

> Whan that they hym found in
> On *kneys* they them *sette*
> And adoun with their hode, and
> Gamelyn their Lord grette.

Among a great number of other instances of usage, it is interesting to find it in the truly Northumbrian "Havelok the Dane" (p. 77),—

> Þat athelwold þe dide *site*
> On *knes*.

Other examples of the same sort are found in the Cleveland phrases, to "bear at hand," to "rap and ree," which are met with, the latter in Layamon more than once or twice, "Hii *rupten* hii refden," and the former in the Towneley Mysteries, and frequently in Chaucer, in the form "bere on hand," and with materially the same sense as in Cleveland, namely, "to give one the credit" of a thing, "to accuse of." In fact, the usage in the Yorkshire book named coincides exactly with ours, as the full phrase there is "bere falsly on hand."

My purpose originally was to have touched on such peculiarities of tone, of phonesis, and other specialities of the same sort as appeared to me to have a bearing upon the general subject; and also to have given some statistics as to the personal appearance, features, and build of the Clevelanders, matters all possessing more or less interest, and strictly in place in such a paper as this. I am, however, from simple want of time, obliged to forego that part of my purpose, and to content myself with the unsatisfactory sketch given above.

Discussion.

Mr. J. A. Hjaltalin said that the only point to which he wished to call the attention of the Society was, that the author seemed to suppose that there was a clear distinction between Scandinavian names and Anglo-Saxon names, so that we could at one glance pronounce a name to be either Scandinavian or Anglo-Saxon, as if those two languages were so different and distinct from each other that a word, or a name, must necessarily belong to one of them only, and not to both. If this were the opinion of the author, the speaker could not agree with him. Many words and names apparently belonging to the Scandinavian language may not be more Scandinavian than Anglo-Saxon, and *vice versâ*. Take, for instance, the names *Harold*, Scand. *Haraldr*; *Godwin*, Scand. *Guidini*, or *Gudin*. Now are those two names Scandinavian or Anglo-Saxon? The speaker believed that he was right in saying that they were both.

Until the 12th century there was one language in use over all Scandinavia (Norway, Sweden, and Denmark) and in Iceland; and the same language was spoken in the Faroe, Orkney, and Shetland Islands, in the Hebrides, and in many parts of England, Scotland, and Ireland. This language was then called Danish, or the Northern language; and survives now in its ancient purity in Iceland only; it may, therefore, properly be called Icelandic instead of Scandinavian. Modern Swedish and Danish stand in the same relation to this old language as Italian and Spanish stand to Latin. The language of Norway is now Danish, but among the country population there are several dialects more resembling Icelandic than either modern Danish or Swedish. The old Scandinavian language, the present Icelandic, was so like the language spoken by the Saxons in England at the above-mentioned period, that the Scandinavians and the Anglo-Saxons could understand each other, speaking their respective languages, just as Danes and Swedes do at the present day. In fact the Scandinavians considered the Anglo-Saxon to be the same tongue as their own; for it is expressly stated in some of our most reliable Sagas that the same tongue prevailed in England as in Scandinavia until the arrival of William the Conqueror. The similarity between the two languages is further confirmed by the fact that it is nowhere mentioned in our Icelandic Sagas that the Scandinavians made use of an interpreter in their intercourse with the Saxons in England; but it is expressly mentioned that they required an interpreter in their dealings with the Irish.

The speaker further remarked that both Anglo-Saxon and Icelandic have the genitive plural ending in *a*, and dative plural ending in *um*, in common with Frisian, but differing in that respect from German. As far as he could judge from his limited acquaintance with Anglo-Saxon, there seemed more similarity between Anglo-Saxon and Icelandic than between either Anglo-Saxon or Icelandic and German. And the similarity between Anglo-Saxon and Icelandic, as they were spoken in the 9th, 10th, and 11th centuries, may have been still closer than we find it to be in the written monuments of subsequent date.

From the foregoing remarks it must be plain how extremely difficult it will always be to decide which names are peculiarly Anglo-Saxon, and which Scandinavian, or Icelandic.

Mr. Hyde Clarke thought that this well-compiled paper did not present the true explanation of the extent of Danish and Norse influence in England, although it actually suggested it. It appeared strange that Scandinavian illustrations should be sought by Mr. Atkinson in South Jutland; but this presented the key to the whole problem. Notwithstanding the statements of staunch Norse advocates, England did not afford strong evidence of a decided Norse population; and the assertors that it did, created difficulties in the adjustment of the existing facts. The moderate paper of Mr. Atkinson was calculated to help them. He referred to South Jutland. Now, assuredly South Jutland, even in this day, could not be considered a Scandinavian country; it was, in the time of Tacitus, occupied by populations which he (Mr. Clarke) classified as Suevians, and of English kin, Angli, Saxones, Frisians, Jutes, Burgundians, &c. It was not till the thinning away of these populations that the Scandinavians advanced from the north, and the Slaves from the east. The early ethnology of South Jutland and, he believed, of North Jutland was Suevian, and he included the early Danes as Suevians; he considered that the Danes had become Scandinavianized, as the Jutland populations had been, by this Norse filtration southwards. If this were so, the early Danish invasions of England would be effected by the Suevians, who would readily amalgamate with their kinsmen in the island; and it would only be at a later period that the Scandinavian element would become stronger among the invaded, and particularly preponderating in the higher class. Thus Scandinavianism in England would be smaller than usually asserted, both as to the number of original invaders, and as to their amalgamation with the populations in the districts of the Dane Law; while affinities, asserted to be Norse because found among the Danes and in South Jutland, would be really attributable to a community of blood and speech between the original Danish population and the other Suevians. He used the term Suevian as a convenient one to separate the English from the Scandinavian and High-Dutch branches of the Germani, considering that the English belonged to a separate branch.

NOTES AND QUERIES.

Amazons: The Woman Question.—That the name *Amazon* represented a population known in early historic times we are safe in believing, and we are equally safe to believe that such population did not consist of women. This fable was propagated by the ignorance of Greek writers, and particularly those of Western Greece, and stereotyped for public acceptation by sculptors and

painters. Various origins have been assigned to this fable. I offer as one the possibility that the Hellenic settlers in Asia Minor mixed up in their confused notions and traditions the Amazon population and the Iberian. That they were so mixed up, in fact, is shown by the juxtaposition of Amazon and Iberian names in the Troad and elsewhere. My attention has been drawn to this suggestion by the notice of an article on the Basques by M. Cordier. He remarks that the Basques apply a rigid rule of primogeniture without distinction of sex or person. The consequence is, that females succeed to property and political power, and the husband is subordinate if of inferior rank. If the Iberians in Asia Minor practised this, or if they adopted it from the Amazons (and it was originally an Amazon practice), it is one which would strike the Hellenes. The legends of Amazon queens and chiefs may therefore so far represent facts, but they do not otherwise countenance Amazon armies.—HYDE CLARKE.

Fugitives from Troy.—Although many of the legends as to the foundation or occupation of cities by Trojan fugitives after the fall of Troy are late inventions, yet there is good reason to credit the traditions in the mass, if Ilium were indeed occupied by Iberians. Upon that basis, sanctioned by the Iberian names of cities recognizable in Asia Minor, the Iberians, I consider, were advancing from the Mediterranean to the conquest of Asia Minor from the Amazons, when they were checked by the irruptions of the Hellenes. The Iberians had already possibly driven the Amazons out of Italy, Greece, and Sicily, and formed settlements of their own. After the occupation of Greece, the Hellenes turned their arms against Asia Minor, and readily occupied the country of the west, weakened by contests between the Amazons and the Iberians. Like events had probably prepared the way for the occupation of Greece. On the fall of Ilium, the last Iberian stronghold, the Iberians would flee, not to the east and not to Greece, but to their remaining scattered settlements in the islands, in Italy, South Gaul, and Spain, whither they were followed in time by the Hellenes. Thus there would be in the Mediterranean an eastward and westward ethnic tide.—HYDE CLARKE.

Alleged connexion of Madagascar and Caffre Languages.—So far as the roots are concerned, there is no justification for connecting Madagascar with the South-African groups, as the affinities are distinctly with Malay, and the other alleged affinities are accidental. Nothing is more dangerous than to allege affinities from grammatical structure. When a universal comparative grammar shall be drawn up, it will be found that the general laws are more widely distributed than is supposed, that the laws are derived from more than one source or example, and that laws and exceptions are partially disseminated without reference to immediate connexion.—HYDE CLARKE.

Perpetuation of names of Natural Objects by Translators.—In a paper read before the Ethnological Society on the Idæi Daktuli, I showed that the ancient name of the Besh Parmak Mountains in

Asia Minor must have been in ancient Greek, and in the previous languages, "Five Finger." I now beg to note what appears to me to be another instance with regard to Mount Tmolus in the same region. This is now called by the Turks the Boz Dagh, Snow or Ice Mountain. *Tmolus* I conceive to be represented in modern Georgian by *Thovli* (Snow), and therefore that the Amazon name represented the Snow Mountain, which is also most likely the vernacular name among the Greek population. The Amazon name of the Besh Parmak would have been something like *Khuth thithi*.—HYDE CLARKE.

Khan and Bey.—These words have a peculiar interest to ethnologists. In Smith's 'Dictionary of Geography,' in the notes to the latest edition of Gibbon, and in other standard works, we find it jauntily asserted that certain races (the Khazars and Avares, for instance) were Turkish because they used these words as titles of their chiefs. Now Constantine Porphyrogenitus and other Byzantine authors tell us that the King of the Russians was called Khacan. The Mongols call their greater chiefs Khacans and Khans; so did the primitive Khirgises. It would be a bold conjecture which would therefore make these three races to belong to the Turkish stock. I believe there is no foundation for making the two words Turkish glosses at all. They are not used by the Jakouts, Barabinski, and other unsophisticated Turkish tribes, and are, in fact, the common property of all the nomad races who have had intercourse with China; and here we have an explanation of them both. *Khan* is simply the Chinese title *Han* applied by them to this day to the greater Mongol feudatories, &c.; the change from Han to Khan is paralleled in other cases, as in Hunni changed to Chunni, &c.; and where we meet with the title Khan, it is only a proof of the influence of China. On the word *Bey* I will let a much greater authority than myself speak, namely, Abel Remusat (Recherches sur les langues Tartares, p. 303). Speaking of Chinese words in Turkish, he says—"It is known that the dignity *pe* or prince (in the vulgar tongue *beg* or *bek*) was often granted to the Tartar princes. At present the tributaries of Ili, Aksou, and Khashgar are styled *bek* by the Mandchou emperors, and it can hardly be doubted that the Arabic *beg* or *bey* is thence derived." These two words are therefore broken reeds for those to rely upon who see everywhere traces of the Turks, and if no better proofs are forthcoming it is time some of our common books of reference were revised. I have elsewhere asserted that the Petchenegs were the first Turks whom we can prove to have invaded Europe. The Khazars, Avares, &c. &c., who have been so held on the authority of the two words above referred to, were most assuredly very different from Turks, as will be shown in the series of papers the Society is honouring me by printing.—H. H. HOWORTH.

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ETHNOLOGICAL SOCIETY OF LONDON.

ORDINARY MEETING, April 26th, 1870.

PROFESSOR HUXLEY, LL.D., F.R.S., *President, in the Chair.*

The following paper was read by the author:—

XXX. *On the* BRAIN *in the* STUDY *of* ETHNOLOGY. By Dr. C. DONOVAN.

(Abstract.)

AFTER stating that one of the main objects of ethnological inquiry is to ascertain the mental condition of the various races of men, the author sought to show that the comparatively low state of intellectual and moral development exhibited by most uncivilized races might be attributed to a corresponding inferiority in "the quality, quantity, and form of the brain." He believed that much might be inferred concerning the characters of the brain from the condition of the skull—especially from its shape, size, and weight, and from the appearance of its sutures. The author urged upon travellers who wish to advance ethnological science, the importance of analyzing the mental constitution of each race, and of determining the relation which it bears to that of the normal European.

The following paper was then read by the author:—

XXXI. *The* PHILOSOPHY *of* RELIGION *among the* LOWER RACES *of* MANKIND. By EDWARD B. TYLOR, Esq.*

THE belief in spiritual beings, and the spiritualistic philosophy of Nature connected with this belief, may be called "Spiritualism,"

* As the subject of this paper will be treated with detailed evidence by the author in a forthcoming work on 'Primitive Culture,' an abstract only is here reproduced.

and is often so called. But the word has this obvious defect to us—that it has become the designation of a peculiar modern sect, who, indeed, hold extreme spiritualistic doctrines, but who cannot be taken as typical of the theory of spiritualism among mankind at large. It may therefore be found convenient to use for the belief in spiritual beings the not unknown term of *Animism*.

This animism is, in fact, the groundwork of the philosophy of religion at large, from the religion of savagery to that of civilized life. It may be taken as the minimum definition of religion, in answering the often repeated question, "Have such and such a tribe a religion?" If they are animists, we may say "Yes." And though this definition of minimum religion may seem bare and meagre, it will be found practically to carry more than at first appears. For, first, he who believes in spiritual beings will generally be found to believe them active as to his own life here and hereafter; and secondly, he who believes in such active spirits will generally put himself into intercourse with them, seeking to propitiate them, and thus will arise some form of prayer and worship.

Here arises a profoundly interesting question, "Are there, or have there been human tribes so low in culture as to have no religious conceptions whatever?" This is an old question, and has been affirmed and denied for thousands of years with a confidence that may seem surprising to us, who see on what imperfect evidence both affirmation and denial were based.

Ethnographers, if looking to a theory of development to explain civilization, regarding its successive stages as rising from low grades upwards, would receive with great interest accounts of tribes devoid of all religion. Here, they will naturally say, are tribes of men who have no religion because their forefathers never had any. They represent a prereligious stage of the human race, above which, in the course of ages, religious stages have risen; but, though in general advocating a development-theory of culture, I am unable to start a theory of animism from this prereligious condition. The niche is ready, but there is a difficulty about the statue to place in it. I fail to find the existence of tribes in this state proved by sufficient evidence. Assertions of tribes said to have no religion, but who prove, on closer examination, to have a good deal, and of others whose religious condition is obscure, may be had in abundance, but will not serve our purpose. What is wanted is a declaration by observers intimately acquainted with the language of the tribe, and also intimate enough to gain confidence on a subject on which savages are less apt to be confidential than any other. The savage's poor shy gods hide in holes and corners before the white man's mightier Deity. Now it is not denied in the abstract that

prereligious tribes may have existed or may still exist; but I am bound to say that, if they exist, they must be found among extinct ancient tribes or imperfectly described modern ones.

Where low tribes have been fully examined, they have been found to be animists; and their animism, or spiritualistic philosophy, is the subject of the present remarks. I may hint at the connexion of savage animism with its development among higher races; but my especial object is to describe it particularly so far as it constitutes a philosophic system of nature. This I shall do in a very rough and simple way, seeking only to delineate as clearly as I am able its main outlines.

Animism divides roughly into two great divisions: (1) souls; (2) other spirits.

It is proper to place souls first; for the conception by the lower races of the human soul seems to be that on which they formed and modelled their general idea of spirits.

The savage mind appears to have been especially struck by two groups of phenomena, which they endeavoured to account for on a scientific theory.

(A.) That which constitutes the difference between a living and a dead body:—the fading of light from the glazed eyes, the cessation of breath, the stoppage of pulsation, the loss of consciousness and voluntary movement—in a word, of the phenomena classed together under the heading "Life." These they especially associated with the breath, how naturally we may judge from the story of the deaf, dumb, and blind Laura Bridgman's dream, which she described by the gesture of taking something from her lips, explaining in words, "I dreamed God took up my breath to heaven." The languages of the world will express this deep-lying connexion in the many cases where the word breath has come to denote life or soul; from the Australian *waug* and the Malay *ñawa*, to the Semitic *nephesh* and the Indo-European *pneuma, anima, ghost*, &c.

(B.) The phantom copy of man seen in dreams and visions, apparently thin enough to flit through space and permeate solid nature, and to evade the dreamer's waking grasp. This is especially and naturally associated with the shadow, an association also well expressed in languages, from the Ojibwa *otahchuk* to the Indo-European *skia, umbra, shade*.

Now the savage to a remarkable extent connects these two conceptions into what may be called an apparitional soul, a ghost-soul. He considers that what causes death and what causes visions and dreams are one and the same. There are some who try to separate them, as the Greenlanders and Fijians; but the generally received connexion of the life with the phantom into a soul-ghost is the very key to savage psychology.

Thus the Nicaraguans held that when a man dies, there comes out of his mouth something resembling a person, which is the life, and which departs to where the man is; but the body remains here. Parallel to this is the African conception of the man's shadow seized by a monster, whereupon the man afterwards dies—a story which appears to give the fundamental idea of the well-known European folk-lore tales of shadowless men.

The soul-ghost appears in dreams and visions. Live men's souls may do this, as when a Fijian's soul goes out in sleep, and troubles other people. But especially the souls of the dead are supposed to do this. Thus Wilson says of the negroes that their dreams are visits from souls of deceased friends, and that the habit of talking dreams over makes them dream the more, till they have almost as much intercourse with the dead in sleep as with the living in waking; and can hardly distinguish dream from fact. A familiar classic instance is when the soul of Patroklos stands by Achilles, like in stature and the beauteous eyes, and the voice and garments; Achilles tries to grasp it with loving hands, but cannot catch it, and like a smoke the soul is borne away. The shade-soul appears as a ghost in the philosophy alike of the North-American Indian, the African negro, and the European peasant.

For obvious reasons, the idea appears in savage psychology that the soul is sometimes visible and sometimes invisible. This explains the fact of only one seeing it at once, though we account for this in a different way by the theory of the subjectivity of visions. This is unknown to the savage, who (these Africans may serve as a type) is a man who scarcely distinguishes his subjectivity from objectivity, hardly knows his inside from his outside.

The animistic theory, as it explains death, so among many races explains sleep, and with this dreaming works in, as when the Greenlander lies insensible while his soul goes out hunting and visiting. The Karens cleverly account for the fact of our seeing known places in dreams, by saying that the *leip-pya* can only find the way where it has been before in life. It explains coma, where the body lies senseless while the mind wakes with new experiences, as when Australian or Khond sorcerers go out of their bodies for spirit-knowledge, or where in the Vatns-dæla Saga, the Finns sent to visit Iceland lie rigid while their souls go out on the errand and return with information. Of classic tales appropriate to these things, is the story of Hermotimos, whose body his wife burnt while his soul was gone out in search of spiritual knowledge. It explains sickness, as when the Karens call back the *kelah* of a sick man, and the sick Fijian may be heard bawling for his own soul to come back.

Thus we see what a whole theory of savage biology is here, which explains life and death, sleep and waking, swoons and illness, dreams and visions.

It is partly retained in modern psychology; but we should find among modern peasants that a much more nearly savage state is retained.

When the body dies, the soul departs to its place. Not content with this, the lower races assist nature, and, when a warrior or chief dies, despatch wives and slaves, whose souls are to continue their earthly relations. Thus the Fijian and African are buried with wives, slaves, &c., the custom extending upward into the Hindu *satî*, &c.

That animals, "our younger brothers," as the North-American Indian calls them, have souls like men is an obvious inference to the lower races, and has continued to some extent into modern speculative philosophy. Therefore animals also are sacrificed for the dead; the horse for the Red Indian, the dog for the Aztec and Greenlander, the camel for the Beduin.

Lastly, not only men and animals have souls, but in savage philosophy things also, which at any rate are seen in dream and vision. This doctrine is distinctly believed among the Algonquins, Fijians, and Karens. All these send objects for the use of the dead on his journey; and though among most savage and higher races no such theory is stated, yet we find it considered that the objects are for use, and will pass into the possession of the deceased. Thus in Madagascar, Radama was seen riding the horse and dressed in the uniform buried with him; the Caribs destroy slaves, dogs, and weapons; the Guinea negroes offer wives, slaves, property, gold fetishes, &c. for use in the other world. In Modern Asia, the Kirghis kill horses, gold is offered and implements of craft—much as the old Scythian in funerals sacrificed wife and servants, gold vessels, &c.

The importance of this point consists in its being a test whether savage philosophy dwindles into survival, or whether, on the other theory, we are to suppose that nonsense is degraded into sense.

As regards the details of the doctrine of a future life among the lower races, no immortality is recognized; the soul is ethereal and surviving, not immaterial and immortal. It carries on a mere continued existence, as shown by dreams and visions. The descriptions of future existence current among the lower races are not limited to a single theory, but include every idea likely to occur to them. The conception may be roughly divided as follows:—

1st. The doctrine of the ghost hovering or wandering on earth, or coming back occasionally to visit its former home, is

displayed among mankind from savagery upwards, especially causing the prevalent fear of graves and the practice of offering food for the dead usual amongst most savage races, lasting on among such nations as the ancient Romans and modern Chinese, and even now surviving in form in the Eastern Church.

2nd. The doctrine of Metempsychosis. The transmigration of souls of the dead into other human beings is well marked among the Greenlanders, where widows will make it a plea for the adoption of an orphan child by some rich man, declaring it to have received the soul of some one of his family—or among tribes of Nutka Sound, who account for the existence of a distant tribe speaking the same language by supposing them animated by the souls of their own dead. In Africa the dead are buried near the living, that their souls may enter new-born children. The indigenes of Africa, America, and Asia account in this way for likeness to deceased relatives, and look for personal likeness and marks of ancestors on new-born infants. The belief in transmigration into animals is well marked among the lower races, as in Greenland, where a man will avoid a particular animal as food on the score of a deceased kinsman having passed into such—among the Icannas of Brazil, who imagine that brave warriors become beautiful birds, and cowards reptiles—or the Zulus, who believe that certain harmless common house-snakes are animated by the souls of deceased kindred.

The general transmigration-theory takes especially its moral bearing in India, where Brahmins and Buddhists, "bound in chains of deeds," and "eating fruit of past actions," migrate into "gods, ascetics, brahmins, nymphs, kings, counsellors, birds, dancers, cheats, elephants, horses, sudras, barbarians, wild beasts, snakes, worms, insects, and inert things."

The classical instances, especially Pythagorean and Platonic, are well known; and the doctrine survived into modern Europe, though now fallen into contempt.

3rd. The doctrine of the residence of departed souls in another world. The conceptions of this spirit-world among the lower and higher races are various, and we have not a key for their full understanding; but it may be observed that the next world has been located in every place which was likely to occur to the minds of savage tribes. One thought is very prevalent in these conceptions—that of taking the sun-myth as a type of the destiny of man, and placing the land of the dead in the region of the sunset. Examples of the localization of the land of the dead may be given. (1) The happy Western Islands, as to which the mythology of the modern Australians and Fijians agrees with that of the ancient Greeks: we ourselves dwell in these islands of the blessed; for such Britain seemed to the continental

nations of Europe. (2) The under-world of the Kamchadal, whither the sun descends at night, and where souls of men and animals descend; the subterranean caverns, where the Patagonian looks forward to a new life of perpetual drunkenness; and so on, to the Sheol of the Jews and the Hades of the Greeks. (3) The abode of Heaven, whither the Winnebagos travel by the Milky Way; the Path of the Dead, or where Tamoi, the Ancient of Heaven, awaits the Guarayos of Brazil; and so onward to the familiar conceptions of a Paradise in the skies.

With regard to the admission of the dead to these regions of new life, two theories especially prevail in the world—one which may be called the continuance-theory, the other the retribution-theory. The first, which regards the new life as but a renewal of the old, perhaps dull and shadowy, perhaps bright and happy, is habitual among the lower races, and extends on to the level of Greeks and Israelites. The influence on morals of the belief in a future existence mainly depends on the retribution-theory, which expects in the next world reward and punishment for works done in this.

With regard to the grounds on which the lower races accept the doctrine of the future life, it has to be borne in mind that any views which have become current are supported by the evidence of dreams and visions. The North-American Indian, who in a trance visits the happy plains of the dead and sees the souls carrying the phantoms of guns and kettles sacrificed to their manes, and the Zulu, who has followed a porcupine into a hole in the ground and gone down to the under-world, where Zulu souls have their huts and cattle as on earth, are among the scores of types which among the lower races show the habit of visions of a future life—which extend, with properly varied details, to the Greek and Hindu visits to the judgment-halls of Minos and Yama, and the visits to the abode of the dead from the entrance to St. Patrick's purgatory.

In completing the classification of orders of the spiritual world as recognized by the lower culture, an important group has to be noticed as intermediate between mere souls in their ordinary function and superhuman demons or deities. This class is that of manes, souls in origin, but demons or deities in quality. They thus form an instructive transitional series, favouring the opinion that spirits in general are modelled on human souls.

Manes-worship is strong among savage races. The Polynesian and South African propitiate them as the great causes of good and evil to man. West-African negroes and indigenes of British India alike keep up their ancient cultus, which reaches its

height in the ancestor-worship which is the essential religion of China, and survives in fragmentary relics among cultured nations.

Next, as to the functions which spirits are considered to perform, and the phenomena which make a belief in them a necessary part of barbaric philosophy.

As soul enters into body and agitates and works it, so spirit, which may be soul, enters and causes a wonderful group of phenomena when man, with changed face and voice under violent excitement, bursts out into floods of eloquence unknown in his ordinary state, into expressions of wisdom and mystery beyond his daily powers. Patagonian epileptics selected as conjurors drum themselves into fits; so Veddahs and Bodo work themselves into fits to give information for the cure of patients. The Fijian gazes at a whale's tooth, twitches and is convulsed; his veins swell, his eyes roll, sweat pours down his limbs, his face is pale with livid lips, his breathing stertorous: now he is possessed, and no longer a voluntary agent; he gives answers, flings himself down, and says, "I depart," then has his dinner and comforts himself with a pipe. Such a Polynesian could have looked on at Delphi, and watched and listened to the Pythoness with no surprise at proceedings so congruous with his ordinary notions.

As a human soul goes into its body, so other vital phenomena are accounted for by the entrance of spirits; and thus we have the great theory of disease-possession. Even the Tasmanians and Polynesians can feel demons knotting and twisting in their inside; and the Mintira have a *hantu* for each disease. Especially certain peculiar diseases are so explained—epilepsy, delirium, hysteria, mania, &c. The East Africans simply explain madness and idiocy by saying, "He has fiends." In South Africa delirium or fits are supposed to be caused by possession by a ghost; for here still the analogy is kept up, and the disease-spirit is not only like a human soul, but may be one. So in British India &c. the phenomena of demoniacal possession, raving, convulsions, breaking cords, speaking strange things in the name of the demon they suppose inside them, may still be seen as of old, and the exorcist's profession thrives. We find comparatively little of it except in heathen countries; for the influence of Christianity has for centuries been turned to superseding it by civilized medicine.

The disease-spirit has to be got out or away from the patient by the savage exorciser; and sometimes he only drives it away as people hunt away a haunting ghost. But here, again, sometimes the typical analogy of the human soul comes into play. To get rid of this spirit they seem to say, let us get it a new

body to enter or pervade. Burton describes the Central African habit of transferring diseases into bits of stick or rag, &c., which form what is called the *keti* or stool on which the noxious influence sits; and it is got rid of by hanging it to a sacred tree—a practice which, apparently in part for the same reason, prevails in Europe, and is not forgotten in Ireland. Modern folk-lore keeps up the idea of transferring disease into objects such as flowers, coins, &c., which are given to others or left for them to find.

As the soul may be in or out of the human body, so other spirits are held to exist free or to become embodied. Thus the South-American Indians' rattles, possessed by spirits, can receive offerings and utter oracles. Mr. Darwin saw a dressed-up wooden spoon become lunatically possessed, and dance in the hands of the women holding it.

Objects thus possessed or inhabited by a spirit may be conveniently defined as *fetishes*; and the word *fetishism*, brought into use by De Brosses and adopted by Comte, may be better limited to this more special meaning than allowed to cover the whole range of animistic belief and worship.

To fetishism *idolatry* belongs in great measure in principle. Stocks and stones set up by savage races, and identified with ancestors or deities, form the lowest variety of idols. Polynesian rude images, held to be receptacles inhabited at times by the spiritual beings which go in and out of them, display the principle of the fetish and idol most perfectly. Onward in culture, the idol is either thus a receptacle for the deity, a habitation for him as the human body is for the soul, or it passes into a purely symbolic connexion with the god it represents.

Among the lower races, the possession of spirits enables the medium or priest to give oracles, speaking by his voice or guiding his divining instrument, and their power enables him to perform what are considered superhuman feats. This kind of spiritual action, which may be traced from the lowest savagery onwards through the whole course of civilization, is in our own time renewed with extreme vigour in the ascription to spiritual influence of the sounds of table-rapping, the action of the hand using the spirit-pen, &c.

Spiritual beings hold in the lower philosophy a position immensely more important than this. The philosophy of the savage recognizes a countless host of spirits pervading all nature. To the Australian all his world swarms with spirits; and it is a dismal symptom of the unhappiness of his condition that he regards them as generally ill-disposed to the poor black fellow. To the Khond of Orissa every rock and hill is inhabited and every action of nature presided over by appropriate spiritual beings.

It has been well said of the Polynesians by Ellis, that they hold the doctrine expressed in Milton's lines—

> "Millions of spiritual creatures walk the earth,
> Unseen, both when we wake and when we sleep."

And from this level the doctrine of nature-pervading spirits extends fully into mediæval European culture, and thence holds on to no small extent in survival.

What are these spirits for? If it be true, as the poet sings,

> "Felix qui potuit rerum cognoscere causas,"

then the savage should be happy, for here he at least thinks he has grasped the causes of things. To him all is the immediate work of personal spirits. We have seen that life and death and dreams and disease have spirits for causes, and so, to the savage mind, nature throughout is animated nature. As the Abbé Raynal says, where there is motion, there the savage supposes a soul. What gives some men knowledge and power sometimes, or takes it away? What makes strange noises in the hut? What pushes the North-American Indian into the fire? What pulls him under water? What drives the fat deer some days into his path, and some days gives none? Do not go under that tree, the fever demon is sitting upon the branches ready to pounce upon you. Will you cross the lake? Pray, and offer to its Manitu.

From the tiniest elf in the long grass to the Gitchi Manitu, all spirits are causes. The hamadryad of the tree grows with it, and dies when it falls, "Non sine hamadryadis fato." Every group of trees, every grove has its presiding genius. Wells, waterfalls, rocks have their superintending spirits; and over these reigns the higher Spirit of the Forest, the Water, &c. Species and tribes, animal and human, have presiding genii. Whatever we may judge of the savage belief in spirits, we are not to call it a purposeless fancy; for these beings have full office to perform in being, as it were, the souls of natural objects in carrying on their operations. Phenomena which the savage referred to the action of personal spirits, civilized peoples explain by theories of another sort; but we are not to misunderstand the reasonable, purposeful inference by which men in the lower culture used the theory of animism to serve them as a philosophy of nature.

In conclusion, as to the higher deities of Polytheism. Above the inferior divinities of nature there reign the great nature-gods, whose sway extends not over this or that district, but over the world at large—Sun and Moon, Heaven and Earth and Sea, the Thunder-god, the Storm-god. Evil deities are often more propitiated than good, as the savage seeks rather to appease his enemy than please his friend; and early in savage culture ap-

pears that Dualism which divides spiritual beings into good and evil, *i. e.* friendly and hostile, each company led by a great deity. And sometimes a deity is erected into supremacy. Thus over the polytheistic system of nature-gods reigns the Peruvian Sun-god; the Heaven-god is the Chinese *Tien* or the Greek *Zeus*. Even the system of the manes-worshippers admits of a primeval ancestor obtaining the divine supremacy, like the *Unkulunkulu*, the Old-old-one of the Zulus.

It has thus been attempted to set forth very briefly the outlines of the lower animism. The theory of its development may be thus recapitulated: Man's earliest and primitive conception of a spiritual being may well have been that of his own human soul, the idea of which served to explain many of the great phenomena of his own existence—life, death, sleep, dreams, visions, ecstasy, disease. Then he may have extended this conception to souls of animals, trees, even lifeless objects. Then looking to the analogy of his own human life to explain the action of Nature at large, he attributed to other spiritual beings, bearing strong likeness in form and character to the souls, the existence and growth of a nature which to him was indeed "animated nature" in a sense far beyond ours. These spiritual beings are of many orders, from low elves up to great fetish deities like Heaven or Sun; and the Polytheism of low races even shows traces of approach to the supremacy of one great deity, and thus faintly foreshadows the coming Monotheism. But throughout his hierarchy the human conception served as his model of the divine.

This may be called the natural theology of the lower races. It is true that it differs a good deal from the natural theology of which we read in books. But then we must remember that men like Paley and Butler drew their main ideas from races at a condition as high at least as the ancient Greeks. Ethnology was scarcely known to them, or appreciated by them.

The great question for ethnographers is, Do these savage views represent *remnant* or *rudiment*? If they represent a remnant of broken down high culture, they are of comparatively little consequence. But if—and, it seems to me, the more we work at ethnography the more we shall admit this—if they represent human thought at a comparatively rudimentary stage, they become of immense practical interest. To understand the rude animism of the lower races, and to trace it onward as modified from century to century to fit with more advanced intelligence, is indispensable to the full comprehension of not only the historical but the actual position of philosophy and theology.

Discussion.

Mr. Howorth thanked the author for the new and suggestive manner in which he had treated a much-written about and apparently trite subject. In illustration of his remark, that the immolation of the widow on the pyre of her deceased husband is a very widespread custom, the speaker observed that he had met with a curious illustration a short time ago in an essay by D'Ohsson, giving, from an Arabic traveller, an account of the funeral of a Norse chief, which he witnessed at Bolghara. The body was laid out in a ditch for ten days. Meanwhile the bark of the deceased was dragged ashore, a splendid tent of *Roman cloth of gold* erected on it, in which was put a couch, and on the couch the dead warrior in most sumptuous dress. His wives and slaves were now asked which of them would volunteer to die on the pyre. An old hag, called the Angel of Death, was mistress of the ceremonies. The volunteer, after drinking plenty of spirits and wailing a weird good-bye to her friends, was then strangled and placed alongside her dead husband. Two horses were then chased round till they were fagged and covered with sweat (apparently to make them easier to catch in the Happy Land); they were then killed, as were also two hounds and a cock and hen. The whole having been thrown on the pyre, fire was applied, and in the quaint language of the Arab, the deceased went straight to Heaven instead of passing through ignoble worms. This account has been confirmed to the letter by the Cossack explorations of graves at Novgorod.

With Mr. Tylor's conclusions the speaker could not possibly agree. Comparative mythology, like comparative philology and even anatomy, cannot be safely treated empirically. The only scientific method is the historic. We must trace up the history of *known* religions to their sources if we are to generalize on the source of *all* religions. If we approach our subject from this point, we shall find that Mr. Tylor's theory is untenable. He argues that polytheism is the earliest type of religion, and that polytheism is only a development of manes or ancestral worship, and was in its origin invariably anthropomorphic. Now among the Norsemen and the Greeks we can actually trace the first introduction of manes-worship at a very secondary state of religious development. The demigods of the Greeks, like Odin and his Asirs among the Norsemen, formed no part of their original mythology, which was in both cases that of superhuman deities. If we examine religions nearer home, in Italy and Portugal for instance, we shall find that an immature form of polytheism has developed itself from a monotheistic religion. The army of saints, whose cultus is more popular than and even hides that of the Deity himself, is but an everyday type of the growth of polytheism. If we examine the earliest records we possess, the inscriptions of Mesopotamia, we shall find a more reasonable theory for the growth of polytheism. Each town and little community has its separate god, and only one god, the God of the Hebrews, of the Hittites, &c. When several of these communities were joined into

one state, the latter adopted these national gods (originally the same god), and thus formed a Pantheon.

Fetishism is the natural growth of pantheism. The universally present god is easily translated by the savage mind into a substantive god in each material object. This growth we may also trace in better known mythologies; spirits of woods and brooks and hills are only disintegrated portions of the one underlying spirit.

Mr. Howorth held that the historic testimony proved that the simplest and earliest form of religion is monotheism, from which the various faiths of savages have grown—luxuriantly grown very often; and where we see the introduction of a monotheistic creed among a polytheistic race, it is only another instance of the philosophy of the more cultured human mind reverting to its original and most ancient creed.

Mr. Hyde Clarke called attention to the phenomena connected with the comparative psychology of the subject—the animistic tendencies of animals. Those who have experience of the domestic animals know that they have superstitions like ourselves. The dog or the horse is affected by the same strange appearances as is the man, and has the like dread of ghosts and spirits. It might be asked how animals obtained these ideas; but Mr. Tylor had afforded a clue by his reference to the experience of man in dreams as to phantoms and creatures of a disturbed imagination. The mind of a dog being constituted like that of a man, he has, there can be no reasonable doubt, the same phenomena of dreaming, and in the disordered condition of the senses at the moment of waking would see distorted images, which are treated as actual experiences. In this way he accounted for the growth of superstition in animals, although they have no means of intercommunication, except by the propagation of fear at the sight of some object of alarm.

With regard to the doctrine of the transmigration of the souls of ancestors to children, he would suggest that it may be partly due to the natural phenomena of atavism. Where it has been observed that a child inherits the likeness or qualities of a grandparent (those of the grandsire), it was easy to suppose that he has inherited the soul. Mr. Tylor's doctrine of the influence of the dual idea of good and evil in animistic developments should be extended to the influence of the dual sexual idea, as more notably in its application to the sun and moon and the nature-gods.

Mr. Tylor, in a brief reply, called attention to the citation by Jacob Grimm (in his 'Verbrennen der Leichen') of the remarkable Slavonic wife-sacrifice noticed by Mr. Howorth. With regard to the argument for monotheism as the original doctrine of mankind, Mr. Tylor pointed out that the course theology has taken in the world is indicated by the fact that the religions of savage races afford explanations of otherwise obscure beliefs and rites of the civilized world, and not *vice versâ*; so that it is rather in the doctrines of low tribes than among high nations that original theological conditions are to be sought.

Special Meeting, May 10th, 1870.

[*Held in the Theatre of the Royal School of Mines, Jermyn Street, by permission of Sir Roderick I. Murchison, Bart., K.C.B., F.R.S., Director-General of the Geological Survey of the United Kingdom.*]

Professor Huxley, LL.D., F.R.S., *President, in the Chair.*

New Member.—P. O'Callaghan, Esq., D.C.L., LL.D., F.S.A.

The Honorary Secretary read a letter from Lieut. Oliver, R.A., relative to the recent destruction of the Menhir of Le Quesnel in Jersey*.

The President then delivered an Address, of which the following is an abstract:—

XXXII. *On the* Ethnology *of* Britain. By Professor T. H. Huxley, LL.D., F.R.S.

The President commenced his observations by a reference to the earliest information given by ancient writers concerning the inhabitants of these Islands. This information relates partly to the physical characters of the natives, and partly to their language. Much unnecessary confusion has arisen from not keeping these two subjects distinct from each other; and, in accordance with Professor Max Müller, the President strongly insisted on the necessity of pursuing the study of language apart from that of the physical characters of a people.

Julius Cæsar, like many other men of his time, is somewhat reticent on such subjects; but Tacitus, who wrote a century later, gives much fuller information. These early accounts show that probably in the time of Cæsar, and certainly in that of Tacitus, there existed in these islands two distinct types of population:—the one of tall stature, with fair skin, yellow hair, and blue eyes; the other of short stature, with dark skin, dark hair, and black eyes. We further learn that this dark population, represented by the Silures, bore considerable physical resemblance to the people of Aquitania and Iberia; while the fair population of parts of South-East Britain—the present counties of Kent and Hants—resembled the Belgæ who inhabited the North-East of France and the country now called Belgium. These Belgæ, again, were closely akin in physical characters to the tall fair people who dwelt on the east bank of the Rhine, and were called Germani.

These two distinct ethnological elements probably coexisted in these islands when the country was discovered by the Romans; and the subsequent invasions to which Britain has been subjected have not introduced any new stock, but have merely affected one or other of the preexisting elements. During the

* See 'Journal of the Ethnological Society,' April 1870, p. 65.

four centuries of Roman occupation, people of many nationalities were introduced in the legions; but at the present time it is difficult, if not impossible, to determine whether their influence tended to strengthen the fair or the dark element in our population. It is certain, however, that the subsequent invasions, by people speaking dialects allied to the Low Dutch, from the shores of North Germany bordering on the Baltic and the North Sea, strengthened the fair type, without introducing any new stock; and the Danes also assisted in giving prominence to the fair modification. The ethnological influence of the Norman conquest was to form the subject of the paper to be read in the course of the evening; but the speaker observed that, whatever may have been the effect of that invasion, it certainly did not introduce any new element into our population.

Reference to the Continent shows, that over the northern and central portions of Europe there stretches a wide area occupied by a fair, tall population similar to that which, as far back as our history extends, has existed in Britain. On the contrary, in Spain, in Southern France, and on the North of the Mediterranean, there are certain people who may be referred to the same dark type as that represented in Britain. Hence it may be said that a fair population exists in the north and centre of Europe, and a dark population in the south.

Evidence may be adduced to show that the language spoken by both these types of people in Britain, at and before the Roman conquest, was exclusively Celtic. This evidence is furnished not only by the statements of Cæsar and other early writers, but also by the testimony of ancient monuments and local names. Probably the Cymric dialect of Celtic was spoken throughout Britain, whilst the Gaelic dialect was confined to Ireland.

While the two physical types of people in Britain thus spoke one language, it was otherwise with the corresponding types on the Continent. The inhabitants of Northern and Eastern Gaul spoke Celtic—probably Cymric; but the people to whom the fair portion of the population of Gaul was physically allied, and who dwelt on the right bank of the Rhine, spoke Teutonic dialects. Different as the Teutonic and Celtic languages are, philologers declare them to be cognate, both belonging to the Aryan or Indo-European family. But philologers are unable to refer to this group the languages spoken by the ancient population of Aquitania and Iberia. There we have a large area occupied by the Basques or Euskarians, who speak a language which has no affinity with any other known Eur-Asiatic language. At the present day the Euskarian area has been so largely encroached

upon that it is reduced to a portion of its primitive dimensions. And it is to this circumstance, possibly, that we must ascribe the fact that a large proportion of the modern Basques are fair people. Looking at the characters of the present inhabitants of the old Euskarian area, however, it can hardly be doubted that the Euskarian-speaking people were essentially dark. Thus, on the Continent there were two types of people speaking distinct languages, while in Britain there were two corresponding types speaking one common language.

Considerable changes in this language, however, were consequent upon the foreign invasions. The Saxon invaders brought with them their Teutonic dialects; and these, to a great extent, supplanted the preexisting Celtic. Hence at the time of the Norman conquest, Celtic was but little spoken in the east and southern parts; but it long retained its place in Wales, Cornwall, and the western parts of England. At the end of the tenth, or beginning of the eleventh century, we had therefore a primitive population, consisting of the dark stock in the west and the fair in the east, the latter replaced to some extent by another fair stock speaking a different language. Such was the state of the country at the period of the Norman invasion.

The following paper was then read by the author:—

XXXIII. *The* INFLUENCE *of the* NORMAN CONQUEST *on the* ETHNOLOGY *of* BRITAIN. By Dr. T. NICHOLAS, M.A., F.G.S., &c.

THE question before us has received but slender notice from either historians or ethnologists. In the popular mind there exists a certain fixed belief with respect to the Norman as with respect to the Saxon conquest, which in a manner puts a veto on discussion. In itself, however, the question is simple; and I propose to present its substance in the barest form, avoiding the numerous historical and ethnological theories which fringe its field, and thus facilitating, I trust, its effective elucidation.

Our evidence shall be mainly historical. Arguments from language and physical characters, always props liable to slip, and yet in some cases of essential value, shall not in this instance be relied upon. Nor is it of much importance to separate by broad boundary lines the oft-named races in the early and mid-age history of France and England. What the relations and what the distinctions of Celts and Saxons, Norsemen, Franks, and Gauls may have been it is unnecessary here to settle. There may have been Celts, there may have been Saxons, pure and simple; or there may have been neither: that there are such now

is altogether problematical. The inhabitants of England when Harold II. was king, may have been, as some have with commendable courage argued, "Low Dutch;" and even now, as the same people still more courageously maintain, they may be such; or they may, along with the much-prized "Low Dutch" blood, carry some slight tinge of ancient British and some slight tinge of Norse blood in them. This does not essentially affect our subject as now proposed to be treated. One thing only must we lay down as a postulate essential to a rational discussion of the question—essential, indeed, to the very existence of ethnological science—namely, that there do exist certain varieties among mankind, separating them into races or families, and making classification and comparison possible.

In the light of this postulate we may hold one of three things—either that the people of Britain and the hordes that came in with William the Bastard were all of the same variety or race, or that they were an amalgam of various races, or were of races completely distinct and diverse. But if we held the first, there would be no meaning in our discussion—the Norman conquest could have no ethnological influence in Britain, any more than pouring together two quantities of the same spring water would have an influence on the quality of the water. In view of a more general classification, of course, Normans, Franks, Bretons, Gauls, and Iberians, on the one hand, and Saxons, Danes, Romans, and ancient Britons, on the other—all contributors to the totality of our national being—belonged to one and the same great division of the human species, commonly called Indo-European, and spoke varieties of one great family of languages; but though all the branches belonged to one tree, they were still separate branches, and each branch had its own form and its own smaller ramifications, from which you could distinguish and name it. What we call Scandinavians and Norsemen had an ethnical character and individuality not merely territorial and political; so had the Angles and Saxons; so had the so-named Celts of Britain. Whatever their primeval relationship, they had come in course of time, by growth of habit, and various physical influences, to possess separating characteristics. How far back into the solitudes of prehistoric ages we should have to go, if we had a guide to conduct us, before we saw such distinctions vanish, and the now named Norman and Gaul, Saxon and ancient Briton, meeting in the same tribe, calling the same man ancestor, and speaking the same language, we know not—probably, as past time is now by the light of science estimated, not very far; and in what measure, as the swelling tide of humanity swept along the plains westwards, the waters met and mingled and again divided, each partaking of the substance of the other,

and each taking up in its course some new characters from the lands and climes it traversed, we know not; but few, except those who will believe that each variety of the race had a separate and independent origin, and that race is permanent in its features, will fail to admit that the Europe of Herodotus, of Ptolemy, and Tacitus, had neither Celts nor Germans, neither Greeks nor Iberians, which were such in an exclusive and pure sense. That they were such in a qualified sense, is the common belief of men who have not believed without reason. In this same sense there was an ethnological *differentia* sufficient to mark off the one from the other between the people of Britain and those of Normandy when William swore that he would possess the throne of the Confessor; and the influx of his followers may thus be said to have had an influence on the ethnological character of Britain.

This, then, is the scope of our question. Admitting that the people on both sides of the channel had by previous admixtures become possessed of many elements in common, but had still widely differentiating features, how far did the so-called Norman conquest produce a change by making more or less Teuton or more or less Celtic the British people?

Our inquiry may be distributed under the three following heads:—

1. What presumably, subject to the qualified notions as to race-purity we have indicated, were the proportions of race-elements in Britain prior to the Conquest?

2. What, under the same qualifications, were the race-elements in Normandy and the general field whence William gleaned his followers?

3. Having thus determined the *quality* of the body to be affected, and the *quality* of the body to affect it, the next point will be to estimate the *quantity* of the influencing agent.

(1.) The first of these need only be touched upon cursorily. To any man freed from the ideas instilled in the nursery, and capable of ascertaining and believing facts, it must be clear that the people called English in the 11th century were not the unmixed descendants of the Jute, Frisian, Saxon, and Anglian heroes who achieved what is usually termed the "Saxon Conquest." A powerful imagination, with idiosyncratic views of facts, alone can picture us the English of to-day as proper children in direct line of Hengist, Ella, Cerdic, Uffa, and Ida, and their followers; for the grounds usually relied on for such a representation are as utterly legendary as the fables of Hercules, Perseus, or the Argonautic Expedition, although it would be hypercritical to deny the historical personality of most of the great Germanic chiefs. The fact that we spoke English a

thousand years ago and speak English now is no proof whatever of our being ethnologically Anglian. The French spoke a Latin tongue a thousand years ago and speak it now, and yet are not Latin. The blacks of the Southern States may speak English for a thousand years to come, as they do now; but that circumstance will not make them descendants in a direct line from Englishmen. For ages Britain has been a reservoir into which most of the nationalities of Europe have been pouring. We have forged and welded the mass together, in the process driving out much of the dross, and formed a race greater and nobler than most others. But let us not call this race "Saxon," or "Anglo-Saxon," or "Anglo-Saxon-Danish-Norman." It is more and greater than all these put together.

It matters little what name we attach to the people whom Cæsar found in Britain. Perhaps the familiar designation "Ancient Britons" is the best. Whether they were Celts, or mixed Celts, or no Celts at all, is not of main import. But whatever they were, that they were not expelled bodily or exterminated, but entered on a large scale into the new nationality formed after the Germanic conquest, is all but demonstrably certain.

As we have nothing worthy of the name of connected history to rely upon, we must fall back on a few fragmentary but authentic facts, and on such reasoning from those facts as historical criticism warrants. We can judge what the Britons would do in their conflict with the Germans from what they undeniably did in their conflict with the Romans. For the Roman period we have history, and we know from the testimony of Roman writers themselves that these old Britons were numerous and powerful enough to supply the Roman legions, the chiefest of the Roman generals, and several of the Roman Emperors in person with abundant work to effect their subjugation in 260 years, *i. e.* from Cæsar to Severus (B. C. 55 to A. D. 211), a period which equals the space from the accession of Elizabeth to the present time, and to render more than irksome the task of keeping them in subjection 200 years more. If they had had a combined organization, it is highly probable Rome would never have got the mastery; but, as Tacitus says, "they fought in sections, and were overcome in detail" (Vita Agric. xii.). They were subdivided into minute sovereignties, jealous of each other, and almost habitually in a state of war amongst themselves; and the first attacked by a foreign foe had to bear the brunt, until the sense of general peril compelled some kind of cohesion. Then, let it be remembered that Rome, as soon as Britain was formed into a province, did its utmost to foster the growth of the natives as the best way to recruits and revenue—and that, when the

legions abandoned the province, all over Britain there was spread, sparsely doubtless in some tracts, a settled civilized population, familiarized with home-life, subject to law, holding property, and masters of the land. This population, though, *more suo*, it soon again became torn into factions, was present at the extremest points of the land. The people of the North had only to cross the wall of Severus to encounter them. The Jutes, landing on Thanet, met them. The Angles, on the eastern and north-eastern coast, and the Norsemen on the west, met them. Now, is it conceivable that the German pirates and warriors could, if they tried, utterly annihilate or expel such multitudes of such people? Is it conceivable that they would try, if they could, when it was their obvious interest, after subduing, to use them as soldiers, as tillers of the soil, and for the various crafts in which they were so well instructed? Is it likely that the Germanic people in Britain would pursue a policy different from that pursued by their brethren the Franks in Gaul, the Visigoths in Spain, and the Ostrogoths in Italy? In all these cases subjugation was immediately followed by conciliation. The conquered were partly reduced to servitude, and partly settled as freemen on the soil they had before held. The Britons, it is true, had surpassed all other nations in their resolution not to yield; and this is the reason why their Germanic invaders had to fight inch by inch, as the Romans had had to do, for the conquest, and only accomplished it after about 140 years of resolute conflict; but it is quite conceivable that this very circumstance would lead to a more general though more gradual amalgamation.

It is quite conceivable that a small body of invaders could overcome a large population far more civilized, especially if taken in detail. This was seen done under Rollo in Neustria: but subjugation of a people through triumph in battle is not extermination; and there is not a scrap of reliable historical data to favour the idea that the Old Britons of Southern, Central, and Northern Britain, any more than of Western Britain, were ever destroyed or removed from the soil.

Besides, it would be perfectly extravagant to suppose that communities so large as are implied in the Saxon Heptarchy or Octarchy could have been formed so speedily out of Germans who had come over in the open boats of the period, and their descendants. And even if it were conceded that most of the male progenitors of such multitudinous subjects were Germanic, it still remains more than probable that the mothers were native women; for robber bands did not carry the women of their country with them when in search of settlement or plunder; so that the increase of the population would be as much in favour of British as of Germanic blood.

In fine, it may reasonably be concluded that in the blood of Engla-land, when united under Egbert, there was a considerable preponderance of that of the ancient British race—a race which we do not hold to be purely Celtic any more than the Germanic race was purely Teutonic, or purely any thing else. But constant accessions from the Continent, and especially the growth of Northern blood through the Danish invasions, though perhaps not sufficient to create an equilibrium, doubtless brought far nearer to an equality the proportions of ancient British and foreign elements in the population of England.

Such, then, were the race-elements in Britain, by and by to be disturbed or confirmed by the Norman conquest.

(2.) The race-elements of the regions whence the so-called "Norman" conquerors were derived.

To determine this matter we must cast a glance at those regions as they were settled before the North-men had a place as a ruling community in France—and then at the nature of the Norman conquest of Rouen and the surrounding country, the nucleus of *Normandy*, estimating, as far as we can, the amount of *northern blood* introduced into the region afterwards so called. It will soon appear that the *name* was no faithful exponent of the race, any more than the name France is of the nationality of that country. This region was a part of that wider territory which, as Cæsar tells us, was inhabited by the *Galli*—a people usually considered more purely Celtic than the Belgæ of the North-east, more Celtic, therefore, than the Cymri and Britons, and divided by a still wider line from the Aquitani or Iberi of the south-west. It was possessed of a large number of towns and a considerable population, divided into several tribes or clans. On the breaking up of the Roman Empire in the fifth century, Clovis, or Chlodwig (A.D. 486), the head of a Teutonic tribe, and of the family of Merowig, which occupied a tract of country between the Rhine and the Somme, pushing his way westward, became master of the *Galli* as far as the eastern limits of Armorica. It would seem from the best authorities that the conquest effected by Clovis and the hordes which followed him under the name of "Frank-manni," or "free-men," was comparatively without bloodshed. They met with strenuous opposition in the eastern parts, the territory of the Belgæ; but on reaching Rheims, Clovis became a Christian, and of the orthodox Roman Church; and henceforward his progress, as argued by Thierry, was a matter of diplomatic arrangement through the bishops, the customary mediators between the Roman Emperor and the provincials. From the Somme to the borders of Brittany the Franks were admitted as masters almost without opposition; in fact the people who had been ruled by

the Romans wanted masters. The change was simply a change of rulers, with the addition of some Germanic rules respecting the relation of classes and the occupation of land. The masters were alone Frank-manni, all others being in a state of more or less subjection or bondage. The title "Franks" was thus for a long time applied as a social rather than an ethnological designation, until at last it lost its specific meaning, and settled down as a national and geographical term. The new sovereignty thus set up by the Frank-manni extended from Antwerp to Rennes, and from Calais to Nevers.

What is worthy of especial notice in this new occupation is the fact that it reduced but by a very small number the native Gallic population, and added but a very small proportion of Frankish immigrants. The district occupied was large: the Merovingian tribe, though terrible in warlike power, was small. The parts subsequently embraced under the name Normandy were the most distant westward, and the last and easiest brought under rule, so that here the disturbance was smallest and the influx of alien blood least. M. Guizot notifies a striking difference between the Neustrian Franks and their brethren of the *Oster-rike*, or Austrasian kingdom on the Rhine, in that the latter were far more dense and compact than the former. The Neustrian Franks had, indeed, taken possession of so wide a territory that they were obliged to spread themselves sparsely over the underlying native race.

This was the first Frankish conquest of the region. In about 300 years another followed. This was brought about by that more concentrated and more intensely Germanic family of Franks which held the Austrasian kingdom. In the 8th century, when the earlier Franks and the natives had well-nigh forgotten their separate origin and were nearly fused into one people, Pepin and his son Charlemagne overran the whole country, and established a new Frankish dynasty—the Carlovingian. The change now introduced, though not accompanied by greater violence, was far more radical and disturbing than the former. A larger proportion of strangers was thrust in, and the old social system was more disintegrated. But the language, religion, and manners which Rome had given Gaul were not dislodged. And as Charlemagne aspired to create an empire even transcending in glory the Roman, he pursued a policy similar to that of the Romans in his humane treatment of the subjugated. In fact the new order of things was greatly in favour of the natives. Of the conquest by Pepin, M. Guizot says: "Never was a revolution accomplished more easily and noiselessly. Pepin possessed the power; the fact was converted into right; neither resistance nor protest of sufficient weight to have a trace in history was

offered. Every thing seemed to remain the same; nothing was changed except a title. Yet it is certain that a grand event had happened—that the change marked the end of a particular social state and the beginning of another, a veritable epoch in the history of civilization in France."

In this second Frankish conquest, therefore, as in the first, no attempt was made to dislodge the inhabitants. The high places of society were occupied by the ruling Franks; but the next lower strata, and especially the multitude below, continued what they had always been—substantially Gallic or Celtic.

We may mention, in passing, that after the death of Charlemagne and the dismemberment of his empire, during a period of anarchy and confusion scarcely equalled in the history of civilized nations, and mainly through the power of feudalism, several dukedoms or countships were set up, which virtually were independent sovereignties, although doing nominal homage to the King of what was now called France. Brittany had always preserved a kind of independent existence; but now arose, one after another, the countships or dukedoms of Anjou, Poitou, Maine, Guienne, Burgundy, Champagne, Provence, &c., to define and synchronize which has always proved an impossible task to French historians. This was in fact the period when feudalism grew into full stature, and spread with mysterious rapidity over all Europe. With several of these sovereignties William the Bastard had intimate relations, of which he availed himself to the full in raising his army of invasion.

It was at this time of confusion, when the kingdom of France proper was in its weakness, and every feudal lord was carving out a petty kingdom for himself, that the Norman Rollo, with a troop of followers, made a descent upon Neustria. It will be well at once to mark and estimate the volume of race-intrusion. Rollo was the captain of a robber-band. He had been banished for a misadventure from the Danish Court, and set out to mend or make his fortune by such means as might be effectual. He led no army. He carried, as was the fashion in those days, a troop of desperate freebooters, in small boats capable of skimming shallow rivers, and even of being dragged up the banks, to pass bridges and obstructions. His men were picked, daring, and strong of limb. He chanced to fall on the coast of Neustria, probably not without knowledge of the fertility of the land and the sweetness of the climate, and went up, plundering his way, until he approached Rouen. There was no army in existence to meet them. Charles the Simple could scarcely protect his own capital of Paris. Accustomed as that coast had been to devastation from Danish adventurers (for Rollo was by no means the first, though he was the most terrible visitor of his kind),

there was no concert or organization for defence, each feudal lord being satisfied if by thickness of wall and depth of moat he could make scatheless his own castle, and pass on the unwelcome strangers to his next neighbour. The common people, carrying their whole world on their backs, made the forest and the crags their safe retreat. Rollo's fleet of boats had nearly reached Rouen when the inhabitants heard of them. The city was filled with consternation. Rouen had many stalwart men, probably far outnumbering the Norman plunderers; but they were not fighting men in the feudal sense of the term; and it would take many men of strong make, unaccustomed to arms, to meet the giant Rollo himself. There was no attempt at defence. The archbishop, taking the customary lead, went forth to meet the pirates and to arrange terms. Rollo and his followers were admitted through the gates as conquerors. The Normans went round to view the city; and finding it a strong and gainly place, chose it as their home and centre for further operations.

This is the representation given of the matter by Depping, in his *Expéditions Maritimes des Normands*, by Wace in his *Roman de Rou*, and, following them, by Thierry.

Having now secured a footing, the chief recruited his small fighting force from the citizens of Rouen and the district around. The great town of Bayeux (the seat of the old Baiocapes), and Evreux (of the old Eburovices), and others were soon captured. No time was lost in forming matrimonial connexions. Rollo took to wife the daughter of the Count of Bayeux, and by adopting a method of ruling at once strong and wild, demanding nothing but feudal subjection and tribute, became popular with the natives. As a stroke of policy, he professed himself a Christian; he made peace, after successful conflict, with the King of France, and married his daughter, having put away his former wife on the singular ground that he was now a Christian man. The land of Normandy was granted him in fief, and was duly parcelled out among his followers. The Northmen now freely intermarried with the natives, and, strange to say, in two generations, as Sismondi has shown, had generally laid aside their Northern speech, and adopted the Romanish language.

Now, in pondering these events, one cannot fail of feeling surprise at the fact that a body so small could conquer and possess a region so large and populous, the fief of an established and civilized kingdom, and studded on all sides with baronial castles and intrenched cities. The exact number of the immigrants cannot be ascertained, nor the populousness of the towns and districts they subdued; but from the tenor of the whole account it is perfectly clear that the conquerors were but a mere handful as compared with the natives. To remove our surprise, how-

ever, we have only to remember the maxims and practices of the time. Feudalism, now dominant, had its stringent and omnipotent laws. The bearing of arms was an honour conferred only on the few. Men-at-arms were gentlemen. The commonest grade of people, from whom the soldiery in our days of standing armies are drawn, were not *men*; and "chattels" could not be supposed capable of bearing arms. The fiefholder, or lord, had a claim for military and any other kind of service from his retainers; and the king, as suzerain of the lord, had a claim on him. But the lord, as already observed, was often in practice the master of his own territory, and the protectors of that territory were his own men-at-arms. To bring the army of the king to his assistance might be a work of long negotiation and doubtful result. When, therefore, an enemy stronger than the local guardians attacked a territory, the day was his own. This was precisely how it was that Rollo, prompt in action, fell in purpose, with few companions, but companions of the right mettle, surprised Rouen, and obtained ascendancy over the populous cities and districts surrounding it. In those days the prowess and bodily strength of one man not unfrequently scattered a multitude, and turned the tide of battle when the foe had well-nigh seized on victory. The Homeric mode of warfare had almost been reproduced. Whoever has read 'Ivanhoe' will scarcely forget the graphic picture of feudalism and its practice of arms there given, or the prodigious valour and exploits of such knights as Ivanhoe, Brian de Bois-Guilbert, and the Black Knight.

Now, when a district had been won by the sudden descent of such a small body of men as Rollo and his companions, and the conquest extended by the aid of the subjugated, it were absurd to suppose that the race-elements of the country were greatly affected. The land was still tilled, the vines tended, the cattle herded, by the same race which had done so before. The conquerors would soon stamp their own name on the country, and even on its inhabitants; but the real change would only be a change of name and of name-givers. The conquerors might begin at once to enter into a marriage alliance with the natives, and might abandon their own speech, adopting that of the land they had won; but this would only give advantage to the native race.

This was precisely the case in Western Neustria, afterwards called Normandy. The disturbance of the native race by the Norman was even less than that caused by the Frankish conquest. The land was not more the same land than the people who dwelt upon it were the same people as they had been for ages; that is, they were substantially Gallic.

And if this was the case in Normandy, *a fortiori* it was the case in the regions lying eastward and southward of that territory, while Brittany, to the west, was in a more marked degree than any held by a native race—a race, according to the best authorities, not omitting scientific searchers of the present day, more Cymric than the Belgæ, and nearly related to the so-called Celts of Britain, through various accessions between the 5th and 7th centuries from the Cymri of Wales. The wide and fertile regions on both sides of the river Loire, where afterwards we find the duchies of Maine, Anjou, Poitou, Touraine, the seats of the ancient Arvii, Pictones, Turones, and on the east as far as the Somme, and even the Scheldt and the Meuse, the land of the ancient Belgæ, were all marked by an immense preponderance of the native race, the intrusive Franks having only given it the faintest tinge of Germanic blood. All the great writers and almost all the scientific explorers of France agree that the modern French are what in popular phrase we designate them, a "Gallic" people—considerably Aquitanian or Iberian, dark-haired and swarthy, to the south and south-west, but prevailingly Gallic in the much more extensive central and northern part, Cymric or Belgæ to the east, and emphatically Cymric in the extreme north-west. We should not omit to mention that M. Broca, the celebrated ethnologist of Paris, has recently confirmed this view, which was the view of M. W. F. Edwards and the two Thierrys, by minute and carefully conducted calculations. He has found, taking the measurements of the military conscription as his basis, that a line drawn diagonally across France from near Coutances in La Manche to Lyons, and another parallel to it from a little west of the mouth of the Somme to Geneva, cut off to the north-west the shortest in stature, whom he classes as purest Celtic, and to the north-east the tallest, that is, the people of Belgic race, corresponding with the *Gallia Belgica* of Cæsar, leaving in the intervening space a people of medium height, representing, as M. Broca thinks, the ancient Galli proper. He holds the Bretons to be the most unmixed Celts of all the inhabitants of France, and considers them the key to the ethnology of that country: "la clef de l'ethnologie de la France est en Bretagne."

I have said so much on this point of the substantially Gallic and, so-named, Celtic character of these regions with a distinct purpose; for I now desire to point out that from all these parts, in greater degree from some, in less from others, were drawn the forces which William the Conqueror used in his descent on Britain. It is clear that this is the most satisfactory way to estimate critically, in the absence of definite statistics, the ethnological influence which the Conquest exerted on our popula-

tion. The *degree* of that influence must more appear from other considerations again to be mentioned.

What, then, was the field whence William gleaned his army? Normandy, of course, was the first and principal part of it. A line drawn from Abbeville through Mantes and Alençon to Granville, in the Contentin, will nearly describe the inland limits of this country. It generally corresponded with the modern departments of La Manche, Calvados, Orne, Eure, and Seine-Inférieure. Having first, with due forethought, got permission of the Pope to enter and plunder England, and establish there the tax-office of Peter's-pence, his next step was to call a council of his barons and most intimate friends. They agreed to his proposals. In ordinary cases this alone would be required; but the enterprise was of a nature so grave that, according to the *Chronique de Normandie*, the barons advised that the people of Normandy should be consulted. This was a departure from the rules of chivalry and feudal policy of great import for us to note; for it led to the result that William's host was not a feudal agglomeration of fief-holders and their men-at-arms simply, but an armed multitude, under recognized chiefs, gathered from *all* ranks of the people far and near. William called a popular assembly, and requested a free expression of their views. Opinions differed; for he had now consulted men many of whom prospered by peaceful pursuits—merchants, tradesmen, agriculturists. But the hero's tact and resolution at last prevailed, and all Normandy began to pour in its contingents.

His next step, very significant to our argument, was to make proclamation through all the surrounding states, wherever any kind of influence could avail him, inviting indiscriminately all who had in them a love of adventure, all who needed a better fortune, all who could bring sword and lance, to come to the conquest and partition of England. From William of Malmesbury, Guilielmus Gemeticensis, and Ordericus Vitalis, we learn that the call was promptly answered from all quarters. Brittany, to whose ducal house William was nearly related, was first and most liberal in response.

Two of the duke's sons, Alain Fergant and Brian, and the lords of many castles and important fiefs, such as Raoul de Gaël, Robert de Vitry, Bertrand de Dinan, were among the Breton volunteers. The young Count Alain alone, according to Hume, was followed by no less than 5000 men. Others flocked in from Maine and Anjou, from Poitou and Flanders, Burgundy and Aquitaine, and from the very borders of the Rhine and Italy. Most who came from these distant parts were hungry adventurers and military vagabonds, whose trade it was to fol-

low the standards of any chief who would pay or promise pillage, and who scarcely had a right to anticipate the day when noble families in England would proudly trace their lineage to them as "Normans who came in with the Conqueror!" All who came to swell the ranks were welcomed with eagerness. Broad manors, castles, titles, pillage, were freely promised. The terms had a charm that operated mightily. Some joined on regular pay, some on the simple condition of licence to plunder, some on the promise of a Saxon heiress in marriage. All were satisfied with promises, and all were ardent for the fray. Proud Norman barons, Breton, Flemish, Anjevin Counts had already marked for themselves those Saxon estates which suited their cupidity. Outlaws and thieves, humble villains and serfs of Gallic and Frankish blood saw a chance of "founding a family." Power of muscle was now a precious possession; for he who did most execution on Saxon flesh would most win the Conqueror's favour. The spirit of the terrible man's harangue before the battle was already interpreted before the Channel was crossed:—"Remember to fight well and put all to death; for if we conquer we shall be all rich. What I gain you will gain: if I take their land, you shall have it."

Thus the Conqueror's great army was gathered and made ready for embarkation. It crossed the Channel and won the battle of Hastings, and by this one blow secured for Duke William the throne of England, and for every man who did his work well a substantial recompense.

(3.) One step more to complete our intended line of argument. We have endeavoured to show that the nationality to be ethnologically influenced by the Norman conquest was probably not Teutonic or Germanic in a preponderating degree, and that the populations whence the army of the Conquest was drawn were beyond doubt Gallic and Cymric in a greatly preponderating degree. The latter proposition, if proved, has of course as its corollary that the army which William brought over was mainly Gallic and Cymric. It was called "Norman," in a loose indiscriminating way, because it was the army of William, who was called a Norman, and because it came mainly from Normandy as a recruiting-ground and point of departure. We hold that it was not a "Norman army" ethnologically considered, but an extremely mixed multitude, whose race was mainly the race which dwelt in north-western Gaul long before Rollo was born or the name Normandy invented.

We have therefore already arrived at that stage of the treatment where it is obvious what our conclusion as to the Conquest's influence on British ethnology must be. From our premises, we have no escape but to hold that the so-called "Nor-

man" army made the population of Britain in the gross less, rather than more, Teutonic or Germanic.

But now comes the other consideration of *quantity*. To what degree did the army of the Conquest add to the non-Germanic element in Britain? Confining our attention to the army and its crowds of ministering attendants, the answer of course would be that the degree would depend on the number of the invaders. This is not the whole of what must be considered; but it is the first part of it.

It has been said by Mackintosh and other historians who have somewhat critically scanned the accounts of this descent, and especially the capabilities of William's transport vessels, without calling in question the mere number of those vessels given, that the multitude which formed the Conqueror's army could not be fairly taken as exceeding 25,000 men. Four hundred knights or captains are mentioned by name in the Roll of Battle Abbey; and it is said by men who have understanding in these matters that the custom of the time would assign to that number of knights commanding such a proportion of cavalry and infantry as would give a total in round numbers of about 25,000; but it is obvious that this would mean 25,000 soldiers. The traditional total is 60,000. Who first sent the ball rolling by mentioning this number none can tell. Considering the way things of the kind are magnified by the popular wonder-loving and imaginative faculty, it is satisfactory to find the army which at a stroke brought England to the feet of the Norman, estimated with so much moderation. We are willing that the traditional number should stand, especially as the concession will only operate favourably to our argument. The more you augment the common soldiery, the more you will augment the non-Norman element.

Now, even if we allowed that all the 60,000 men had been veritable Norsemen, the augmentation of Scandinavian blood in Britain would not be relatively very large, despite the fact that the total population of England at the time was probably under three millions. But the considerations already advanced will not allow the supposition. Perhaps not half the knights commanding companies were Normans—we mean in the qualified sense in which William himself, whose maternal ancestors in more than one instance were of the earlier inhabitants of the country, was a Norman. We have seen that a number of the chief knights were Bretons, followed by their Breton soldiery. Many were Poitevins, many Anjevins, &c. The names of a large proportion of them are palpably Celtic or Gallic, with Norman-French accretions, as De *Mor*ville, De *Tour*ville, De *Tre*by, De *Tre*goz, De *Car*roy, De *Bras*ville, *Pen*bri, *Tal*bot, *Mor*ley, &c.

If a large proportion of the lieutenants were thus Celtic or Gallo-Frankish (though I admit that their being called after Celtic local names is not conclusive evidence that in every instance they were of Celtic or pre-Norman race) what must we not believe as to the nationality of the common soldiery and camp-followers? Each knight had brought as many retainers, dependents, villains, and serfs as he could persuade to follow him. The nationality of these is clear. Their class was that which conquest and feudal law had made either servile or holders of humble fiefs. Into this class few of the Norman fraternity had been suffered to descend. If race-characteristics can be supposed to be so persistent as many hold, without renewal from the original stock, in that multitude there were some with features as Roman as any that had landed on the same strand with Cæsar, and some with the German red hair and round head which followed Merowig and Chlodowig from the Rhine country, and not a few from the lustrous-eyed and black-haired Iberians of Old Aquitania. But it is impossible, I conceive, to doubt that the great majority were authentic Gauls and Celts.

If this representation be correct, then the effect of the Norman conquest, so far, on the ethnology of Britain must have been greatly gainful to what I believe was already in the main a non-Teutonic or Old British, that is, a Gallo-Celtic population.

But there are two or three slightly qualifying facts to be mentioned. The conquering army was not the only channel guiding Norman blood into Britain at this period. Before the conquest, and after the conquest, hosts of Normans, perhaps as pure in extraction as any, had settled here. All know that in the time of Edward the Confessor, whose mother was a Norman, and who had spent so large a portion of his life in the Court of Rouen that he was said to be more French than English when he was placed on the throne, great numbers of his relatives and friends had been brought over, or had brought themselves over, and had been placed in high positions, and made the owners of large estates. Malmesbury, with his usual moderation, only says, "The King had sent for several Normans who had formerly ministered to his wants when in exile." So far had this work of favouritism gone on, however, that the greatest discontent and apprehension had been excited among the English party, and a strong feud already existed, which required but little to kindle it into open war. The Norman party was, indeed, small, but also influential. Bishops in those days were potent in state matters; and Edward had seated a Norman prelate at Canterbury, at Rochester, and at London. About the King's person, in the high offices of state, in chief posts of command, were found Normans. When William the Bastard, therefore, a

few years before the Conquest, came over on a visit to his royal relative, he found himself surrounded by such troops of his own countrymen that he felt nearly as much in Normandy as if he had not crossed the Channel. It is surmised that this was the time when the idea of becoming ruler of England first took shape in his mind. It is true that as yet the addition to the Norse blood of England, apart from the Danish importation, was but small, being confined to chief families and their domestics and dependents; but such as it was it must be taken into account.

A much larger influx occurred after the Conquest. The barriers had now been thrown down, and all had a right of entry. The cowards who could not fight, the soft and luxurious, the idle loungers and waiters on the tide-strand of fortune could now come. The land of the kingdom, all the patronage of the kingdom, had been seized by the Conqueror, and was held in his single hand; and on whom he pleased he bestowed favour. His terrible besom swept away all Saxon influence, and left the ground clear for his own partisans. Under William and under his immediate successors, thousands of Normans came over who had no hand in the Conquest as such, except as they contributed to fortify the position. But in such a body of emigrants purity of Norman descent would rarely be found; nor, probably, was it in any case demanded. All who came with Norman sympathies, Franco-Norman speech, and, haply, Norman names were "Normans," were registered as such in the Saxon mind, and for ever after in English history.

This, then, is the conclusion we arrive at from this necessarily general review of the subject in all its parts. The people who came in with William the Conqueror, though called "Normans," were Norman in blood in a lesser, Cymric and Gallo-Frankish in a far greater degree; and making every allowance for those of purely Norman extraction, who before and after the Conquest settled permanently in the country (for many after a time returned), the preponderance lies greatly in favour of those social characteristics which were ascendant in Britain after the Saxon conquest, and had been scarcely balanced by the Teutonic after the incursions of the Danes.

Discussion.

Mr. Hyde Clarke observed that he was precluded by want of time from discussing at length Professor Huxley's address, or the paper of Dr. Nicholas. Notwithstanding what either had said, those of that audience who were Englishmen and Englishwomen would still feel or believe that they were such, and neither Irish nor Welsh. Ethnological differences are not to be so summarily exorcised. With regard to the conclusions of Dr. Nicholas, they were to be

examined by the light of the comparative evidence of what takes place in the case of an invading army among an alien population, or the effect of other influences than those of numerical considerations. In ethnology, no more than in many other moral sciences, two and two do not always make four, but three or five. It did not by any means follow that the addition of two hundred thousand to a million would a thousand years ago or now be represented by one-sixth of such blood. It was much more likely, as the fact could be proved to be here, that it was quite insignificant so far as the lower classes were concerned, and comparatively so with regard to the higher. Although Professor Huxley had laid down his statements as established by the concurrence of men of science, there was very little capable of proof. No one could safely affirm the Belgæ were Germanic. With regard to the Iberians he would, however, contribute a hint to strengthen Professor Huxley's case. The latter thought that there are no remains of the Iberian language here. He (Mr. Clarke) considered that this depended on the common assumption that all the old local names are Celtic; but it will be found that the river-names, although they have received Celtic explanations and many of them are Celtic, yet include many which are to be found not only in the Celtic area, but beyond it in the Iberian area. This class of names, whether in the Celtic or Iberian bounds, is justly to be separated as Iberian.

Special Meeting, June 1st, 1870.

[*Held in the Theatre of the Royal United Service Institution, Whitehall Yard, by permission of the Council of the Institution.*]

Professor Huxley, LL.D., F.R.S., *President, in the Chair.*

The Honorary Secretary read the following letter from Dr. Caulfield:—

XXXIV. *Note on a* supposed Ogham Inscription, *from* Rus-Glass, Co. Cork. By R. Caulfield, Esq., LL.D., F.S.A.

Royal Institution, Cork, April 19, 1870.

My dear Col. Fox,—You will receive with this note a tracing from a rubbing which I made yesterday from a very large stone containing what seems to be an Ogham inscription (Pl. XXV. fig. 1). A copy was brought to Cork on Saturday last by a tenant of Lord Egmont's. Captain Tooker brought it to me, and we determined to go down at once with the view of examining into the matter. You may form an idea of the magnitude of the stone when I tell you that it is 29 feet 3 inches in circumference, 9 feet 10 inches long by 5 feet 7 inches in breadth, and 4 feet 6 inches in height. It is old red sandstone, and the inscription

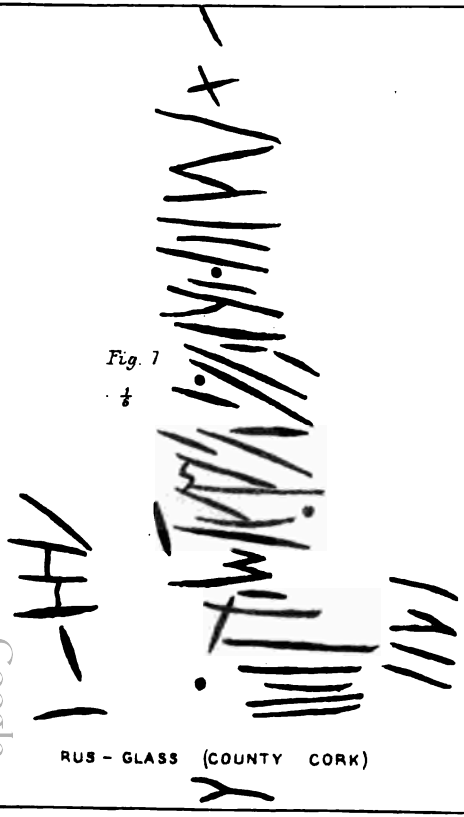


Fig. 1 ⅛

RUS - GLASS (COUNTY CORK)

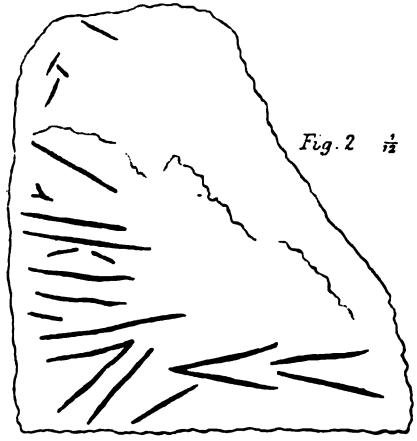


Fig. 2 1/12

GLAUT HANE (COUNTY CORK)

Fig. 3

Fig. 4

Fig. 5

CARREG - SETHAU
(NORTH WALES)

ROCK MARKINGS FROM IRELAND & WALES

is cut on a hollow part about two feet from the upper edge; the stone appears originally to have had a greater number of letters than are now visible, traces of which may be seen in different parts of the stone. The name of the ploughland is Rus-glass (*Green seeds*); it is in the parish of Drumtariff, near Kanturk, on the property of Mr. Leader, late M.P. for the co. Cork. The stone, singular to say, is split right through the middle, and the fissure seems quite smooth on the inner surface. It is imbedded in a thick kind of loam in boggy ground, in a most exposed place, and acted on by every drop of rain that falls or wind that blows. There is no legend about the place, except that when any of the neighbours die, of which there are very few indeed, a bright fire seems to envelope the stone at night when the wake is going on. I was in two very interesting forts, viz. Carregeen (*Little rock*) and the fort of Fermoyle (*Bald man*). I also saw most of the remains of a very remarkable wall, built of stones of great size, without any mortar: it ran for seven or eight miles over a high mountain called Tureen (*Little tower*), through valleys, down to the brink of a rapid brook, continued at the other side on through the county, over the brook again, and up the mountain. This ancient wall would be worth investigation. It is called by the country-people *Dixon's Wall*, and is said to have been constructed some generations ago.

Yours most sincerely,

RICH. CAULFIELD.

Col. A. Lane Fox, F.S.A.

EXPLANATION OF PLATE XXV.

Fig. 1. Rock-markings from Rus-Glass, co. Cork, Ireland; one-sixth natural size.
2. Ditto from Glauthane, co. Cork; one-twelfth natural size.
3 & 4. Ditto from North Wales.
5. Ditto from the stone called "Carreg Saethau," or "Stone of the Arrows," on Moel Faben, Caernarvonshire.

DISCUSSION.

Col. LANE FOX said that although no one was better entitled than Dr. Caulfield, from his great experience, to be heard on the subject of Irish antiquities, yet the speaker could not help thinking that he was mistaken on the present occasion, in supposing these marks to be Oghams. They are not on the edge of the stone, nor have they any fleasq or central stem-line; nor do the ends of the lines terminate in the same line, so as to represent an imaginary fleasq,—one or other of which conditions are necessary in the case of all Ogham inscriptions: the lines do not correspond in any way to the Ogham alphabet; they are very irregular, and run into one another. The speaker

believed that they were marks formed by people of the iron age in sharpening their metal tools or weapons. The material (sandstone) would be very suitable for the purpose. Col. Lane Fox exhibited a rubbing of another stone, similarly marked (Pl. XXV. fig. 2), which he had taken some years ago from a standing-stone on one side of the entrance of a rath (called Jack Dick's Fort), in the parish of Glauthane, co. Cork. It was seen that the marks ran down one side of the stone and along the bottom; but all were more or less horizontal, which is the position in which they would be most convenient for the use of a person standing on one side of the stone and rubbing his arrow- or spear-head in the grooves. Similarly incised stones occur in North Wales; and Col. Fox had copied an illustration of three of them, given by Mr. Elias Owen in the 'Archæologia Cambrensis'* (Pl. XXV. figs. 3, 4, & 5). One of these (fig. 5) is on the hill-side of Moel Faben, the antiquities of which have been described by the speaker in the 'Journal of the Ethnological Society' for October 1870, p. 306. The stone on which these marks occur is known by the name of "Carreg Saethau," or "Stone of the Arrows," and is traditionally believed to be the place where the ancient inhabitants of the district used to sharpen their arrows before going to war. There is another circumstance which points very clearly to the object for which these marks were used. The marks upon the "Carreg Saethau" are round the sides of a shallow depression on the top surface of the rock; they converge from the circumference towards the centre or bottom of the basin. It seems evident that this basin was for the purpose of holding water to facilitate the process of sharpening the tools. Dr. Caulfield mentions in his letter that the marks upon the stone at Rus-glass are also at the bottom of a similar depression on the top of the rock; and this shows unmistakably that they must have been used for a similar purpose. It is only by a comparison of similar relics in different parts of the country that we are able to form a conception as to the object of these prehistoric remains. He thought, therefore, that the thanks of the meeting were due to Dr. Caulfield for his extremely interesting communication.

The Honorary Secretary then read the following letters from Mr. Phair to Dr. Caulfield:—

XXXV. *Notes on the* Discovery *of* Copper Celts *at* Buttivant, Co. Cork. By J. P. Phair, Esq.

Buttivant, April 27, 1870.

My dear Caulfield,—I send you an outline of a copper instrument, three of which were found here yesterday by a man who was quarrying. He found them in a cleft of a rock (which forms one side of a deep ravine), about 4 or 5 feet from the surface, and where the rock begins to slope

* Vol. ix. 3rd series, p. 332, 1863.

precipitously. They had not fallen, but had been put in as they were, together side by side, the broad and narrow end corresponding.—Ever truly yours,

J. P. PHAIR.

R. Caulfield, Esq., LL.D.

Second Letter on the subject.

MY DEAR CAULFIELD,—Many thanks for your interesting letter and the drawings. The rock is limestone. The fissure was about 5 or 6 feet deep and 3 or 4 inches wide. Small stones were over the celts, and over all the soil of no great depth. They must have been put there for concealment, or they would not have been found regularly disposed at that depth in so narrow a fissure. I dare say they were originally tied together, and the bond, of whatever material, long since decayed away. The position of the find is an exact English mile south of the town, and about 400 yards south of Ballybeg Abbey. The townland is Ballybeg. So far as I can make out, there are no raths in the immediate neighbourhood. I am told there was a battle at Rilaloosha, a mile away; but my informant could only tell me that it was "in the time of all the battles"! This is rather indefinite; but I am inclined to think it must have been a "long time ago," inasmuch as there was "a giant killed there that had a horse's ears"! I have also a rumour of a battle at Ballybeg, in the immediate vicinity. If I find out any thing about these battles, I shall let you know.—Ever sincerely yours,

JOHN P. PHAIR.

R. Caulfield, Esq., LL.D.

Mr. C. SPENCE BATE, F.R.S., presented a Report "On the Prehistoric Monuments of Dartmoor"*.

SPECIAL MEETING, JUNE 7th, 1870.

[*Held in the Theatre of the Museum of Practical Geology, Jermyn Street, by permission of Sir Roderick I. Murchison, Bart., K.C.B., F.R.S., Director-General of the Geological Survey of the United Kingdom.*]

ARCHIBALD CAMPBELL, Esq., M.D., *Vice-President, in the Chair.*

New Member.—RICHARD HILL TIDDEMAN, Esq., B.A., F.G.S., of H.M. Geological Survey.

* [This Report has been supplemented by a communication read before the Society on December 13th, 1870. Both the original report and the supplement will be published in the next Number of this Journal.—SUB-ED.]

The President made the following communication :—

XXXVI.—*On the* Geographical Distribution *of the* Chief Modifications *of* Mankind. By Professor T. H. Huxley, LL.D., F.R.S.

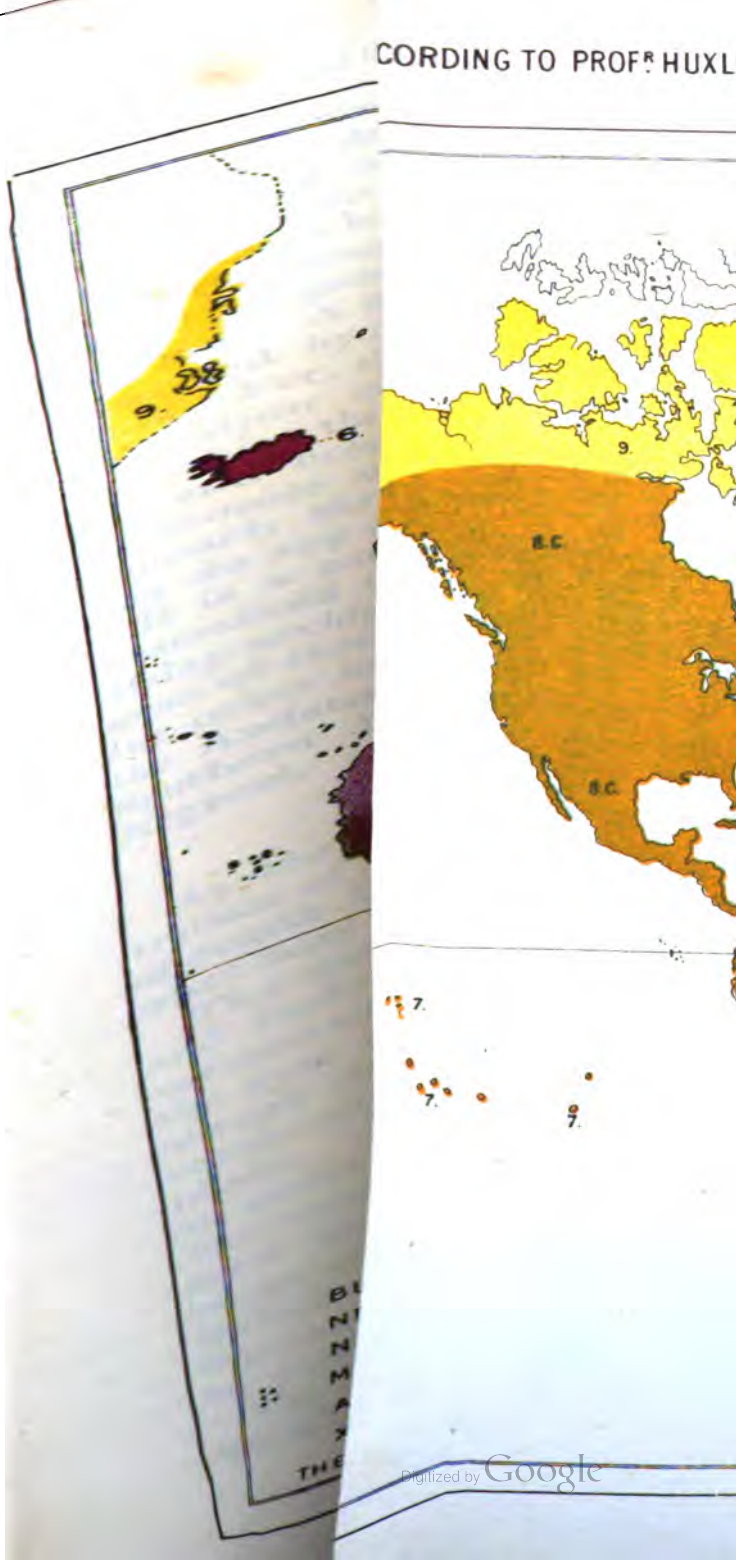
The centre of the accompanying map of the world (See *Frontispiece*) nearly corresponds with that of the Indo-Pacific Ocean, which is bounded on three sides by the great land-masses of the Old and New Worlds. Disjointed fragments of land separate the Indian from the Pacific division of the great ocean, and stretch like so many stepping-stones between the Malay peninsula and Australia, the latter, semicontinental mass of land lying almost halfway between Africa and South America. The indigenous population of Australia presents one of the best marked of all the types, or principal forms, of mankind; and I shall describe the characters of this modification first, under the head of

I. The Australioid Type (No. 5 tint on the Map).

The males of this type are commonly of fair stature, with well-developed torso and arms, but relatively and absolutely slender legs. The colour of the skin is some shade of chocolate-brown; and the eyes are very dark brown, or black. The hair is usually raven-black, fine and silky in texture; and it is never woolly, but usually wavy and tolerably long. The beard is sometimes well developed, as is the hair upon the body and the eyebrows. The Australians are invariably dolichocephalic, the cranial index rarely exceeding 75 or 76, and often not amounting to more than 71 or 72. The brow-ridges are strong and prominent, though the frontal sinuses are in general very small or absent. The *norma occipitalis* is usually sharply pentagonal. The nose is broad rather than flat; the jaws are heavy, and the lips remarkably coarse and flexible. There is usually strongly marked alveolar prognathism. The teeth are large, and the fangs usually stronger and more distinctly marked than in other forms of mankind. The outlet of the male pelvis is remarkably narrow.

These characters are common to all the inhabitants of Australia proper (excluding Tasmania); and the only notable differences I have observed are that, in some Australians, the calvaria is high and wall-sided, while in others it is remarkably depressed. No skulls are, in general, so easily recognizable as fair examples of those of the Australians, though those of their nearest neighbours, the inhabitants of the Negrito Islands, are frequently hardly distinguishable from them.

The only people out of Australia who present the chief characteristics of the Australians in a well-marked form are the so-



called hill-tribes who inhabit the interior of the Dekhan, in Hindostan. An ordinary Coolie, such as may be seen among the crew of any recently returned East-Indiaman, if he were stripped to the skin, would pass muster very well for an Australian, though he is ordinarily less coarse in skull and jaw.

In the accompanying map, therefore, the deep blue colour (No. 5) is given not only to Australia, but to the interior of the Dekhan. A lighter tint of the same colour occupies the area inhabited by the ancient Egyptians and their modern descendants. For, although the Egyptian has been much modified by civilization and probably by admixture, he still retains the dark skin, the black, silky, wavy hair, the long skull, the fleshy lips, and broadish alæ of the nose which we know distinguished his remote ancestors, and which cause both him and them to approach the Australian and the "Dasyu" more nearly than they do any other form of mankind.

It is a most remarkable circumstance that no trace of the Australioid type has been found in any of the islands of the Malay archipelago, all the dark-skinned people who occur in some of these islands and in the Andamans being Negritos. On the other hand, no Negroid type is known to occur between the Andamans and East Africa, the darker elements of the Southern Arabian population being Australioid rather than Negroid.

II. The Negroid Type (Nos. 1, 2, 3).

As the chief representive of the Australioid type is the Australian of Australia, so is that of the Negroid type the Negro of South Africa (including Madagascar) between the Sahara and what may be roughly called the region of the Cape.

The stature of the Negro is, on the average, fair, and the body and limbs are well made. The skin varies in colour, through various shades of brown to what is commonly called black; and the eyes are brown or black. The hair is usually black, and always short and crisp or woolly: the beard and body-hair commonly scanty. Negroes are almost invariably dolichocephalic. I have not met with more than one or two skulls with an index of 80, while indexes of 73, or less, are not uncommon. The brow-ridges are rarely prominent, the forehead retaining a good deal of the feminine, or child-like, character. The *norma occipitalis* is often pentagonal, but not so strongly as in the Australioid skull. Prognathism is general; and the nasal bones are depressed: hence the nose is flat as well as broad. The lips are coarse and projecting.

The Bushmen of the Cape area (No. 1) must be regarded as a special and peculiar modification of the Negroid type. They are

remarkable for their low stature, the males rarely much exceeding four feet in height, while the females may fall considerably below that stature. Both sexes are remarkably well made. The skin is of a yellowish-brown colour, the eyes and hair black, and the latter woolly. They are all dolichocephalic; and the brim of the female pelvis has its antero-posterior diameter longer than the transverse, in a larger proportion of cases than in other forms of mankind. One of the most curious peculiarities of the people is the tendency to the accumulation of fat on the buttocks, and the wonderful development of the nymphæ in the females. The Hottentots seem to be the result of crossing between the Bushmen and ordinary Negroes.

In the Andaman Islands, in the Peninsula of Malacca, in the Philippines, in the islands which stretch from Wallace's line eastward and southward, nearly parallel with the east coast of Australia, to New Caledonia, and, finally, in Tasmania, men with dark skins and woolly hair occur who constitute a special modification of the Negroid type—the Negritos (No. 3). Only the Andamans have presented skulls approaching or exceeding an index of 80; all the other Negritos, the crania of which have been examined, are dolichocephalic. But the skulls of the eastern and southern Negritos present, as I have mentioned, a remarkable approximation to the Australioid type, and differ notably from the ordinary African Negroes in the great brow-ridges and the pentagonal *norma occipitalis*. The best-known and the most typical of these eastern Negritos are the inhabitants of Tasmania and of New Caledonia, and those of the islands of Torres Straits and of New Guinea. In the outlying islands to the eastward, especially in the Feejees, the Negritos have certainly undergone considerable intermixture with the Polynesians; and it seems probable that a similar crossing with Malays may have occurred in New Guinea.

III. The Xanthochroic Type (No. 6).

A third extremely well-defined type of mankind is exhibited by the greater part of the population of Central Europe. These are the Xanthochroi, or fair whites. They are of tall stature and have the skin almost colourless, and so delicate that the blood really shows through it. The eyes are blue or grey; the hair light, ranging from straw-colour to red or chestnut; the beard and body-hair abundant. The skull presents all varieties of forms, from extreme dolichocephaly to extreme brachycephaly. On the south and west this type comes into contact and mixes with the "Melanochroi," or "dark whites," while on the north and east it becomes mingled with the people of Mongoloid type,

who bound it on that side. Its extreme north-west limit is Iceland; its south-west limit the Canary Islands; its south border lies in Africa north of the Sahara, in Syria, and Northern Arabia; its south-eastern limit is Hindostan; while in a north-easterly direction traces of it have been observed as far eastward as the Yenisei. I have not ventured, however, to draw the red bars which indicate the existence of this type, alongside of another, so far to the east, as one really knows very little about the people of Central Asia.

IV. The Mongoloid Type (No. 8).

An enormous area, which lies mainly to the east of a line drawn from Lapland to Siam, is peopled, for the most part, by men who are short and squat, with the skin of a yellow-brown colour; the eyes and hair black, and the latter straight, coarse, and scanty on the body and face, but long on the scalp. They are strongly brachycephalic, the skull being usually devoid of prominent brow-ridges, while the nose is flat and small, and the eyes are oblique. The Malays proper, and, I suspect, the indigenous people of the Philippines who are not Negritos, fall under the same general definition.

On the other hand, the Chinese and Japanese, in whom the skin, hair, nose, and eyes are like those of the Mongoloids just mentioned, are dolichocephalic; and the Ainos, also dolichocephalic, are distinguished for the extraordinary development of hair on their faces and bodies.

The Dyaks of the interior of Borneo are likewise dolichocephalic; and these people, and the Battaks of Sumatra, the so-called Alfurus of Celebes, and the inhabitants of other easternmost islands of "Indonesia," seem to me to pass insensibly, through the people of the Pelew Islands, and of the Caroline and Ladrone archipelagos, into the Polynesians, in whom the straightness of the hair and the obliquity of the eyes disappear, while, in the majority, the skull is long and often approximates to the Australioid type. I have never met with a brachycephalic Maori, though I have examined a large number of New-Zealand skulls. Brachycephaly, however, occurs in the Sandwich Islands, and apparently in the Samoan Islands*.

As linguistic evidence leaves no doubt that Polynesia has been peopled from the west, and therefore, possibly, from Indonesia, it becomes an interesting problem how far the Polynesians may be the product of a cross between the Dyak-Malay and the Negrito elements of the population of that region. I am inclined to think that the differences which have been over and

* The Easter-Island skulls I have seen are long.

over again noted between the elements of the population in Polynesia, and notably in New Zealand, may be due to such a mixed origin of the Polynesians.

To the north-east, the Mongoloid population of Asia comes into contact with the Tchuktchi, who are said to be physically identical with the Esquimaux and Greenlanders of North America. These people combine, with the skin and hair of the Asiatic Mongoloids, extremely long skulls. The Mongoloid habit of skin and hair is also visible in the whole population of the two Americas; but they are predominantly dolichocephalic, the Patagonians and the ancient mound-builders alone presenting unmistakable brachycephaly.

I have been much perplexed to know in what way to give a graphic representation of these facts. It seems quite impossible to draw any line of distinction, based on physical characters, among the so-called "American Indians;" and therefore a uniform colour is given to the area which they occupy (8 c). I have given the Esquimaux area a different colour (9) rather for the purpose of reminding the student of the very peculiar character of the type, when well marked, than because I conceive it to be sharply distinguished from that of the North-American Indians. This colour (9) has by misadventure been extended over the Aleutian Islands and Kamschatka, which should rather in all probability receive the same hue as 8 B. The strongly coloured area (8 A), finally, is intended to indicate roughly the distribution of the Mongols proper. It is a most singular circumstance that there is the same sort of contrast, combined with certain definite points of resemblance, between a Mongol and an Iroquois that there is between a Malay and a New-Zealander; and in the huge Americo-Asiatic area, as in the only less vast space occupied by the Polynesian islands, it is possible to find every gradation between the extreme terms.

The four great groups of mankind, the areas of which have now been defined, occupy the whole world, with the exception of western and southern Europe, cis-Saharal Africa, Asia Minor, Syria, Arabia, Persia, and Hindostan. In these regions are found, more or less mixed with Xanthochroi and Mongoloids, and extending to a greater or less distance into the conterminous Xanthochroic, Mongoloid, Negroid, and Australioid areas, the men whom I have termed MELANOCHROI, or dark whites. Under its best form this type is exhibited by many Irishmen, Welshmen, and Bretons, by Spaniards, South Italians, Greeks, Armenians, Arabs, and high-caste Brahmins. A man of this group may, in point of physical beauty and intellectual energy, be the equal of the best of the Xanthochroi: but he presents a great contrast, in other respects, to the latter type; for the skin,

though clear and transparent, is of a more or less brown hue, deepening to olive, the hair, fine and wavy, is black, and the eyes are of a like hue. The average stature, however, is ordinarily lower than in the Xanthochroic type, and the make of the frame is usually lighter. In Hindostan the Melanochroi pass by innumerable gradations into the Australioid type of the Dekhan, while in Europe they shade off by endless varieties of intermixture into the Xanthochroi.

I have great doubts if the Melanochroi are to be regarded as a primitive modification of mankind in the sense in which that term applies to the Australioids, Negroids, Mongoloids, and Xanthochroi. On the contrary, I am much disposed to think that the *Melanochroi* are the result of an intermixture between the Xanthochroi and the Australioids. It is to the Xanthochroi and Melanochroi, taken together, that the absurd denomination of "Caucasian" is usually applied.

Perhaps the most interesting fact which comes into prominence in the map of the distribution of these great groups of mankind, is the contrast between the broad and general uniformity which prevails over such an enormous area, exhibiting every diversity of climate and physical conditions, as that of the two Americas, and the singular variety crowded into a relatively small area elsewhere, as, for example, in the Pacific. Here, if we follow one and the same zone of latitude for a few thousand miles of longitude from east to west, we pass from Polynesian Mongoloids, in the Navigators, or the Friendly Islands, to Negritos in the New Hebrides, and to Australioids on the mainland of Australia.

A fact of this kind, taken alone, is sufficient to show that causes of quite a different character from mere changes of physical conditions, operating upon the same stock, must have been required to give rise to the phenomena presented by the present distribution of mankind.

Discussion.

Mr. George Campbell observed that it was difficult, on the spur of the moment, to approach so great a subject treated by so great an authority. With respect to the supposed connexion between the aborigines of India and the Australians, he would only at present say that all the information which he had collected respecting those primitive Indian races tended in the direction which Professor Huxley had pointed out. To what the Professor had said he might add that there was good reason to suppose that certain traces of lingual affinities between the Dravidian aborigines and the Australians existed. But these Indian aborigines presented a field for much further inquiry. There were great materials for further investigation, and great facilities now-a-days for obtaining more. He trusted that, when Professor Huxley's words went forth to the world, many zealous and capable

men on the spot would be prompted to follow out the line of investigation which had been indicated, and that a year or two hence we should be in a position to carry the matter much further.

On one other branch of Professor Huxley's great subject he would like with much diffidence and deference to say a few words. The Professor seemed to have put our old friends the Aryans and Semites into his crucible and melted them away completely, so that not a trace of them was left to us; but out of the material he had composed two other races whom he called Xanthochroi and Melanochroi. Now, doubtless, if he had gone further into the details the Professor might have been able to tell us of other features distinguishing those two races; but, so far as we had yet heard, the distinction was founded on the one single feature of colour alone. Nothing seemed to be as yet so little certain as the source and permanency of human colour. He was not going to try to set the Aryans and Semites on their legs again; in fact he very much doubted whether, looking to palpable physical features, it could be said that there is any such race as the Semites; but taking Aryans and Semites together under the old name of Caucasians, he would ask to be allowed to go to other features besides colour, and also for the present to omit language, and to suggest another classification of the Caucasian races with reference to the most palpable features. It seemed to him that certain Caucasian countries presented to the eye what he believed to be the extreme and perfect form of the Caucasian race, the handsome high-featured people best known in this country as the Jewish type. All who were acquainted with the north of India would testify to the great predominance of a very handsome type of this kind among the Afghans and peoples of the hills to the north-west of India; it was the uniform remark that these people were very *Jewish-looking*. These people were Aryans. It was the same type which prevailed among the Aryan Persians, and again among the Jews, Syrians, and Northern Arabians, commonly called Semites. But the Central and Southern Arabians, in fact the mass of the Arab people, were by no means of this type. Palgrave constantly contrasts the short, swarthy, small-featured Arabs with the tall, handsome, hook-nosed Persians. He (Mr. Campbell) believed then he might assert as a fact that the high-nosed, handsome-featured people occupied a continuous area from the Syrian shores of the Mediterranean through Northern Arabia and Persia to the sources of the Indus, including the ranges of the Caucasus, supposed to be the primitive seat of the Aryan family. These people are certainly, throughout this area, remarkably like one another; in fact in physical features they are quite undistinguishable. Notwithstanding the difference in language between the Syrians and proper Aryans, his theory was that this uniform-featured people of the area which he had described were the purest and truest type of the Caucasian variety of man. He imagined that when that breed was first developed it was in the form of a Jewish-looking man. He then supposed, as Professor Huxley seemed to suppose, that these true Caucasians descending towards the south and mixing with Australioids became

Hindoos, that in Southern Arabia mixing with some other race they became those Arabs whom Palgrave describes as more like Southern Hindoos than Northern Arabs. Again, descending to the north-west into Europe, he believed that our Caucasian fathers intermixed with some primitive races of cockle-eaters and such like, who (through our great-great-grandmothers) shortened our noses, detracted from our beauty, and rendered us the mixed and varied race that we now are. In fact, instead of distinguishing the peoples of Europe and Western Asia into Xanthochroi and Melanochroi, he would distinguish them into perfect and imperfect Caucasians. On the subject of skulls, while they might be one of the marks to distinguish very primitive races, Professor Huxley's statements had pretty well demolished them as a safe test of more advanced races, since he had shown that races otherwise very similar had very wide diversities of skull, *e. g.* the Tartars and Chinese among the Mongols—and, above all, the European peoples, any assembly of whom presented every form of skull. With respect to the predominance of round skulls in certain parts of Europe, he would suggest that possibly those were the parts which had been most mixed with round-headed Tartars or Mongols. In the part indicated by Professor Huxley there had been the great Hungarian invasions; and generally it might be said that the Mongol races had spread westwards in later times, and come more into contact with the Slavonians and later tribes of Europe, while our Norman and Saxon progenitors, being an earlier wave of immigration, had not so much mixed with Asiatic Tartars.

Mr. Alfred R. Wallace said that, as a small contribution to the subject, he would venture to point out that there were certain mental characteristics which in two at least of the primary groups were as well marked and as constant as the physical characters by which Professor Huxley had defined them. The great Mongoloid group, for instance, was distinguished by a general gravity of demeanour and concealment of the emotions, by deliberation of speech, and the absence of violent gesticulation, by the rarity of laughter, and by plaintive and melancholy songs. The tribes composing it were pre-eminently apathetic and reserved; and this character was exhibited to a high degree in the North-American Indian, and in all the Malay races, and to a somewhat less extent over the whole of the enormous area occupied by the Mongoloid type. Strongly contrasted with these were the Negroid group, whose characteristics were vivacity and excitability, strong exhibitions of feeling, loud and rapid speech, boisterous laughter, violent gesticulations, and rude, noisy music. They were preeminently impetuous and demonstrative; and this feature was seen fully developed both in the African Negro and in the widely removed Papuan of New Guinea. This striking correspondence of mental with physical characters strongly supported the view that these two at least were among the best-marked primary divisions of our race.

The only point on which he ventured to differ from the classification of Professor Huxley was as to the position to be assigned to the brown Polynesians. These, as typically represented by the Tahitians,

appeared to him to be much more nearly related to the Papuans than to the Malays, and should therefore be classed as Negroid instead of Mongoloid. In all important physical characters, except colour, they agreed with the former; and the general testimony of travellers, from Cook downwards, showed that their mental characteristics were entirely Negroid, as evinced by their vivacity, demonstrativeness, and laughter. At the same time there was no doubt a large infusion of Malay blood; but that this was for the most part a comparatively recent event was shown by the language, which retained a number of Malay terms almost unchanged. He maintained therefore that the typical Polynesians were fundamentally Negroid with a considerable Mongoloid intermixture, and not originally Mongoloid with a Negroid intermixture.

Mr. Luke Burke maintained that differences in the colour of the skin and hair, and in the relative proportions of the skull, were only of trivial value, and should not be taken as a basis in defining the primary divisions of the human race.

Special Meeting, June 21st, 1870.

[*Held in the Theatre of the Royal United Service Institution, Whitehall Yard, by the permission of the Council of the Institution.*]

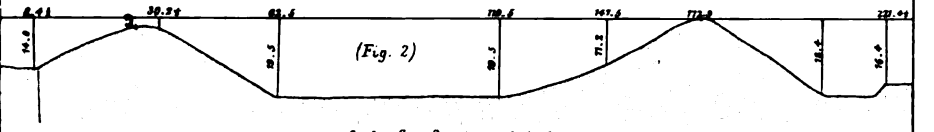
Professor Huxley, LL.D., F.R.S., *President, in the Chair.*

The following paper was read by the author:—

XXXVII. *On the* threatened Destruction *of the* British Earthworks *near* Dorchester, Oxfordshire. By Col. A. Lane Fox, Hon. Sec. Ethn. Soc.

Although the subject is not in any way connected with the paper that is to be read this evening (Mr. Forbes's paper on the Aymaras), yet, knowing the interest which is taken by this Society in the preservation of our prehistoric antiquities, I venture to think that a few words in reference to the Dykes at Dorchester in Oxfordshire may not be without interest to the Meeting, owing to the report which has appeared in the papers since our last meeting, relative to the threatened destruction of these works by the owner of the property on which they stand.

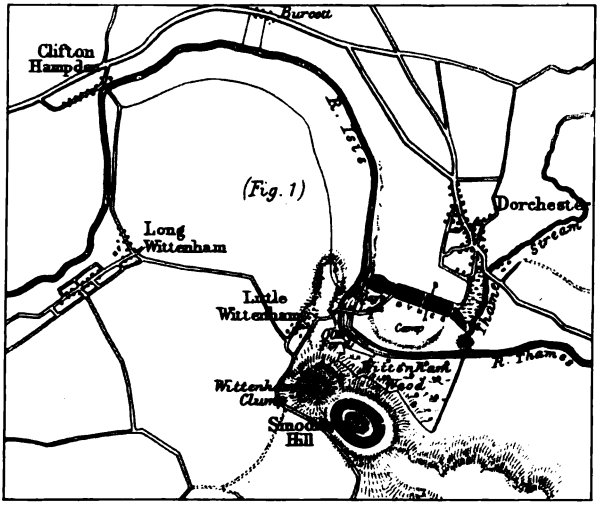
The ancient fortifications of this place consist of two distinct works—one on the south and the other on the north bank of the Thames (see *Map*, Pl. XXVI. fig. 1). The former (on the south side) occupies the more eastern of two conspicuous hills, each of which is topped by a clump of trees, known as the Wittenham Clumps. This work is about a quarter of a mile to the south of the river-bank, and three miles to the north-east of Didcot Station on the Great Western Railway. The intrench-



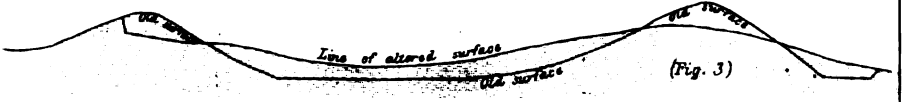
(Fig. 2)

Scale for Sections 2 & 3.

50 100 Feet



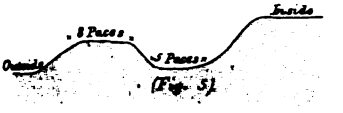
Scale of Map 1 Inch to a Mile



(Fig. 3)

(Fig. 4)

Fig. 6
Nat. Size



(Fig. 5)

Fig. 7 ½ Size

DORCHESTER DYKES & SINODUN CAMP.

ment, like that of most British camps, follows the outline of the hill, running round it in the most suitable position for defence. It commands an extensive view of the country for miles round; but the interior of the camp is itself commanded within 150 yards by the adjoining hill to the north-west. It is of an irregular oval form, about 400 paces across from S.E. to N.W. The defences consist of a ditch, about five paces wide at the bottom, with a rampart on both sides, the inner commanding the outer in consequence of the natural slope of the hill (Pl. XXVI. fig. 5). The inner rampart, if it ever existed, has been destroyed by cultivation; but it is not improbable, from the great command which the inner side of the ditch has over the opposite side, that the defence may originally have been confined to an escarpment surmounted by a stockade or some other defensive obstacle on that side. This mode of defence appears not unfrequently to have been adopted by the ancient Britons in cases where the ground itself afforded the necessary command of the exterior. There is an entrance on the north-west salient angle which is swept by a knoll on the inner side of the ditch. Another entrance on the north-west leads in the direction of the ancient ford on the Isis. All these are characteristics of a British earthwork. The interior of the camp is terraced on the north side; but these terraces are evidently the result of cultivation in modern times. I found no sufficient evidence of the fabrication of flints in this work; but I picked up in the interior a fragment of a polished celt and a sea-shore quartzite pebble rubbed to an edge at one end (Pl. XXVI. fig. 7). Pebbles similarly rubbed at one end are not uncommon amongst the relics of the prehistoric age. I exhibit a precisely similar implement which I found amongst the *débris* of a barrow on the Yorkshire Wolds.

Passing over the Thames, to the north side, we come to the Dykes, the threatened destruction of which is reported in the newspapers. They consist of a nearly straight line of intrenchments, about 900 yards in length, and composed of double banks and ditches, which cuts off a promontory formed by the bend of the river, and encloses an area of about three-quarters of a mile in length by a quarter of a mile in breadth. The principal ditch (Pl. XXVI. fig. 2), about 57 feet in width, is situated between the two banks. There is a smaller ditch on the outer or north side. The outer or northern bank appears to have been the highest, which is probably to be accounted for by its being placed between the two ditches, and having received the materials excavated from both.

This was well shown in the section of a fresh cutting made through the bank, in which the lines of the successive deposits could be traced (Pl. XXVI. fig. 4). This section also showed that the banks are covered with a thickness of from 8 to 12 inches

of vegetable soil, entirely devoid of stones or pebbles of any kind, and which must, in all probability, have accumulated from the decay of the grass on the banks. The length of time necessary for the formation of so great a thickness of vegetable soil must have been considerable. There are at present three openings through the dykes. About 200 yards of the right flank of the dyke is thrown back in the direction of the junction of the Thame stream with the Isis. From this point the river assumes the name of the Thames river.

On carefully searching the ground which had been excavated from the banks on the left flank, and the cultivated ground in the interior of the camp, I found abundant evidence of the fabrication of flint implements [*a number of cores, flakes, and chips from this spot were exhibited to the Society*]; but I did not succeed in finding any flint tool, with the exception of one fragment of a well-chipped spear-head (Pl. XXVI. fig. 6). I also found on the dykes several pieces of pottery of undoubtedly British production, and a fragment of wheel-made pottery of later date.

In the year 1836 an oval bronze shield, 14 by 13 inches in diameter, was discovered in the bed of the Isis, about 150 yards to the rear of the left flank of the dyke, beneath an accumulation of recent drift. [*A drawing of this shield was exhibited, of the actual size.*] The original is in the British Museum, and is described in vol. xxxviii. of the 'Archæologia.'

Mr. Clutterbuck, the rector of Long Wittenham, and the writer of an article on this place in the 'Archæologia,' is of opinion, from the position of this discovery, that the river still runs in its original course, and no doubt this is the case to a considerable extent; but there is, I think, evidence that the river has slightly altered its course since the dykes were erected. From the curve which the river makes at this point it might naturally be expected that it would leave the dykes on the north, and work its way southward; but it was no doubt checked by the higher ground on the south. The sketch plan exhibited to the Meeting shows, however, that the flanks of the dyke do not reach the present bank of the river, and that a space of thirty paces intervenes on the left flank, while on the right the dyke stops seventy paces short of the Thame stream. It is improbable that the defenders should have neglected to secure their flanks by causing them to abut upon the banks of the river as they existed at the time of its construction. The position of the portion of the dyke which is thrown back on the right flank also shows the Thame stream must have extended more to the westward, probably up to the line now marked by a small ditch. From the nearest point of this original line the dyke is drawn straight across to the Isis; but the meadow-ground below Dorchester, on the right bank of the Thame stream, must have been covered

with water, though probably shallow and fordable; and it was in order to command this ground that an epaulement was thrown back on the right flank; but the abrupt termination of the work at seventy paces distance from the present stream shows that deep water must have existed to the westward of the present stream.

I found no trace of Roman tiles or pottery, nor can I learn that any thing Roman has been discovered on the site of the camp, though no doubt Dorchester itself was at one time a Roman station. This circumstance, coupled with the discovery of a bronze shield and the evidence of flint cores and *débris* (all of which must have been imported, as this is not a flint-producing district), appears to me conclusive in determining the fortifications to be of British construction. Viewing the position of the two works, and the position of the ancient ford between them, it may safely be assumed that they were connected in the defence of this locality, and were the work of the same people. The ancient Britons never constructed their camps upon low ground. Sinodun Hill was no doubt the principal stronghold; and the Dorchester dykes on the low ground to the north of the river were thrown up to cover the passage of the river at the ford, and secure a communication with the left bank.

About 200 yards of the left flank of the Dorchester dykes have now been levelled, or rather reduced for cultivation (Pl. XXVI. fig. 3); a portion of this, however, was done by the former owner. I called upon Mr. Latham, the present owner, by whom the work of demolition is now being continued. After some conversation I elicited from him a promise that the levelling should be discontinued for the present; but I could obtain no assurance that it would not be continued at some future time. This is much to be regretted, as the ramparts are now in a good state of preservation. Traces of the work, however, will still be seen in those parts which have been lowered for cultivation.

(See also Extracts from the 'Saturday Review' and 'Pall Mall Gazette' in 'Notes and Queries.')

EXPLANATION OF PLATE XXVI.

Fig. 1. Map of the country around the Dorchester Dykes and Sinodun Hill. Scale 1 inch to 1 mile.
2. Present section of Dorchester Dykes, June 1870.
3. Section showing the reductions which are now being made for the purpose of cultivation, June 1870.
4. Section of fresh cutting in north rampart, showing the lines of successive deposits and thickness of vegetable mould.
N.B. Of all these sections the scale is 50 feet to 1 inch.
5. Section of rampart of Sinodun Camp.
6. Fragment of a flint spear-head found within the area of Dorchester Dykes.
7. Water-worn pebble, rubbed to an edge at one end, found in Sinodun Camp.

Dr. A. Campbell, Vice-President, exhibited copies of certain Rock-carvings, or "Indian Picture Writings," from British Guiana, which were taken by Mr. C. B. Brown, of the Geological Survey, George Town, Demerara.

Mr. David Forbes, F.R.S., then gave a verbal abstract of his paper "On the Aymara Indians of Bolivia and Peru"*.

Sectional Meeting for Prehistoric Archæology, June 27th, 1870.

Professor G. Busk, *F.R.S., in the Chair.*

The following paper was read by the author:—

XXXVIII. *Description of the* Park Cwm Tumulus. By Sir John Lubbock, Bart., M.P., F.R.S., V.-P. Ethnol. Soc., &c. &c.

The Park Cwm cairn is situated on the property of my friend Mr. Vivian, in the parish of Penmaen, and in the celebrated peninsula of Gower. In the spring of 1869 Mr. Vivian was making a new road; and for that purpose the workmen attacked a heap of cairn, which stood conveniently, and the true nature of which was not then suspected. After removing a certain portion of the stones on the north side, the men came upon some large upright stones forming a cell or chamber, and in the chamber they found portions of a skeleton. Upon this being reported to Mr. Vivian, he at once ordered that no more of the cairn should be removed, and he asked me to come down and see it explored.

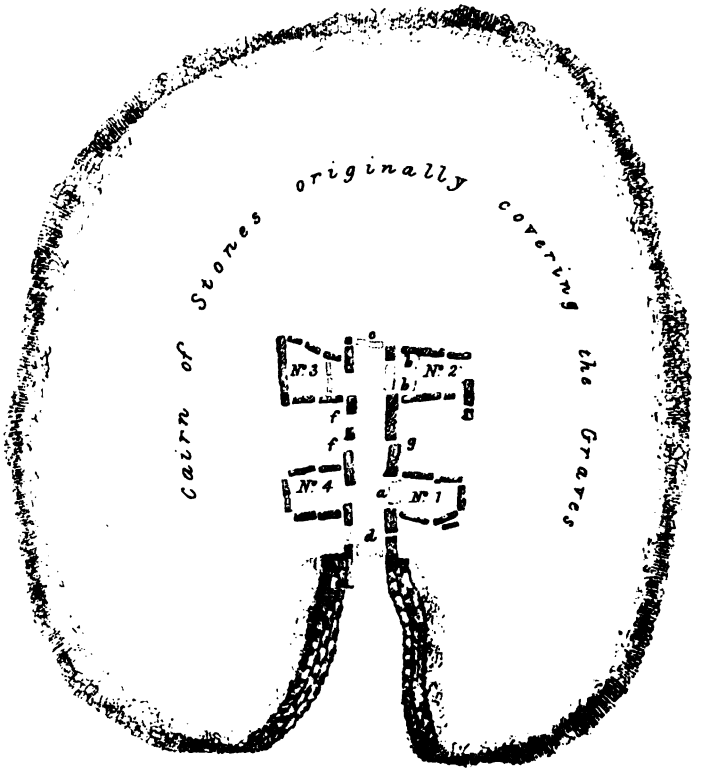
The "Red Lady of Paviland," and the successful researches of Col. Wood in the bone-caves along the coast, have made the peninsula of Gower extremely interesting to archæologists.

I gladly, therefore, accepted my friend's invitation. We drove to the spot early in the morning, on Saturday, 14th August, 1869, accompanied by a party from the Cambrian Archæological Society, under the guidance of their President, Lord Dunraven, and at once commenced operations.

The cairn is situated in a beautiful woody comb or dell, about a mile from the sea, and almost at the foot of the small cave known as Cat Hole.

It occupied an oblong area of about 60 feet in length by 50,

* This paper, with the discussion which it excited, is published in the 'Journal of the Ethnological Society' for October 1870, pp. 193–305.



Scale 16 Feet to 1 Inch

PARK CWM TUMULUS

and was, when first noticed, about 5 feet in height. The general design of the building will be seen from the plan (Pl. XXVII.). The direction of the cairn was N. and S., the entrance, as usual, being to the S.

The entrance itself was funnel-shaped, 16 feet in length, and 12 in width at the entrance, gradually contracting to 3 feet 6 inches. The sides were neatly built of flat stones, placed on their broad sides, and presenting the narrow edges externally. The walls are not perpendicular, but slope or batter outwards.

The central passage or avenue connecting the chambers is 17 feet long, with a uniform width of 3 feet. The sides were formed of ten large stones; but it is probable that there were originally eleven. They did not fit one another very well; but the interspaces were built up by small flat stones, arranged as in the entrance walls. The cairn itself extended some distance beyond the avenue towards the north. At each end of this passage, and at right angles to it, are two square or somewhat oblong chambers. The first (No. 1) was about 3 feet in width. Where it joined the central passage was a sillstone (*a*). The sides were each formed of two large stones; and there can, I think, be little doubt that it was originally closed by a fifth. In this chamber we found remains of three, if not of four skeletons, and one fragment of pottery.

The second chamber (No. 2) is 6 feet in length, by about 2 feet 6 inches in breadth, and closely resembles the first, but is imperfectly divided into two unequal parts by two low stones (*b, b*). This chamber contained the remains of two skeletons.

The third chamber much resembled the second, and, like it, was imperfectly divided.

The fourth, on the contrary, like the first, had no division; it had been somewhat disturbed, as was also the case with the second, by the roots of an ash.

At each end of the central passage was a long sillstone (*c, d*). The large stones forming the central passage and side chambers were very irregular in height; and we saw no sign of any covering slabs. The interspaces (*f, f*) were filled up with stones and earth—the latter probably arising from decomposed leaves &c., and quite unlike the natural soil of the cwm, both in colour and character.

In all cases the large stones were placed with their flatter sides inwards. On the outside they were very irregular; none of them were at all worked.

The upper part of the cairn had been removed long ago, and the upper parts of the large stones had been long exposed.

It also appeared to me that the tumulus had been opened at some previous period, although Mr. Vivian did not feel satisfied

upon this point. The bones were much broken, and in no regular arrangement. There appeared to be at least twenty skeletons. The bones were very tender; and the skulls, unfortunately, were crushed into small fragments. The teeth, as usual, were ground flat, and showed no trace of decay.

The only bones of other animals were a tooth, I believe, of a deer, found in the space on the east side, at the spot marked *g*, and a few pig's teeth, which occurred in the entrance. Close to the sillstone marked *a*, we found some fragments of pottery; but throughout the mound we met with no ornament or implement of any kind, no trace of metal, nor a single bit of worked flint.

Mr. Vivian submitted the bones to Mr. Douglas, whose report is subjoined.

It appear, therefore, that this tumulus resembles, in its internal construction, the one at Stoney Littleton, in the parish of Wellow, Somersetshire, which was described by Sir Richard Colt Hoare in the nineteenth volume of the 'Archæologia.' The Stoney-Littleton tumulus, however, had three transepts, whereas ours had only two. In this respect it resembled the one at Uley, in Gloucestershire (see Somerset Archæological and Natural History Society's Proceedings, 1858, vol. viii. p. 51).

Report of Dr. D. M. Douglas on Bones from the Park Cwm Tumulus.

Hafod Villa, 24th August, 1869.

Dear Sir,—I have examined the interesting relics which you kindly sent to me for inspection.

I found that they represented the distinctive remains of twenty-four individuals: several of them, I have reason to believe, were females. They were all adults, excepting, I think, three, who were children, probably from eight to ten years of age. One individual had evidently arrived at extreme old age; another perhaps was sixty or seventy years old, and the rest comparatively young—say twenty-five to forty-five years respectively.

There are the remains of two remarkable skeletons: one must have been of gigantic proportions. I was much struck with the enormous thickness of some of the skulls, which are much thicker than those we find in the present age.

The teeth are wonderfully preserved, very good and regular; there are only two that exhibited signs of decay during life. The bones are well formed; and the food must have contained considerable quantities of phosphate of lime.

The very comminuted state of the bones rendered the examination difficult, and it was impossible to arrive at a precise conclusion.

Case No. 1 contains distinctive portions of the remains of six individuals—probably four males and one female, and a young person.

Enclosed separately will be found:—a considerable number of teeth (I think I can make up five distinct sets almost complete, and all in excellent preservation); a portion of the shaft of a femur, the head of another, and portions of a very thick skull—the remains of a male of very considerable proportions.

Case No. 2 contains those of two individuals, male and female probably: enclosed separately are the portions of a very thick skull.

Case No. 3 contains those of at least ten individuals *, one of whom, I should say, had reached an extreme age: enclosed separately are the condyloid ends of two femurs, representing a skeleton of gigantic size, and a portion of a thick skull.

Case No. 4 contains those of four individuals: this case possesses nothing of any note.

Case No. 5 contains those of two individuals. These bones appear to me to be of far greater antiquity than any of the others, and seem to have been a distinct interment, probably male and female. Judging from the various stages of decay in some of the other cases, I am strongly of opinion that the interments took place at different intervals.

I remain, dear Sir, yours faithfully,

(Signed) D. Morton Douglas, L.R.C.P., M.R.C.S.L.

EXPLANATION OF PLATE XXVII.

Plan of the Park Cwm Tumulus, in the Peninsula of Gower, Glamorganshire—the property of H. H. Vivian, Esq., M.P. Scale 16 feet to 1 inch.

The following paper was then read by the author:—

XXXIX. *On the* Opening *of* Grime's Graves *in* Norfolk.

By the Rev. William Greenwell, M.A., F.S.A.

The small town of Brandon, in the county of Suffolk, is, with one exception, the only place in England where the manufacture of gun-flints is still maintained. This is principally due to the abundance of flint, of a superior quality, which the Upper Chalk of the neighbouring district supplies. The town is situated on the River Ouse, there forming the boundary between the counties of Norfolk and Suffolk; and the locality has been, in various ages, the abode of people who have used flint extensively, though for very different purposes. The drift-gravel, found at levels of greater or less height in the valley of the river, has been most prolific in implements of the time when man was occupying the country together with many extinct

* These bones were found in the central avenue.

mammals. These beds, worked for road material, at Thetford, Downham, Broomhill, and Brandon Fields, have afforded an almost endless store of palæolithic implements, as the cases of many a museum bear witness. In very much later, but still in prehistoric times, the district was occupied by a large population, as is shown, amongst other indications, by the numerous articles of flint lying scattered upon the surface of the ground. In a country like that in question, where the soil is an infertile and drifting sand, it appears difficult, at first sight, to account for its having been so extensively occupied in those early days—an occupation which continued throughout Roman and Anglian times. Without taking into consideration the supply of flint, in itself a mine of wealth to a stone-using people, the isolation, and therefore defensible position of the locality, was, probably, one reason why it became the place of habitation of a numerous population. To a great extent it is separated from other parts by the Fens, which, under any circumstances, must always have presented a strong barrier against attack from the west and north. Besides the defence afforded by the Fens, they provided, in their forests and swampy thickets, a constant supply of game—one of the principal requirements in any place of abode selected by a people who to some extent subsisted by the chase. The country was then, as it is still, a very paradise of the hunter, whether the necessity of existence was the motive which impelled him to the exercise of his craft, or he was prompted thereto merely by the love of sport. The deer, the swine, and the ox were the wild animals which then rewarded the hunter's toil, now replaced by the hare, the rabbit, the pheasant, and the partridge.

As has already been stated, implements of flint, most of them belonging to the neolithic age, are found scattered over the surface of the ground throughout the whole of the locality in question. There are some particular sites, however, where such articles, together with large numbers of chippings and cores of flint, imperfect and broken implements, and the tools with which they were fabricated, are discovered in still greater profusion. One of these is situated about three miles N.E. of Brandon, and one mile north of the River Ouse, at a place called Grime's Graves, in the parish of Weeting and county of Norfolk. It is evident from the quantity of refuse pieces of flint, and the numerous fabricating-tools still remaining at the spot, that it was the place where a manufactory of flint implements had been carried on; and the purpose of this paper is to give an account of the examination of the pit-workings there, from which the material itself was obtained.

Before describing the pits themselves and the way in which the

Fig. 1

Fig. 2

Fig. 3

Fig. 4

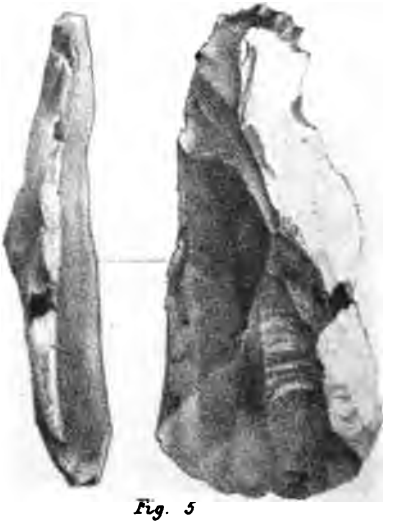


Fig. 5

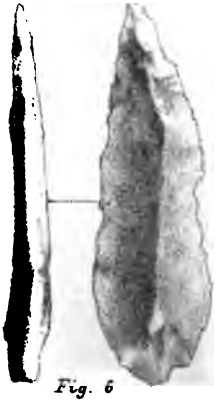


Fig. 6

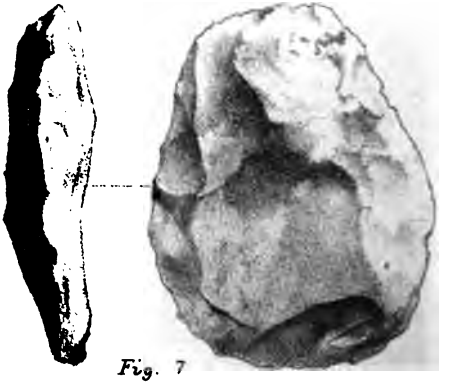


Fig. 7

FLINT IMPLEMENTS FROM NEAR CRIMES GRAVES

½ actual Size

flint was worked, it may be well, in the first instance, to give some account of the implements, whole and broken, and of the articles in flint and other stone, found on the fields immediately adjoining to the pits. This appears to be necessary, because there can be no doubt that in them we have the result, to some extent, of the operations of the people who quarried the flint; and we may thus gain a knowledge of the implements they fabricated, and by that means arrive at some conclusion as to the period during which the pits were worked.

By far the larger number, as might indeed be expected, are chippings of various sizes, the refuse pieces struck off from the block in reducing it to shape. These are in such quantities in a field immediately to the south of the pits, that in some places it is scarcely possible to put the foot down without treading on one. The next most numerous article is what at first sight might be taken for a round core, the remainder-piece left after all the flakes suitable for implements had been struck off. On a more careful examination these appear to have been chipped into shape by design, and to have been intended for hammers, to break up the flint and to flake it with; and many of them show, in their battered edges, the signs of a long-continued use for some such purpose. They were also probably used for splitting the chalk in the course of sinking the shafts and making the galleries to be described in the sequel.

Of such articles as may be denominated implements, the most frequent one is somewhat in the form of an adze (Pl. XXVIII. figs. 4 & 5). The greater part of these were broken; but a few perfect specimens have been found. The cutting-edge is not equally bevelled on each side as in an axe, but flat on one side and more or less convex on the other, thus having the shape best adapted for the purpose to which an adze is applied. These tools may have been intended to quarry the chalk on the spot, and may also have been used as hoes in cultivating the ground. I think it highly probable that stone implements of the axe and adze form have served a double purpose, in the manufacture of wooden articles and in the processes of agriculture. Those in question vary considerably in size, and range from 4 inches to 8 inches in length.

The ubiquitous scraper, round and oval, is abundant, and attains to a large size, some being as much as 3¼ inches in diameter (Pl. XXVIII. fig. 7).

Drills or tools for boring are not unfrequent: most of them are very rough, though showing evident intention in the shape; but some have been carefully finished by elaborate chipping (Pl. XXVIII. fig. 3).

A few knives (Pl. XXVIII. fig. 1), or what may have been

used for skinning and cutting, have occurred; and I found two implements, looking very much like the heads of spears or javelins: the one is hollowed out at the but, and approaches to the barbed form (Pl. XXVIII. fig. 2); the other is of an elongated leaf-shape (fig. 6). Besides these several weapons and tools, there are many enigmatical articles to which it is impossible to assign either use or name.

All these implements have merely been chipped into shape, and I have not met with one from the immediate neighbourhood of the pits which shows any trace of grinding.

Besides the articles of flint, numerous water-rolled pebbles of quartzite and other stone are abundantly found, showing in the bruised ends and sides that they have been used as hammer-stones, and principally, no doubt, for flaking flint, for which purpose, from their hardness and toughness, they are well adapted.

Though all these different implements, cores, and chippings are discovered for some distance round the pits, they become more frequent the nearer the pits are approached, indicating, as indeed might be expected, that the principal manufacture went on close by the place where the flint was procured.

This place, consisting of a large assemblage of pits, is called Grime's Graves. They are situated in a wood, upon ground sloping slightly towards the north, and are about 254 in number, placed in an irregular fashion, generally about 25 feet apart, and covering a space from 20 to 21 acres in extent. It does not appear necessary to enter into the etymology of the name, further than to mention that the place is in the Hundred of Grimshow, the first part of both words being taken either from Grime-an, a witch (and this is the more probable origin), or from some Scandinavian possessor of the district called Grim—a name by no means uncommon, and which is found in Grimsby, Grimsthorp, and other places. There is a Grimsdyke in Hertfordshire and Buckinghamshire, another in Wiltshire, a third in Essex, and two in Oxfordshire. The same origin is, no doubt, to be found in Græme's Dyke in the south of Scotland. Another name of the same being who gave this designation to these various earthworks occurs in combination with Dyke in the Devil's Dyke. The English inhabitants, who were ignorant of the origin and purpose of the pits, attached the name of Grim to them, either taking it from the hundred, or giving it to the pits themselves in the first instance. However this may be, they called them Grime's Graves, that is, Grim's diggings or pits.

At the east side of the collection of pits is a mound, which has figured as a speculatorium, and a barrow; for Grime's Graves have been taken to be a British village, a Danish encampment, and

other equally impossible constructions. The mound was cut through by the Norfolk Archæological Society, when nothing was discovered except a piece of a red deer's antler. It appears to be nothing more than a heap of the material taken out of one of the pits, possibly from the first that was opened, and when there was no other way of disposing of it, there being no existing excavation into which to throw it.

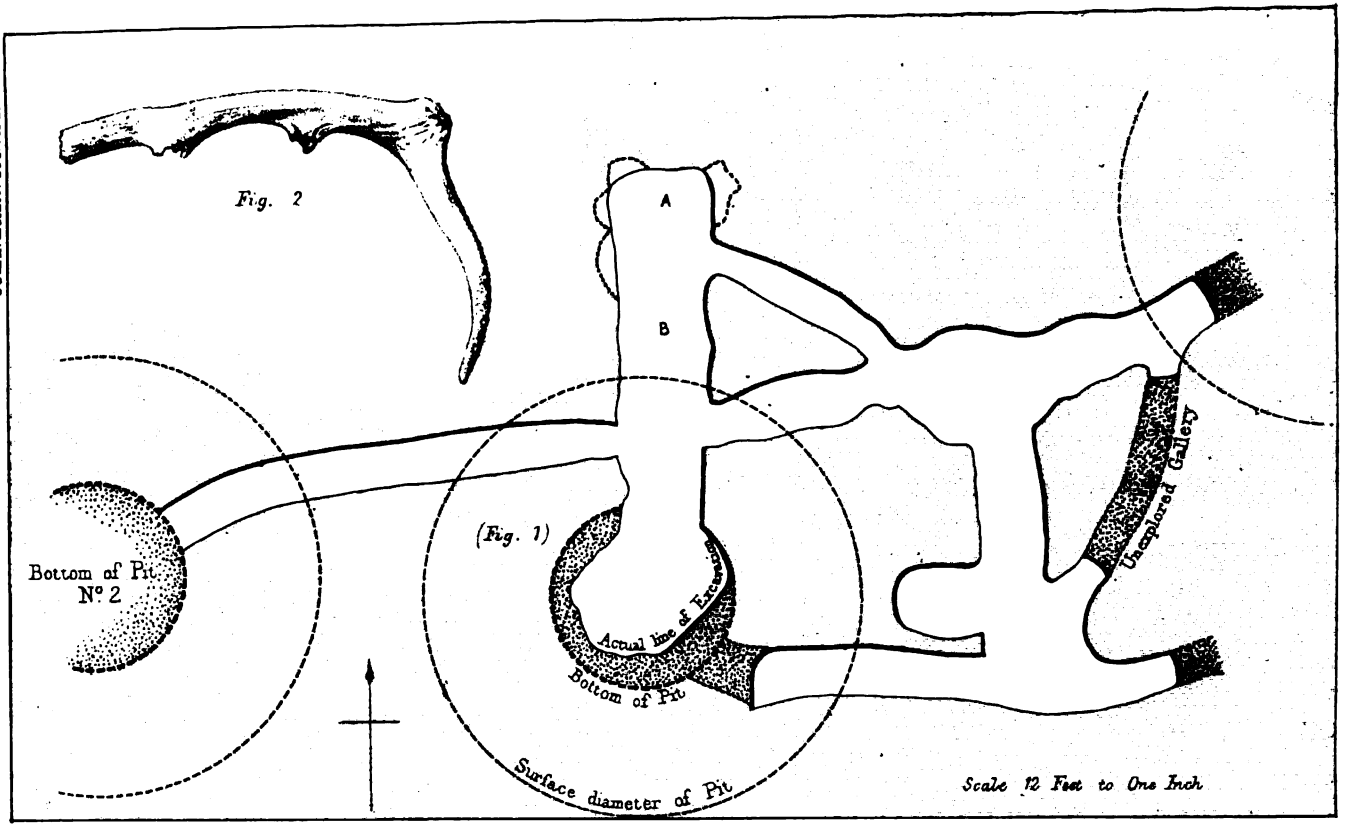
The pits are circular, and vary in diameter from 20 feet to 65 feet. In some cases they have run together, and form irregularly shaped hollows. This is probably caused by the falling in of the roof of the galleries, to be hereafter described, by means of which the ground between two or more pits has settled, and so destroyed the original outline. They have all been filled in to within about 4 feet of the surface, and present the appearance of a series of bowl-shaped depressions, having in some instances a slight mound round the edge, due to some of the excavated material not having been thrown back into the pit when it was filled in.

Having thus briefly introduced Grime's Graves, it becomes necessary to give a detailed account of the way in which they have been made, as shown by the opening and examination of one of them, as well as of the various manufactured and other things discovered during the operation.

The pit which was opened is situated on the east side of the series, near the extreme edge, and almost in the south-east angle of the space occupied by the pits. It is rather under the medium size, being 28 feet in diameter at the mouth, and gradually narrowing to a width of 12 feet at the bottom, which is 39 feet below the surface. It is cut through a deposit of dark yellow sand, 13 feet in thickness, here overlying the chalk. Interspersed at various places in the sand are irregular-shaped nodules of flint, of a coarse texture and not well fitted for the fabrication of implements. The chalk upon which this bed of sand rests has also, in the upper part, similar nodules of flint placed after the same fashion as those in the sand; but at a depth of 19½ feet from the top of the chalk a regular stratum of flint of a somewhat better quality occurs. This is called by the present flint-workers the "wall-stone," from its being used for building-purposes, and is not well adapted for the manufacture of gun-flints, on account of its want of fineness of grain, and from not possessing sufficient hardness to enable it to resist a continued percussion against steel. It was, however, used to a considerable extent by the people who made the pits, as is shown by the chippings, cores, and other articles made from it, found on the surface of the adjoining ground. In the pit itself, though much of it had been thrown back again unmanufactured, several

flakes were nevertheless discovered, evidencing its having been made use of in the fabrication of implements. At a depth of 7½ feet below the stratum of wall-stone, and 39 feet below the surface of the ground, a second bed was met with, called by the workmen the "floor-stone," and now worked for the material from which gun-flints are manufactured. The flint in this bed has an average thickness of about 7 inches, and is of the best quality in every respect. Though found at a much greater depth than the same stratum about a mile to the S.W., where it is now being worked for flint-knapping, it has more than twice its thickness, and is of finer grain and closer texture; and it is not improbable that the ancient workings were established at the place on account of these qualities in the flint.

It has already been mentioned that the pits have all been filled in to within about 4 feet of the surface. This seems to have been done by throwing into an open shaft the waste materials taken out of one or more pits in course of being excavated. By doing this the sand and chalk were at once removed out of the way, so that, if there was at any time a necessity to sink a shaft near to a former one, it might be done without incurring the additional labour of cutting through the *débris* from the pits. If the material taken out of the shaft and galleries had been left round the edge, the access to the workings would have been made more difficult. The shaft which I reopened had been filled in, apparently, from more than one pit; for the way in which the different materials were placed in it was such as could scarcely have happened if all had been taken from a single pit. The filling in for about 18 feet from the bottom was almost pure chalk, taken from that part which lies between the two beds of flint. Above that was a considerable thickness of sand, intermixed with flint nodules and some pieces of chalk; then came a deposit of chalk and flint chippings, in some parts of which the flint chippings very much preponderated; after that was chalk rubble, then sand, and at the top chalk rubble again. All these various deposits were so irregular that they could not be measured with any exactness; and in many cases a mass of chalk rubble at the centre did not extend as far as the sides of the pit, whilst in others it only reached from the side to near the middle. The whole appearance favoured the opinion that the pit had been gradually filled in, the operation being a work of considerable time. This impression was further confirmed by finding numerous animal bones (most of them broken to extract the marrow), charcoal, burnt sand, chippings and cores of flint, pebbles for flaking, tools of deer's horn, and other articles, to be specially mentioned in the sequel. These were found scattered indiscriminately throughout the whole of the material which filled in



GRIME'S GRAVES

the pit. The quantity of charcoal was not very great; but at one place, close to the east side and at a depth of 28 feet, a layer of charcoal and wood ashes was found, 4 feet in width, and extending for a distance of 5 feet towards the centre. It appeared as if a fire had been lighted on the spot; for the chalk and flint below and in immediate contact with it were partially calcined. It is difficult to account for the occurrence of a fire in such a position, removed as it was at so great a depth from the surface; but it is scarcely possible to understand how the underlying chalk became burnt in the way it was, unless a fire had been lighted there; for the throwing in of hot embers could not have calcined the chalk to the extent in which it was found.

Having noticed, by way of introduction, those secondary questions which appeared to require some explanation, it now remains to describe how the flint itself was worked out by the prehistoric people who made the pits. The process differs in some respects from that adopted by the present flint-raisers. The ancient workers sunk a circular shaft, gradually decreasing in size to the level of the stratum of the best flint, passing through the upper layer of the so-called wall-flint, but not removing any of that bed beyond what occurred within the limits of the shaft itself. When the floor-flint was reached, it was worked out to the extent of the pit; and then galleries were excavated in various directions upon the level of the bed of flint. In order that sufficient height might be obtained to enable the workmen to extract the flint, a considerable quantity of the overlying chalk has been removed, the galleries being on an average about 3 feet in height, though in some places the roof was 5 feet high. Their height, however, is very irregular, owing in some measure to the manner in which the chalk roof had given way in some places more than in others. In no case was any of the chalk below the flint bed removed—a practice contrary to that of the present workmen, who, in making their galleries, excavate the chalk both above and below the flint. The galleries vary in width from about 4 feet to 7 feet; and the flint was worked out beyond their sides as far as was practicable without causing the roof to give way. The position of the galleries will be better understood from the plan (Pl. XXIX. fig. 1), which shows their ramifications and the way they run one into another, than by description in words. I had not time to examine them to the full extent of the workings; but they no doubt connect all the shafts. A side gallery (2), proceeding from the first gallery opening out of the pit which I examined, was found to extend for a distance of 27 feet to the west, where it ended in a pit, which still remains filled in. Nor can there be much doubt that the whole space occupied by the pits is a complete network of gal-

leries, and that, if the chalk rubble were taken out of them, it would be possible to travel underground over the space in question. To do this would be a work of great labour; for as one gallery was worked out, it was filled in again with the chalk excavated from other galleries, so that nearly the whole of them are now filled up with rubble.

There were no steps cut in the side of the pit, or any provision of that kind for obtaining access to the galleries; so that the workmen must either have been drawn up by ropes, probably of hide, or have ascended by means of a ladder, which, if such was the case, was most likely made by cutting notches in a tree-stem.

The principal instrument used, both in sinking the shaft and in working the galleries, was a pick (Pl. XXIX. fig. 2), made from the antler of the red deer, numerous examples of which were found in the shaft at various depths, and in the galleries. The pick, almost identical in form with that, of iron and wood, used by the present workmen, was made by breaking off the horn, at a distance usually of about 16 or 17 inches from the brow end, and then removing all the tines except the brow tine. The process of dividing the antler and breaking off the tines had been made more easy by partly burning the horn at the places where it was desired to divide it, most of them being partially charred at those parts. There were very slight indications of any of them having been cut through; but one antler from a slain deer, having part of the skull attached to the horn, it had been attempted to make more handy by cutting off the piece of skull. This has evidently been done by flint flakes; and the work proving too hard, the piece of skull still remains attached to the antler, with the ineffective and irregular cuttings still upon it. Another antler, which had the brow tine projecting from it at an inconvenient angle, has had it removed by making a shallow groove at the base of the tine, and then snapping it through.

These tools had been used both as picks and as hammers, the point of the brow tine serving for a pick, and the opposite part of the brow acting as a hammer, to break off a projecting piece of chalk or flint, the adjacent parts of which had been previously removed by the tine. Nearly the whole of the tools show signs of use, in the splintered extremity of the tine and in the worn and battered brow; and numerous cuts upon the horns give indications of the sharp edge of the fractured flint having come into contact with the pick and hammer part of the antlers. In one instance a piece of flint was firmly fixed in the back of the horn, where the appearance showed that it had been used in splintering the flint. The marks of both pick and hammer were thickly scattered over the walls of the galleries, and appeared as fresh as if made but yesterday.

Fig. 1. ⅓

Fig. 2. ⅓

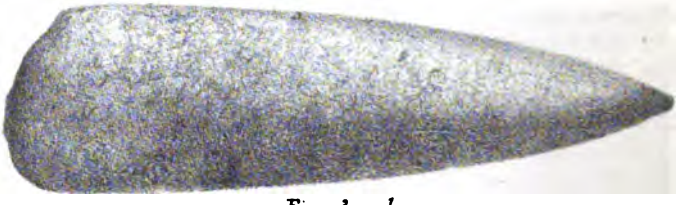


Fig. 3. ¼

Fig. 4. ⅓

The chalk had also been excavated by another implement, one of which was found in the first gallery, 4 feet from the entrance. It is a hatchet, of basalt (Pl. XXX. fig. 3); and the marks of its cutting edge were plentiful on the chalk sides of the gallery in which it was discovered.

A very striking occurrence in connexion with the working out of the flint was met with at the end of the first gallery, 20 feet 8 inches from its mouth. The roof had given way about the middle of the gallery, and blocked up the whole width of it to the roof. On removing this, and when the end came in view, it was seen that the flint had been worked out in three places at the end, forming three hollows extending beyond the chalk face of the end of the gallery. In front of two of these hollows were laid two picks, the handle of each towards the mouth of the gallery, the tines pointing towards each other, showing, in all probability, that they had been used respectively by a right- and a left-handed man. The day's work over, the men had laid down each his tool, ready for the next day's work; meanwhile the roof had fallen in, and the picks had never been recovered. I learnt from the workmen that it would not have been safe to excavate further in that direction, the chalk at the point being broken up by cracks so as to prevent the roof from standing firm. It was a most impressive sight, and one never to be forgotten, to look, after a lapse, it may be, of 3000 years, upon a piece of work unfinished, with the tools of the workmen still lying where they had been placed so many centuries ago. Between the picks was the skull of a bird, but none of the other bones. These two picks, as was the case with many of those found elsewhere, had upon them an incrustation of chalk, the surface of which bore the impression of the workmen's fingers, the print of the skin being most apparent. This had been caused by the chalk with which the workmen's hands became coated, being transferred to the handle of the pick.

The galleries extended so far beyond the side of the shaft, that it is impossible they could have been excavated without the aid of an artificial light; and it is probable that some rudely made cup-shaped vessels of chalk had been used for lamps. Four of them were found, one in the pit (Pl. XXX. fig. 2), the others in the galleries, in one case placed upon a ledge of the chalk just in the proper position for throwing light upon the place being worked. The only objection to their having been lamps is the absence of any staining, either from the smoke of the wick or the oil or tallow which, if used as lamps, they must have held. They can scarcely, however, have fulfilled any other purpose; and during the long interval which has elapsed since they were left in the pit any discoloration arising from the

stain of fatty matter would probably have disappeared; and if the wick floated on the oil, there would be no remains of its smoke upon the side of the vessel.

I now purpose to give a fuller and more detailed account than has yet been done of the various manufactured articles found in the shaft and galleries, and of the circumstances under which they occurred. The first place is due to the picks, of stag's horn, both on account of their number and from the primary importance they claim as the implements with which the work of excavating the chalk and flint was performed. These tools were found in great abundance, as well in the shaft as in the galleries, and sometimes lying many of them together, in one instance to the number of eight. With two exceptions, they are all made from the lower part of the antler, after the fashion already described; and they vary in length from 14 to 20 inches, the greater number being about 16 inches long. The brow tine used for the pick-end had a length of 11 inches in one case, whilst in others it was worn down by use to a point not above 3 inches long. The exceptional tools have been made from the cup-end of the antler, one tine being used for the handle and another for the pick. None of these tools were found until the pit was cleared out to a depth of 17 feet; but from that point to the bottom they occurred here and there indiscriminately. There were more, however, in the galleries than in the shaft. The whole number was 79, many of them much decayed and broken; of these only 11 were antlers from deer which had been killed, the rest being all shed ones. The animals to which they belonged had most of them been of large size, and much beyond the average of the present Scotch red deer. In this they correspond with the antlers found in the Fens, and show that the deer in those times attained a greater size, and probably, as a rule, lived to a greater age. This is only what might be expected; for the red deer is now confined to a small area in Britain, and that of a high elevation, and almost entirely devoid of any vegetation except ling and very coarse grasses, whereas in prehistoric and much later times it occupied a country abounding in wood, and possessing a much more varied and nutritious flora than is now possessed by the Highlands of Scotland. The large number of tools found in the workings, apparently thrown aside, many of them when scarcely used at all, implies a great abundance of deer at the time, whilst the relatively small proportion of antlers of slain deer to the shed horns would lead us to believe that the capture of the animal was not an easy task. It is, I understand, by no means common to find shed horns, even where deer are plentiful; and when the abundance of them found in the pit is considered in connexion with this fact, a very strong

impression of the plentifulness of the animal in the district is conveyed. One of the largest of the horns measured 9 inches round its base, immediately above the brow. Besides the picks, there were thirteen of the cup-end of the antler, and many whole and fragmentary tines, the remains of damaged tools, or of tines broken off in shaping out the picks. The tines, except in two or perhaps three instances, where they have been partly cut through, have been simply snapped off. Many of the picks showed that they must have been continued in use for a long time before they were thrown aside; for the horn was worn quite smooth in those parts where the workmen's hands had come into contact with it.

Two other implements of bone were discovered in the shaft:—a pin or awl, 4½ inches long, at a depth of 17 feet, made from the fibula of some small animal, probably a roe deer, split and then rubbed to a point; and a rounded piece of bone 4¼ inches long, and 1 inch in circumference, carefully rubbed smooth, and showing signs of use at the ends. It may possibly have been a tool for making pottery, or an implement for taking off the lesser flakes of flint, in making arrow-points and other small articles. It somewhat resembles, though longer, the piece of deer's antler, inserted into a handle of wood or fossil ivory, used by the Eskimo for flaking.

It has already been mentioned that a hatchet of basalt was found in the first gallery, and that the marks of its cutting edge were distinctly seen upon the sides of the gallery, showing that it had been used in excavating the chalk. It is of a type not commonly found in East Anglia, but very usual in Yorkshire; and it appears strange that, flint being so plentiful, a hatchet of any other material should have been used. I shall have occasion to revert to this fact in the sequel, when the question of the people who worked the pits is considered. It is 7½ inches long, 2½ inches wide at the cutting edge, the other end being sharply pointed. In one of the pits, at the opposite side of the series, which Lord Rosehill partially examined, two rude adze-shaped tools of flint were discovered, showing that the material at hand was occasionally used in working the chalk.

Numerous water-rolled quartzite and other pebbles were found in the pit, at various depths, abundance of which, coming out of the boulder-clay, are scattered over the surface of the adjoining ground. Fourteen of these showed, in their bruised ends and sides, that they had been used as hammer-stones, and probably for flaking flint, for which purpose, as I can testify from experience, they are well adapted (Pl. XXX. fig. 1). They are quite small, one being not above 1½ inch long, and they could not, on account of their want of weight, have been used for breaking up

either the chalk or the flint whilst in the bed. Besides these stones, seven large rounded cores of flint occurred, which also showed signs of having been used for hammering (Pl. XXX. fig. 4). From their size and weight they might have equally served for taking off large flakes, or for breaking the chalk and flint in the block. Similar round cores are found abundantly on the surface of the adjoining fields, and have the same appearance of having been used as hammer-stones. At the end of the second gallery a peculiar-shaped flint nodule was discovered, which is very like a cat's head. It has been used as a hammer, and is most conveniently formed for the purpose.

Some cup-shaped vessels made of chalk have already been referred to as being probably lamps. Of these, three, almost complete, and a fragment of a fourth, were found. One of them and the fragment occurred in the shaft, at a depth of 26 feet, another on a ledge at the end of the second gallery, and the third in a gallery branching from the east side of the first one. They have all been fashioned and hollowed with flint flakes; and the marks of the cutting are as distinct upon them as when they were first made. They are rudely formed, circular, with a flat bottom; one is about 2¼ inches in diameter, another about 2½ inches, the first being 1½ inch high and the second 2 inches; the cup part in each is not quite an inch in depth; the third one is rather larger and much more irregularly formed.

Some other articles of chalk were found, the use of which it is almost impossible to determine. One is a roughly shaped, flat and thin piece, pierced by a hole about the middle, which has been drilled from each side. But for the softness of the material, it might be taken for one of the so-called tool-stones found not unfrequently in Ireland, though more rarely in England. It occurred at a depth of 18 feet. Another is not unlike part of a human leg or arm. The marks of cutting, probably with flint flakes, are distinctly seen upon it; and the broken ends show that it formed part of a larger article; the present length is 10 inches, and it is 14 inches in circumference. A third may have been part of a finger; it is 1½ inch long, 2½ inches in circumference, and is only a fragment.

The most remarkable piece is a representation of the glans of a human penis, which has evidently been broken off from the whole member. It is very well carved, and appears to have been modelled from life, the anatomical features being rendered with an accurate knowledge of the parts. These three last articles were found not very far from each other, and at a depth of about 31 feet. It is not impossible that they may have formed part of a whole figure, though it might scarcely have been expected that the people who worked the flint had arrived at so advanced a

stage in art as the sculpturing of a life-size human figure implies. People, however, who were certainly living under ruder conditions have exhibited marvellous skill in sculpture, and that too in relief, so that we need not deny to these early inhabitants of Norfolk a power of imitation which has been widely diffused even amongst savage races.

But if the opinion which attributes these pieces of carved chalk to the remains of a statue must be rejected, I should not be inclined to assign any religious significancy to this penis, or to regard it as an evidence of phallic worship, but rather consider it the production of some ancient workman who had no further intention, when he carved it, than the artists who, in a very inferior style, depict the same member upon our walls and palings.

A number of animal bones, principally broken so as to extract the marrow, were found scattered amongst the materials which filled in the pit. They were discovered from within 4 feet of the top to a depth of about 28 feet, but beyond that point and in the galleries they were absent. I am indebted to the kindness of Mr. W. Boyd Dawkins, F.R.S., for their identification. The animal whose bones are the most numerous, putting aside the red-deer antlers, is the ox, of a small species, probably *Bos longifrons*. A very remarkable and instructive fact connected with these ox-bones is their being to a great extent those of very young calves. It would appear from this that a principal element in the food of these people was milk, and therefore they could not afford to keep the calves, which must have consumed a large portion of what would otherwise have been available for the use of the household. The herbivorous animal whose bones are next in order of number is the goat or sheep, followed by the horse and pig, and, after a long interval, by two bones of the red deer. Of the carnivora, the only animal whose remains were found was the dog. Bones of several individuals were discovered, all of them having been old when killed; and it is not improbable that when they were no longer, on account of their age, of much use for hunting, they were then made to serve for food.

The bones were all of domesticated animals, a fact which proves that the people who worked the flint had passed beyond the hunting stage. A similar condition of things prevailed on the Yorkshire Wolds at the time of the erection of the barrows there; and an examination of a large series of animal bones from those burial-mounds shows that scarcely any are of wild animals.

From the fact of these various bones, hammer-stones, cores, and chippings of flint being placed indiscriminately amongst the materials which filled up the pit, we may conclude that the

people lived close by the mouth of the shaft. If this was the case, the remains of their food and the waste pieces of the flint struck off or left unworked in the process of manufacture would naturally be thrown into the adjoining pit, which was being gradually filled up by the chalk and sand taken out of other shafts. The shafts must have remained open at different levels for a considerable time, and would be most convenient places for the depositing of rubbish of all kinds; and it is surprising that more numerous and varied articles were not discovered in the pit which was examined. The absence of such things in the shaft may be accounted for on the supposition that it was an accident incidental to that especial pit, or that the people who worked the flint were not in possession of many implements and utensils. The not finding any remains of pottery is very remarkable, because, from its fragile and yet indestructible nature, it is one of those things which usually marks the site of habitation longer and more abundantly than almost any other article. It is impossible to believe that these people were ignorant of its use.

Until the examination of the pit at Grime's Graves, no ancient workings for flint have been explored in England with reference to their former purpose, though there can be no doubt that many similar places exist throughout the whole of the flint-bearing districts of the country. There are two instances in the county of Norfolk where discoveries have been made, indicating the existence of workings of the same character as those at Grime's Graves. One is situated only a few miles distant to the north-east, at Buckenham, where, in cutting a deep drain to carry away the sewage from the house, at a depth of 18 feet, some hollows were discovered in the chalk. At the time these were supposed to have been the hiding-places of smugglers; but there can be no question that they are ancient flint-galleries. Many deer's antlers were found in them, which, from the description I have heard, corresponded with the picks already described. At Eaton, close to Norwich, deer's antlers, broken off in a similar way to those at Grime's Graves, were met with amongst chalk rubble; but they do not appear to have excited any attention, having been regarded as ordinary shed horns, which had not been made use of by man. It seems probable that the chalk rubble in question was the filling-in of shafts or galleries, and that the site of an old flint-quarry was there met with. In much later days, Norwich was earlier the seat of a gun-flint manufactory than Brandon; and the trade still lingers in the neighbourhood of the city.

Many pits in the chalk have been known for long, or have been discovered from time to time, in the counties of Essex, Hertford, Kent, and Sussex, which it is needless to specify; and

many different conjectures as to their use have been hazarded. Some of these will, no doubt, prove to be prehistoric flint-workings; and it is to be hoped that they will all receive a careful examination, with the view of testing this explanation of their use. The extensive series of pits within the camp at Cissbury, so fully described by Colonel A. Lane Fox in the *Archæologia*, will probably be found to be the place whence the flint was obtained, as they certainly are the site where it was manufactured. The Pen Pits, in Wiltshire, described by Sir Richard Colt Hoare, Bart., may have had their origin in a similar process of mining; and there are other hollows like them in the same part of England, which may have to take a place in the same category.

In Belgium, however, the site of a flint-manufactory and the workings from which the material was obtained have been carefully examined. The neighbourhood of Spiennes has long been known to abound not only in chippings and cores of flint, but in implements, whole and fragmentary. The greater part of the implements found there are unground; but a few ground ones have occurred. These various articles have been discovered on the surface of the ground. In the year 1842 the ancient workings were first noticed; and the mode in which the flint was obtained, by a system of shafts and galleries, is very similar to that of Grime's Graves. Many tools of deer's horn were found in the workings, but not of the same form as those from the pits in Norfolk. The Spiennes tools have been made by cutting off the horn just above the brow tine, which has been left on, apparently to serve as a handle. They must have been used as hammers rather than as picks, and they are by no means such efficient implements as are those from Grime's Graves. The chalk in the Spiennes workings seems to have been excavated principally with tools made of flint, many of which were found in the pits and galleries there. As was the case at Grime's Graves, a single pin or awl of bone was discovered at Spiennes, where specimens of pottery, coarse and badly baked, occurred in abundance*.

The question remains for consideration, Who were the people who worked the flint at Grime's Graves, and when did that work go on? There have been only two periods during which flint of the quality found there has been quarried as extensively as these workings imply. One is the age when stone was the material used in the fabrication of weapons and cutting-implements; the other and much later one, when it was used in the manufacture

* Alphonse Briart, Florent Cornet et Auguste Houzeau de Lehaie, "Rapport sur les Découvertes Géologiques et Archéologiques faites à Spiennes en 1867," Mémoires, &c. de la Société des Sciences, des Arts &c. du Hainaut, année 1866–7 (Mons, 1868), p. 355.

of gun-flints. It is evident that the latter period was not that when these pits were excavated; for the animal remains alone point to an earlier one, without taking into consideration the fact that, since the invention of firearms, flint and chalk have never been quarried by other tools than those of iron. There remains, then, the period during which stone was used for weapons and implements. This period, no doubt, was to a certain extent contemporary with the age when bronze was also in use for certain articles. But before that time a pure stone age had prevailed, when no metal, except perhaps gold, was known. To this earlier period, the Neolithic, I think these extensive workings must be referred. The quantity of flint that has been obtained from the pits at Grime's Graves is so great, and the supply of material for implements was so very large, that it is difficult to understand how operations on a scale so extensive could have been required when the use of stone must have been, to a great extent, superseded by metal. During the time when both stone and metal were in use, flint was required more for smaller weapons, such as arrow-points, and for articles like scrapers, saws, and knives, than for larger implements such as hatchets. The perforated stone axes, which were no doubt in use together with bronze, are never made of flint. We may regard these workings, then, as belonging to the neolithic age, when metal was unknown, but when the grinding and polishing of stone was understood. The palæolithic age, when flint was most extensively used in the same district, cannot have been that of the working of these pits; for, apart from the fact that nearly all the drift implements have been made from surface flints, and those generally not belonging to flint of the quality obtained at Grime's Graves, the greater part of the animal-remains found in the pit do not belong to the fauna of the drift, nor were any bones of the most characteristic animals of that period discovered there.

The time occupied in working the whole series of pits and galleries must necessarily have been a long one; for even with a large population such extensive operations could not have been undertaken in a short period. There could scarcely, however, have ever been a large population settled in the locality; for such could not have been supported—the supply of game, large though that may have been, being quite inadequate to afford food for more than a people of limited number, and pasturage for domesticated animals being very scanty and poor. The evidence supplied by the pits themselves very strongly supports the view that a long period of time must have been occupied in quarrying the flint. A single pit, with its galleries, would afford stone sufficient for the manufacture of thousands of implements, even al-

lowing for a most lavish and wasteful expenditure; and when it is considered that the pits number about 250, some idea may be formed of the enormous quantity of implements which must have been supplied by the Grime's-Graves workings alone. There is, however, good reason for believing that this series of workings is only one out of many others in the same district; and if such is the case, imagination almost fails to conceive the vastness of the supply of material for the people of the stone age provided by the chalk of Norfolk. But flint was worked by means of pits in other chalk-bearing counties, besides being obtained on the surface, and in the shape of rolled pebbles on the sea-beach; so that we have to add many other sources of supply to that of Grime's Graves and other Norfolk workings. Taking these facts into consideration, we seem to require a very extended period for the neolithic age itself, as well as for the time during which the pits in question were in operation. We have no certain factor, however, at present by which to measure that period.

Another and important question which arises is whether the flint was worked by a population in possession of the district, or by various tribes, who came there from different localities for the purpose of obtaining so essential a material for their wants. There are certain kinds of stone in North America and in Australia to which different tribes have been in the habit of resorting to obtain what they required for one purpose or another. In some instances the people of these tribes travelled from places at a great distance to that where the particular stone is found. Was a similar practice in use amongst the people of the neolithic age in Britain? A possession so valuable as an almost inexhaustible mine of flint must have been, could only have been retained by a people powerful enough to resist any attack which might have been made by neighbouring tribes, unless there was a political system so complete that the law of nations was in force in a stronger way than it was in times long subsequent to that in question. It appears unlikely that any single tribe could have been allowed a quiet possession of such a material by any common consent of the adjacent communities; and we must therefore conclude that, if these pits belonged exclusively to one tribe, the tribe in question must have been a more powerful one than any of its neighbours. We have no evidence to show how the country was subdivided at the time, if it was so parcelled out, or whether it was all in the hands of one large community or of a confederation of tribes. Be this, however, as it may, it seems on the whole more probable that the flint was the property of a single people, and not of the whole country and worked by different tribes temporarily settling at

the place from time to time. Not only would any occasional residents have found great difficulty in subsisting during the long-extended period necessary to sink shafts and work galleries, but the regular and systematic way in which the flint has been obtained seems to require a set of workmen habituated to the mode of quarrying this stone. The finding of a hatchet of basalt, of a type not usual in the district, in one of the galleries may seem to favour the view that the pits were worked by people from other parts of the country. It certainly does appear strange that if the flint was raised by a permanently resident population, a material so generally inferior to flint, and at the place so much scarcer, should have been used for making a tool to excavate the chalk. This particular tool, however, may have come into the hands of the workmen in some accidental way; or, from being superior in toughness to flint, it may have been a more useful implement than a hatchet of that stone. This single fact, even if it does favour the view of the pits having been worked by tribes foreign to the district, is not sufficient to set against the very strong probability, on the other hand, that the flint was the property of and worked by a native population, to whom it must have been a most valuable possession.

The quantity of flint obtained at Grime's Graves, as has already been noticed, was very great; and the traffic that went on in it must have been in consequence extensive. It is, however, most difficult to say what was obtained in exchange for it in the way of barter. If the pits had been worked during the bronze age, we might understand that the medium of exchange was that metal; but, upon the whole, it seems most probable that they were in operation principally, if not altogether, before bronze was known. Gold, amber, and jet are all substances used by the people of that age, and which would have formed fitting materials for barter; and it is possible that such and other like products were exchanged for the flint. But if we are to judge by the contents of the barrows in the neighbourhood, we must attribute great poverty in such articles to the people living there. Lord Rosehill opened seven barrows near Grime's Graves, finding in them deposits of burnt bones, and those only in one case placed in a cinerary urn; but in none of them did he discover any thing associated with the interment. It is not necessary to suppose from this that the people were destitute of any thing in the way of ornament &c.; but it could scarcely happen, if they were rich in such things, that nothing of the kind should have occurred in so many burial-places as were examined. As the people who worked the flint appear to have subsisted mainly upon domesticated animals, it is not improbable that these formed the product given in exchange for the flint; and indeed,

on account of the poverty of the soil, it is not easy to understand how any large quantity of domesticated animals could have been permanently reared and sustained in the district.

EXPLANATION OF PLATES XXVIII. TO XXX.

PLATE XXVIII.

Fig. 1. Flint implement resembling a knife: ½ size.
2. Ditto, resembling a spear-head: ½ size.
3. Ditto, used as a drill or boring-tool: ½ size.
4 & 5. Ditto, somewhat in the form of an adze: ½ size.
6. Ditto, resembling a spear-head: ½ size.
7. Flint scraper.

All the objects figured in this Plate were found in the fields near Grime's Graves, Norfolk.

PLATE XXIX.

Fig. 1. Plan of the workings for flint at Grime's Graves, Weeting, Norfolk. Scale 12 feet to 1 inch.
A. Place where the picks were found.
B. Spot where the roof fell in.
2. Pick made of antler of the red deer, found in one of the galleries at Grime's Graves.

PLATE XXX.

Fig. 1. Quartzite pebble with bruised end, showing that it had been used as a hammer-stone: ½ size.
2. Cup-shaped vessel formed of chalk, and probably used as a lamp: ½ size.
3. Basalt hatchet employed in excavating the chalk: ½ size.
4. Core of flint which had been used for hammering: ½ size.

All the objects figured in this Plate were found in the excavations at Grime's Graves.

DISCUSSION.

Mr. J. W. FLOWER observed that, having been present for several days during Canon Greenwell's explorations, he could testify to the great accuracy of the details which had been given. He remarked that the history of the little town or village of Brandon was particularly interesting to ethnologists, as showing for what vast periods of time the geological condition of a district may influence the occupations, and through them (in a certain limited sense and degree) the condition and character of successive races. Notwithstanding that this town is situate in a very bleak and barren district, it has evidently been a place of considerable resort from a very remote period—a circumstance which can only be attributed to the abundance and good quality of the flint found here. First, we have here the flint implements of the drift, of which Mr. Flower had collected, in and near the town, a large number of characteristic and fine specimens; in fact, this deposit was just as prolific as those so well known, and so often described, in the *Somme* valley; and although he was unable to accept

the opinion held by Sir John Lubbock and other able writers, that the implement-makers were contemporary with the elephants and other animals, of which the teeth and bones were sometimes found in the same gravel, still it could not be doubted that the implements were of extreme antiquity, as evidenced by the great geological changes which must have taken place since they were fabricated, and which resulted in covering them with prodigious masses of sand and gravel.

Next in order, although probably by a very long interval, came the people, whoever they were, who excavated the pits at Grime's Graves to procure flints for making scrapers and other implements, which, however, were of an entirely different character from those of the drift. These people were evidently ignorant of the use of metals; but they seem to have been far in advance of the men of the drift-implement period, since they were able, as Canon Greenwell has shown, to excavate the chalk to the depth of 50 feet, and then to form a series of galleries or shafts. The bones of the red deer, of which so many had been found, afforded no satisfactory evidence as to the age of these workings, since, although extinct for several centuries, they abounded in the country lying to the north-west (which was then an extensive forest but is now a fen) until as late as Edward the First's reign.

That the Ancient Britons or Celts came to Brandon is evident from the name *Bran-*, from *am* or *an*, Celtic for a river or stream, with *Br* for the prefix, as in *Bran*, *Brane*, and *Brent*, ancient river names; and *dune*, a hill; that is, the "river hill," or "hill by the river," which exactly describes its situation, it being the first eminence by the riverside on approaching from the west. Upward of thirty large British cinerary urns were discovered a few years since about half a mile from the river; and in the adjoining parish of Hockwold a very large cinerary urn of glass was found, as well as many other articles, showing that the Romans had settled here in considerable numbers. In due time the Anglo-Saxons made their appearance, as well as their Danish invaders. Canon Greenwell possesses a very fine brooch of undoubted Danish workmanship lately found in the adjoining village of Santon Downham; and the Rev. Mr. Poley has another.

William the Conqueror fixed his camp here when he was besieging the Anglo-Saxons in their stronghold at Ely; and it was here, as we learn from the 'Liber Eliensis' (upon which Mr. Kingsley founded his tale of 'Hereward, the Last of the Saxons'), that Hereward, in the disguise of a potter, and calling out "Pots, pots to sell," got into the king's camp and narrowly escaped capture.

When metal superseded the use of stone for weapons and tools, the staple production of Brandon became of little value; but when firearms were invented, the demand revived, and for a long time a great trade was carried on in flint; and although, owing to modern improvements in firearms, it is no longer much used in Europe, a considerable trade is still carried on with the East—thus presenting a remarkable, and probably unparalleled, instance of manufacture and commerce carried on in our own days in an article which was made and probably sold on the same spot at what (so far as the evi-

dence goes) we may believe to have been the earliest period of man's appearance on the earth.

Col. A. Lane Fox thought that the Society might be congratulated upon the paper which they had heard from Canon Greenwell; for although other localities in chalk districts had afforded strong presumptive evidence of having been used by prehistoric people for quarrying flints, this was the first time that the object of these pits had been so clearly determined. Amongst the places mentioned by Canon Greenwell was the camp at Cissbury, which had been explored by the speaker. The pits there were of different construction, being open at the top and converging towards the bottom; but he had little doubt that they were constructed for the same object, of obtaining flints for the fabrication of implements, a large number of which were found in them. In the case of Cissbury, some clue was obtained as to the period at which the pits were constructed; for upon digging in the ditch of the rampart which surrounded the camp where the pits occur, similar implements to those found in the pits were discovered lying on the original bottom of the ditch, beneath an accumulation of some three or four feet of soil. He thought, therefore, that it was pretty clearly determined in this case that the pits were of the same or a subsequent period to the camp; and the number of flint flakes found in many of the camps on the adjoining downs confirmed this hypothesis. These pits did not appear to have been excavated with deer-horn picks, as no trace of deer-horn was found in them; he believed that flint adzes similar to those described by Canon Greenwell, were used for this purpose; and a number of these were discovered: they were found to fit the hand on one side, being worked to an edge at the other. Amongst the pits which had been attributed to this purpose, was the one near Broadstairs, which had been described by the speaker in the Journal of the Society (vol. i. p. 8); he was bound to say, however, that he had since had an opportunity of completing the excavation of this pit, and he could find no vein of flint in the chalk, such as was described in the paper as existing at Grime's Graves. This circumstance, and the fact of a number of rolled flints from the sea-shore having been brought into the pit, left him in doubt whether this pit was really constructed for flint working. Other pits, commonly known as Dane's Holes, in parts of Kent more closely resemble those described in the paper. At East Tilbury they were described as having a small entrance above, leading to several galleries below. Those at Crayford and Dartford are of similar construction. At Chislehurst the shafts are from 20 to 50 feet deep, expanding at the bottom or running into passages; the shafts are described as being filled with worked flints and the bones of animals, including those of the *Bos longifrons*, deer, and wolves. No doubt these pits were constructed for the same object as those at Grime's Graves, the careful excavation and description of which by Canon Greenwell, he thought, would probably serve as an impulse to prehistorians to examine other pits carefully, which he trusted might lead to important results.

A verbal abstract of the following paper was then given by the authors:—

XL. *On the discovery of* Platycnemic Men *in* Denbighshire. By W. Boyd Dawkins, Esq., F.R.S.; *with* Notes *on the* Human Remains, by Professor Busk, F.R.S.

Contents.

I. § 1. *Introduction.*—In the following essay I have described the discoveries made in 1869 in a refuse-heap, a tumulus, and two bone-caves in Denbighshire, which establish the fact that platycnemism was manifested by the ancient dwellers in North Wales, as well as by those who buried their dead in the cave of Cro-magnon, in France, and who are found also in the caves of Gibraltar. Professor Busk has been good enough to bring his great knowledge to bear on the human remains, and to ascertain the precise value of platycnemism as a race-character.

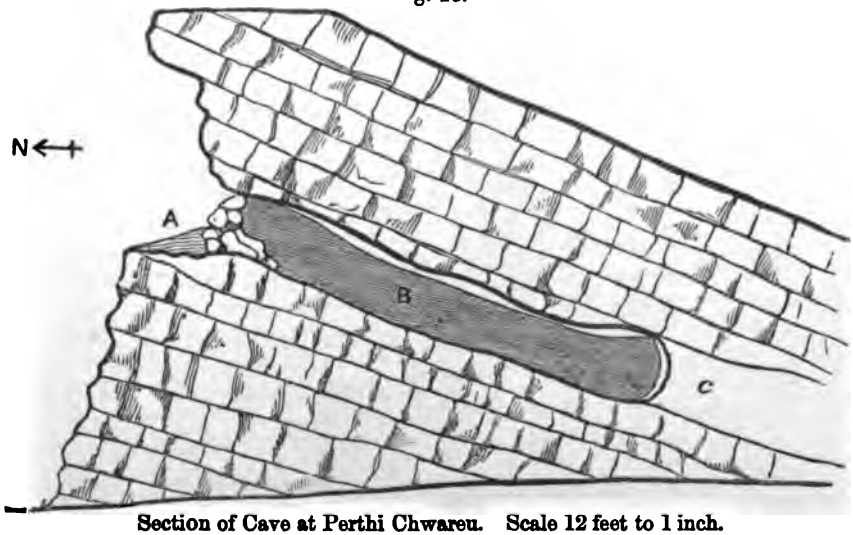
§ 2. *Refuse-heap and Cave at Perthi Chwareu.*—The first hint of the presence of remains of archæological value at Perthi Chwareu, a farm-house about ten miles to the east of Corwen, was afforded by a small box of bones, forwarded through Mr. Charles Darwin; and by the kind assistance of the owner of the property on which they were found, Mrs. Lloyd, of Rhagatt, we were able fully to explore the place from which they were derived. The mountain-limestone which there forms hill and valley consists of thick masses of hard rock, separated by soft beds of shale, and contains large quantities of *Producti*, crinoids, and corals. The strata dip to the south, at an angle of about 1 in 25, and form two parallel ridges with abrupt faces to the north, and separated from each other by a narrow valley passing east and west along the strike. The remains sent by Mr. Darwin were obtained from a space between two strata, near the top of the northern ridge, whence the intervening softer material had been carried away by water. Its maximum height was six inches, and its width twenty feet or more; and it extended in a direction parallel to the bedding of the rock. The bones had evidently

been washed in by the rain, and not carried in by any carnivore. They belong to the following creatures:—

The Dog (*Canis familiaris*).
The Fox (*Canis vulpes*).
The Badger (*Meles taxus*).
The Pig (*Sus scrofa*).
The Roe Deer (*Cervus capreolus*).
The Red Deer (*Cervus elaphus*).
The Sheep or Goat.
The Celtic Shorthorn (*Bos longifrons*).
The Horse (*Equus caballus*).
The Water-Rat (*Arvicola amphibia*).
The Hare (*Lepus timidus*).
The Rabbit (*Lepus cuniculus*).
The Eagle (sp.?).

Nearly all the bones were broken, and belonged to young animals. Those of the Celtic Shorthorn, of the Sheep or Goat, and of the young Pig were very abundant; while those of the Roe and Red Deer, Hare and Horse, were comparatively rare. The remains of the domestic Dog were rather abundant; and the percentage of young puppies would imply also that they,

Fig. 13.



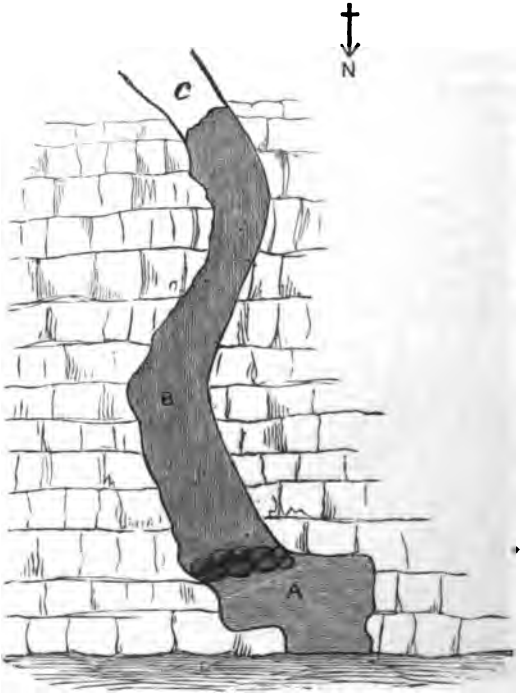
Section of Cave at Perthi Chwareu. Scale 12 feet to 1 inch.

like the other animals, had been used for food. Possibly the Hare may also have been eaten; but its remains were scarce, and belonged to adults. Some of the bones have been gnawed by dogs. The only reasonable cause that can be assigned for the accumulation of the remains of these animals is that the

locality was inhabited by men of pastoral habits but yet to a certain extent dependent on the chase, and that the relics of their food were thrown out to form a refuse-heap. The latter has now altogether disappeared from the surface of the ground, from the action of the rain and other atmospheric causes; while those portions of it which chanced to be washed into the narrow interspace between the strata have been preserved to mark the spot where it once existed.

There was nothing in the deposit that fixes the date of its accumulation. It may have been of the stone, bronze, or iron age; but from the presence of the Sheep or Goat, Short-horned Ox and Dog, it certainly does not date so far back as the epoch of the Reindeer, Mammoth, Rhinoceros, and Cave-Hyæna.

Fig. 14.



Plan of Cave at Perthi Chwareu.

The presence of the Celtic Shorthorn throws no light upon the antiquity, because for centuries after it had ceased to be the domestic breed in England it remained in Wales, and still lives in the small black Welsh cattle, that are lineal descendants of those which furnished beef to the Roman coloni. While this

work was in progress, we selected a small hollow in the precipitous side of the southern ridge, that formed a kind of rock shelter (figs. 13 & 14, A) overlooking the valley, and that seemed to be a likely place for the abode of man or of wild animals. On setting the men to work, in a few minutes we began to discover the remains of Dog, Marten-cat, Fox, Badger, Sheep or Goat, Celtic Shorthorn, Roe Deer and Red Deer, Horse, and large Birds. Mixed with these, as we proceeded, we began to find human bones between and underneath large masses of rock that were completely covered up with red silt and sand. As these were cleared away we gradually realized that we were on the threshold of an ossiferous cave (figs. 13 & 14, B). In the small space then excavated, human remains belonging to no fewer than five individuals were found. Subsequently the work was carried on by Mrs. Lloyd, under the careful supervision of Mr. Reid. The rock-shelter narrowed into a "tunnel cave" that penetrated the rocks in a line parallel to the bedding, and, roughly speaking, at right angles to the valley, having a width varying from 3 feet 4 inches to 5 feet 6 inches, and a height from 3 feet 4 inches to 4 feet 6 inches.

The entrance was completely blocked up with red earth and loose stones, the latter apparently having been placed there by design. The inside of the cave was filled with red earth and sand to within about a foot of the roof. The remains were found for the most part on or near the top, but in some cases they were deep down. One human skull, for example, was found 6 inches only above the rocky floor. The human bones were associated with those of the animals of which a list has been given, and occurred in little confused heaps. One human femur was in a perpendicular position. The account of the continuation of the digging we give almost in the words of Mrs. Lloyd. On the second day, after an hour's work, a human skull was found near the roof of the cave, resting on a femur; then 11 feet explored brought to light a large quantity of human bones, including 9 femurs. The third and fourth days were devoted to clearing out the cave up to this point, and to excavating about 4 feet further in, or 15 from the entrance. During this work two teeth of a horse were found resting on the floor near the entrance, and nine more about 10 feet within the cave, also a Boar's tusk of remarkable size, and, close by, a mussel- and a cockle-shell, and a valve of *Mya truncata*, along with a quantity of human and other bones, including five skulls, more or less perfect, and many fragments. All the skulls were found between the 10th and 15th feet from the entrance. During the fifth and sixth days the work was superintended by Mr. Reid, who entirely cleared the cave for about 13 feet further: the first

8 feet yielded a small quantity of human and other bones, including the perfect skull of a Marten-cat and the incisor of a Wild Boar. The only implement found in the cave, a broken flint flake, occurred here, and a nearly perfect human skull, lying face downwards, with the pelvis adhering to one side. The last 5 feet furnished only two bones, both of the Short-horned Ox.

Small bits of charcoal occurred throughout the cave, and a great many rounded pebbles from the boulder-clay of the neighbourhood. Within the first 10 feet there were bits of modern glazed pottery and small pieces of coal; and near the end of the excavation a small scrap of iron was found, which seems to be a mere splinter broken from one of the tools of the workmen. The coal and the modern pottery have most likely been conveyed into the cave by the wash of the rain, or possibly by the burrowing of the rabbits which abound in fissures of the rock immediately above the cave. The fact that the splinter of iron is scarcely oxidized implies that it had not been in the cave very long.

The human remains belong for the most part to very young or adolescent individuals, from the small infant to youths of twenty-one. Some, however, belonged to men in the prime of life. All the teeth that had been used were ground perfectly flat. The skulls belong to that type which Prof. Huxley terms the river-bed skull. Some of the *tibiæ* present one remarkable peculiarity, now for the first time recognized in any British leg-bone. They are very much compressed in a plane parallel to the median line, and indicate the platycnemic character of the people to whom they belonged. A somewhat similar character has been recognized in remains from the caves of France and Gibraltar, and is presented also by the only fragment of bone which has been obtained by Mr. Foote from the laterite of India, along with stone implements*.

The remains of the animals in the cave belong to the same species as those which have been before mentioned from the *débris* of the kitchen-heap, and are precisely in the same fragmentary condition. From their close intermixture with the human remains, they probably were deposited with them at the same time. They may, however, be the result of a previous occupation.

How can we account for the presence of the human remains in the cave? Unlike those of the other animals, they are for the most part perfect. They exhibit no marks of scraping or cutting, and therefore cannot be viewed as the relics of the feasts of cannibals. The only satisfactory explanation is that the cave

* International Congress of Prehistoric Archæology, Norwich volume, 1868, p. 224.

was used as a burial-place. That the dead were not interred at one time is conclusively proved by the fact that the number of individuals was too large to be accommodated in so small a space. They must therefore have been buried at different times. Moreover they were certainly not buried at full length. From the juxtaposition of one of the skulls to the pelvis, the vertical position of a femur, and the confused heaps in which the human bones lay, the corpses must have been buried in a sitting posture, as in the chambered tomb of Cefn.

The flake of flint is an uncertain guide to the antiquity of the burial-place; for the use of flint for solemn purposes lingered on long after that material had been driven out of use in every-day life by bronze and iron. In Egypt, for instance, the first incision in a corpse to be embalmed was made with a sharp flint, although both bronze and iron were in use at the time. In the foundation of the king's palace at Khorsabad flint flakes were deposited, probably for some superstitious reason. In a Romano-British grave at Hardham, in Sussex, a flint flake was discovered. In all these cases a great mistake would manifestly be made were the Egyptians, Assyrians, and Roman provincials in Britain relegated to the stone age. Flint flakes were employed, moreover, for cutting-purposes long after the introduction of bronze, and very possibly after the introduction of iron. The occurrence, therefore, of the flint flake in the cave at Perthi Chwareu does not of itself imply that the people who used it are of the stone age. But nevertheless, when the interment is brought into relation with others, we shall see that it may be referred to the Neolithic age. It is very probable that the folk who ate the animals found in the *débris* of the refuse-heap were the same as those who used the cave as a burial-place. The identity of animal remains in both is strongly in favour of such a view.

§ 3. *The Cefn Cave.*—In the collection of fossil bones from the caves of Cefn, near St. Asaph, in the possession of Mrs. Williams-Wynn, there is a human skull and lower jaw along with platycnemic limb-bones. They were found mingled with the bones of Sheep or Goat, Pig, Fox, and Badger, and cut antlers of the Red Deer, inside the lower entrance of the cave in which the extinct postglacial animals were found in the valley of the Elwy. Four flint flakes also were found along with them. The skull in its general features strongly resembles those found in the Perthi-Chwareu cave, and presents a cephalic index of ·770, which comes within the limits of the extreme forms from that locality *. Mr. Busk, however, as will be seen

* The mean cephalic index of the Perthi-Chwareu skulls is ·765, while this is ·770.

in his account of this skull, because of its low altitudinal index, ·702, as compared with ·710 of the lowest Perthi-Chwareu skull, is inclined to view it as of a different type. The conditions, on the other hand, under which it was found appear to me to be circumstantial evidence that the interment is of the same relative age as that of Perthi Chwareu. Both were in caves: in both the remains of the same domestic and wild animals were found in the same fragmentary condition. Flint flakes also occurred in both; and what is more important, the platycnemic limb-bones in both imply a somewhat similar mode of life in the people to whom they belonged. This body of evidence in favour of the interments having been made by the same race of men who lived some time in Denbighshire seems to me of greater weight than that to the contrary afforded by the difference of ·008 in the altitudinal indices of the skulls. After a comparison of the carefully prepared measurements of the crania published in the 'Crania Britannica' with those published elsewhere, I cannot resist the conviction that if similar modes of life and of burial in Britain imply an identity of race, cranial variation within the limits of that race is by no means very small. Absolute purity of blood in an island so near the Continent as Britain cannot be looked for; and therefore the result of isolation from other races, such as that presented by the Australian, cannot be obtained. It is therefore very probable that some of the variations may be accounted for by the blending of different ethnical elements in one race. I am consequently inclined to view the interments in these two caves as having been made by the same people, in spite of the small cranial difference manifested by the Cefn skull.

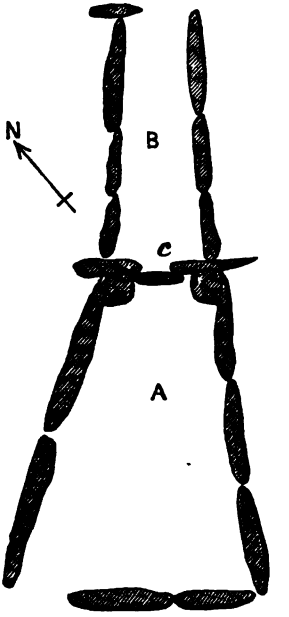
§ 4. *Chambered Tomb at Cefn.*—The systematic exploration of the chambered tomb at Cefn was begun in the spring of 1869, under the care of the Rev. D. R. Thomas, to whom I am indebted for the following account:—

"On the 23rd of January 1869, one of our farmers, who had been busy carting away stones from a part of a field where until lately there had been some old trees growing, came upon some bones, and, conceiving them to be human, sent me a message to that effect. Hastening to the spot, I saw at once that he had come upon an old cistvaen, and that it was from within it, after breaking one of the upright stones which formed its base, that the bones had been extracted. The stones of the surrounding cairn had been removed at different times for the mending of the roads. The farmer at once consented to let it remain as it was; and Mrs. Williams-Wynn, on whose property it was found, being from home, allowed it to be opened in the presence of Mr. Williams, of Rhydycroesau, who fortunately was my guest at the time. This was done on the 26th. First clearing away the loose stones from above and around it, we found it to be in the form of an isosceles triangle, with the apex pointing north-east, the base measuring four feet on the inside, and formed of two large upright stones standing some two feet out of the ground, and the sides measuring about nine feet each and consisting of

three upright stones. The whole of the interior was filled up with fine sand; and capstones seem to have been placed over the whole, but had been broken or removed. Beginning carefully to remove the sand near the base, where the bones had first been found, we discovered several skulls, jaws, teeth, and other bones, the skulls in a very fragmentary condition, but the teeth and bones wonderfully preserved. The teeth seem to be those of young people; but some of them are ground down to a smooth surface, as if from eating hard substances, such as corn. Judging from the position of the bones, the mode of burial would seem to have been, first, to make the cistvaen, then to put in the bodies, with their backs or heads to the sides, and after that to fill the whole up with fine sand, finishing off with capstones and cairn. The name of the field is Tyddyn Bleiddyn; and one of the workmen remembers hearing a former tenant, a very old man, speak of the Carnedd in it as a nuisance. Hundreds of loads of stones (lime) have been carted away lately, and many more some years ago, when stones as large as any now exposed were broken up, and perhaps a similar cistvaen destroyed, as there is a sort of tradition that there were two burial-places there."

Subsequently, in the autumn, the work was resumed, and the chamber A (fig. 15) fully cleared out. At the point *c* it was partially shut off from the passage B by a slab of stone 18 inches high. The passage passed from the chamber in a northern direction, and was 6 feet long by 2 wide. The chamber gradually narrowed towards the passage, being 5 feet wide at its broad end, and 9 feet long. In the passage, as well as in the chamber, there were human bones belonging to individuals who had been buried in a crouching posture. Unfortunately, as the remains have been scattered, it is impossible to ascertain the exact number of the burials. I have, however, restored one skull and have examined seven frontal bones, and other remains, which indicate that there were at least twelve persons, varying in age from infancy to full prime, buried in this tomb. In addition to these, there is a large box of bones in the possession of the Rev. D. R. Thomas, as well as other remains in other hands. But although the exact number of bodies interred cannot be made out, there is full proof that there were too many to have been deposited at one time in so small a cubic area; and therefore they must have been deposited at different times, as in the Perthi-Chwareu cave. Some of the *tibiæ* are of the platycnemic type. There were no remains of

Fig. 15.



Plan of Chambered Tomb at Cefn.

either wild or domestic animals; and the only foreign object was a small slightly chipped flint pebble. From the remarkable conformation of the nasal bones of some of the skulls, it would seem likely that the burial-place belonged to one family; but, for a reason stated by Professor Busk, this is by no means a certain inference.

The plan of the chamber and passage (fig. 15) corresponds with that of the long barrow of West Kennet, figured in the 'Crania Britannica,' and with that of the cromlech of Le Creux des Fées, Guernsey, described by Lieut. Oliver*. In the former of these the corpses were buried in a crouching posture, along with flint scrapers and fragments of rude pottery. In the latter the original contents have disappeared. To speak in general terms, the chamber and passage belong to the class of tombs which Dr. Thurnham names Long Barrows, and Prof. Nilsson "Ganggräber," and which are found in Scandinavia and France, as well as in Britain. And it is worthy of note that the partial insulation of the chamber A (fig. 15) from the passage B by a slab (*c*), which does not reach up to the height of the walls, is to be seen also in like tombs both in Guernsey and in Brittany.

§ 5. *Correlation of Chambered Tomb with Interments in Cefn and Perthi-Chwareu Caves.*—Out of the large number of fragments at my disposal, I have only been able to restore one cranium sufficiently to obtain the measurements necessary for comparison. If the last row of Professor Busk's Table I. (p. 452) be compared with the rest, it will be seen that this cranium is precisely of the same character as those from the caves of Cefn and Perthi Chwareu. This fact, coupled with the occurrence of platycnemic *tibiæ* and the crouching posture of the dead, would imply that all these three interments were made by one and the same race of men, although the remains of the animals found in the latter were not found also in the tumulus. To explain this difference, I must fall back on the hypothesis of the origin of chambered tombs invented by Prof. Nilsson. Chambered tombs, according to that great authority, were originally the subterranean houses in which the deceased lived, and there the dead were laid literally each "in his own house." And long after this mode of habitation had been given up in Britain, the plan of the huts was probably preserved in that of the sepulchral chamber, in obedience to that strong principle of conservatism which has always been manifested in religious and solemn ceremonial. And it is very likely that the people who no longer built huts for themselves after the fashion of the dwellers within the

* Journal of the Ethnological Society of London, vol. ii., new series, no. 1, April 1870, p. 45, pl. vii. fig. 3.

arctic circle, built tumuli for their dead in accordance with an ancient practice. The absence of the remains of animals in the chambered tomb at Cefn may easily be explained by the fact of its never having been a dwelling, while the remains of the caves of Cefn and Perthi Chwareu are probably evidence of occupation. And thus the idea of the dead being interred in his dwelling-place would be the cause of burial both in the caves and in the tumulus; and it is not at all strange that people of the same race should have buried their dead in caves as well as in chambered tombs.

§ 6. *Relative Age.*—The question naturally arises, When did this ancient platycnemic race of men live in Denbighshire? Were they stone-folk or bronze-folk, or users of iron? A decisive answer cannot be given; but the circumstantial evidence points very strongly in one direction. In the first place no traces of metal (to pass over one *unoxidized* fragment of iron) were found in the caves of the tumulus, but merely fragments of flint. This fact *per se* is merely negative; and, as I have stated before, of no very high significance. When, however, it is viewed in connexion with the crouching posture of the corpse in all three interments, it implies the high probability of all three being of the Neolithic age. The platycnemism also is a character that has not been recognized in any human remains later than that age. This conclusion is considerably strengthened by an appeal to the skulls. They all agree in shape with those described by Professor Huxley as river-bed skulls*, and with some of those given in Tables i. and ii. of the 'Crania Britannica,' as "ancient British." As examples † I may quote from the latter work:—the skull found in a kistvaen in Phœnix Park, Dublin, along with a shell necklace, a bone pin and pottery; that from a barrow on Acklam Wold, Yorkshire, in which the corpse was buried in a crouching posture and accompanied by flint flakes, coarse pottery, and bone pins; and that from Haytop Barrow, in Derbyshire, which presented precisely the same condition of burial as at Acklam, excepting that instead of bone pins there were jet beads. The skull found in the chambered barrow at Plas Heaton, Denbighshire, in which the dead were buried in the crouching posture, is also of the same character. In all these cases, the identity of cranial form,

* Compare the Muskham and Blackwater skulls with those under notice, the one having a cephalic index of ·77, the other ·78. See 'Geologist,' 1862, p. 201.

† A comparison of the measurements in the 'Crania Britannica' with those of the skulls from Denbighshire shows a remarkable similarity of form in a great many cases. I have not given the measurements in the latter work, because they would needlessly add to the length of this essay.

coupled with similar modes of interment, implies an identity of race. Many other instances might be quoted from the 'Crania Britannica' to show that the skulls, with a few exceptions, belong to the neolithic age; and those few exceptions belong to the age of bronze. On the whole, therefore, it may be inferred, with a high degree of probability, that the platycnemic men who buried their dead in the tumuli and caves of Denbighshire were of the neolithic age. I have not the slightest doubt that platycnemism will be recognized in remains from chambered tombs in many parts of Britain, and that eventually the men found in Denbighshire will be proved to belong to a race that spread over Britain and Ireland, and a large area on the Continent.

Notes on the Human Remains. By Professor Busk, F.R.S.

II. § 1. *Introduction.*—The remains discovered in the sepulchral cave at Perthi Chwareu, according to a list furnished by Mr. Boyd Dawkins, are as under; but, I believe, this catalogue does not include all that were found in the locality.

1. Eleven more or less perfect skulls, some, however, represented by mere fragments.
2. Twelve mandibles.
3. Seven arm-bones or *humeri*—four right, and three left.
4. Six *ulnæ*.
5. Twenty-two thigh-bones, including five pairs, five odd ones of the right side, and seven of the left; and amongst them are three of very young children.
6. Seventeen *tibiæ* or leg-bones, nine of the right and eight of the left side, and, apparently none of them in pairs; so that there must probably have been a good many more.
7. Eight *astragali*.
8. Nine *calcanea* or heel-bones.

The number of individuals, therefore, whose relics were deposited in this cavern could not have been less than sixteen, and may have been many more. They appear to have been of all ages and of both sexes.

Of the other bones of the skeleton, of which there must have been abundance, I have received no information.

In the Cefn cave there were discovered:—

1. One mandible.
2. One *humerus*.
3. Two *ulnæ*.
4. A pair of thigh-bones.
5. A pair of leg-bones.

And in the tumulus:—1. Portions of seven skulls.
2. Two right *humeri*.
3. A pair of *ulnæ*.
4. A right *femur*.

From St. Asaph the only bone that has come under my observation is a single *calvaria*.

§2. *Description of the bones from the cavern at Perthi Chwareu.*

a. *General Condition.* — In general condition, as regards colour and texture, these bones present some, but no very striking, differences; on the whole they are much alike, though it might be supposed that some have lain longer in the ground than the others. One or two among them (but these are apparently the younger bones) are fragile; the majority, however, are as firm as common churchyard bones, and some have quite the natural degree of hardness. They are of a lightish yellow colour, do not adhere to the tongue, and afford scarcely any earthy smell when breathed upon or moistened: only one among them presents any staining from oxide of manganese; and this exists in diffuse blotches, and is not at all of the dendritic form. Many are partially covered with a very thin film of crystalline carbonate of lime.

b. *The Skulls.*—Of these only three of the more perfect have come under my observation. These alone will form the subject of what I have to remark on this portion of the skeleton. But in the subjoined Table I. (p. 452) I have given, together with the dimensions of these three, those of five others which have been furnished to me by Mr. Dawkins.

In the specimen No. 1 (Pl. XXXI. figs. 1, 2, 3) the entire facial part is wanting, together with the whole of the base and a great part of one side of the *calvaria*. The skull is of an oval form, symmetrical, with a rather prominent occiput. The region of the vertex is slightly and evenly arched; and the forehead, though not high, is vertical, and slightly compressed on the sides. The sutures are all open and finely serrated. The frontal sinuses are distinct though small. The supraorbital ridge is thin but rather prominent towards the external angular process. The mastoid processes are very large, and the digastric *fossa* remarkably deep. The occipital spine is very prominent, as are the lateral ridges. The temporal ridges, also, and, in short, all the muscular impressions are very strongly marked.

The skull is evidently that of a powerful, muscular man, in the prime of life, and apparently of robust but not coarse build*.

* Amongst the Keiss crania described by Prof. Huxley, this most closely resembles his No. 5; but it is of the same type as No. 3 and No. 7, and not very far from that of the Towyn-y-Capel cranium, through which the transition to the Mewslade form (Nat. Hist. Rev. vol. i. p. 174, pl. v.) is very easy.

TABLE I.—Dimensions of Perthi-Chwareu Skulls.

No.	Length.	Breadth.	Height.	Least frontal breadth.	Greatest frontal breadth.	Parietal breadth.	Occipital breadth.	Zygomatic breadth.	Frontal radius.	Vertical radius.	Parietal radius.	Occipital radius.	Maxillary radius.	Fronto-nasal radius.	Circumference.	Longitudinal arc.	(*a*) Frontal.	(*b*) Parietal.	(*c*) Occipital.	Frontal trans-verse arc.	Vertical trans-verse arc.	Parietal trans-verse arc.	Occipital trans-verse arc.	Latitudinal or cephalic index.	Altitudinal index.
1.	7·5	5·7	...	4·0	5·0	5·5	4·6	...	...	...	...	...	...	...	21·2	...	5·0	5·5	...	12·0	13·0	14·0	12·0	·760	...
2.	7·6	5·7	5·4	4·0	4·9	5·5	4·8	...	4·9	5·0	5·2	4·4	...	3·7	21·6	15·9	5·5	5·6	4·8	13·0	13·5	13·8	12·4	·750	·710
3.	6·5	5·2	5·5	3·4	4·5	5·1	4·1	3·9	4·2	4·5	4·7	4·1	3·2	3·0	19·0	14·7	4·9	5·3	4·5	11·6	12·45	13·4	11·2	·800	·846
4.	7·4	5·8	5·8	3·9	5·0	5·8	4·4	4·7	4·4	4·6	4·7	4·3	3·9	3·6	23·5	16·9	5·0	5·0	6·?	11·0	13·0	14·0	12·0	·797	·797
5.	6·7	5·0	...	3·5	4·4	5·4	4·1	...	4·0	4·3	4·6	4·0	...	...	18·5	...	4·4	5·2	...	11·0	12·5	13·4	...	·746	...
6.	6·8	5·4	...	3·6	4·3	5·3	4·0	...	4·3	4·5	4·8	4·2	...	...	19·8	14·6	4·8	5·3	4·5	14·0	12·0	13·0	11·0	·794	...
7.	...	5·5	...	...	...	5·3	...	...	...	...	4·6	4·0	...	...	...	...	...	...	...	...	...	...	...	...	...
8.	7·0	5·2	...	3·6	4·4	5·2	4·1	...	4·1	4·3	4·5	4·1	...	3·4	19·5	...	4·5	4·9	4·8	11·0	11·5	13·0	12·0	·743	...
Mean	7·07	5·5	5·6	3·8	4·64	5·4	4·3	...	4·3	4·5	4·7	4·2	3·5	3·42	20·0	15·3	4·9	5·2	5·0	12·0	12·5	13·5	11·8	·765*	...
Cefn and St. Asaph.	7·4	5·7	5·2	3·8	4·7	5·5	4·8	...	4·6	4·6	4·7	4·0	...	3·8	21·0	15·1	5·0	5·5	4·6	12·2	12·8	13·8	12·0	·770	·702
Cefn Tumulus.	7·38	5·65	...	3·6	4·5	5·55	...	...	4·5	4·6	4·9	4·5	...	3·6	...	...	5·2	5·2	...	12·4	12·4	12·8	10·9	·765	...

* In taking this mean, the cephalic index of the young skull, No. 3, is omitted; if included, the mean would be ·785.

Skull No. 2 (Pl. XXXI. figs. 4, 5, 6) is that of an adult male, presenting as nearly as possible the same dimensions, form, and other characters as that above described, except that the bone is somewhat thicker and heavier. The muscular ridges and impressions are even more strongly developed than in the former, and especially the temporal ridges immediately above the external angular processes. The left *maxilla* remains loosely attached, containing the two bicuspid teeth, which are of small size, and worn quite flat, and to such an extent as to render it probable that the man was somewhat advanced in years, although none of the sutures are closed. The face is strictly orthognathous, and the skull dolichocephalic and aphanozygous *.

Skull No. 3 is the entire *calvaria* of a very young individual. The two milk-molars remain on either side; and behind them the first true molar is fully out but not in the least worn. The incisors and canines have fallen out. The former, from the size of the *alveoli*, were of the permanent set, but not the latter. The age of the individual, therefore, may be estimated as about seven or eight.

The only point worthy of notice in this *calvaria* is the existence of a well-marked depression across the middle of the occipital bone, which appears exactly as if it had been caused by the constriction of a bandage. The depression barely extends beyond the lambdoidal suture into the parietals. It requires, perhaps, some imagination to perceive the slight traces of a corresponding depression in the fore part of the skull; but I think a faint depression may be there perceived on careful inspection. The effect of the occipital constriction, if it be such, reminds one of some of the deformed French skulls described by M. Foville † and by M. Gosse ‡. In all other respects the skull is well formed and symmetrical. It is strictly orthognathous, and of a broad oval shape.

If deformed artificially, it would come under the head of "tête annulaire" of M. Gosse; and Dr. Foville shows that this kind of deformation arises from the popular custom of applying a kind of bandage round the head of the new-born infant, which, passing over the anterior fontanelle, descends obliquely, and is crossed behind the occiput and brought back and tied in front. This band, or "serre-tête," he states, is worn during the first

* The forms most closely resembling this skull amongst those from Keiss are Nos. 3 & 7.

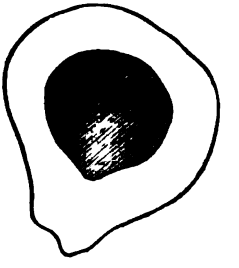
† Déformation du crâne resultant de la méthode la plus générale de couvrir la tête des enfans. Paris, 1834.

‡ Essai sur les déformations artificielles du crâne, par. L. A. Gosse, de Genève. Paris, 1855.

year, and for a longer period by female children than by males. Dr. Lunier gives pretty nearly the same account, adding, however, further particulars *. It may be remarked, also, that the Berbers, who formed great part of the Moorish forces that invaded Europe in the eighth, ninth, and tenth centuries, used to elongate the skull posteriorly and flatten the forehead.

c. *Thigh-bones.*—I have had an opportunity of examining only a single perfect specimen of the thigh-bones. This is an entire bone, 18·2 inches long, with a least circumference of 3·5. Its perimetral index† consequently is ·192, which is about the normal standard. The *linea aspera*, at the middle of the bone more especially, is very prominent, so that the bone may be termed, in some degree, carinated (fig. 16). The shaft is straight; and the chief peculiarities, besides the prominent *linea aspera*, which it presents are (1) an unusual compression in the antero-posterior direction in the upper part, for the extent of about three inches below the *trochanter minor*. At about two inches below that process, or at a point corresponding with the lower part of the insertion of the *pectineus* muscle, the shaft measures ·9 × 1·45, whilst in three other ordinary *femora* with which I have compared it, the bone at the corresponding part measures ·9 × 1·20, ·9 × 1·10, ·9 × 1·15, showing that the Perthi-Chwareu *femur* is unusually expanded laterally in the upper part of the shaft. The consequence is to give the bone at that part a peculiar aspect, which is especially seen in an acute internal angle, and one rather less acute externally, instead of the usually rounded internal and external borders. (2). The distal extremity appears to be rather disproportionately large as compared with a recent well-formed bone of the same length, the condyles measuring 2·5 × 3·3 instead of 2·4 × 3·05; and the lower part of the shaft is also somewhat expanded. But the chief peculiarity, as above remarked, is the compression of the shaft in the upper part. Besides the *linea aspera*, all the muscular impressions are strongly marked, and especially those for the insertion of the *gluteus maximus* and the *trochanter minor*. The neck is long and very oblique, and the head, upon which only a small portion of the articular surface is left, must have had a diameter of about 1·9.

Fig. 16.



* "Recherches sur quelques déformations du crâne observées dans le Département des Deux-Sèvres" (Ann. Médico-psychologique). Paris, 1852.

† This index is obtained by dividing the least circumference by the length of the bone.

Mr. W. B. Dawkins has furnished me with the principal dimensions of several other *femora*, varying in length from 16 to 18 inches, and affording an average length of about 17, corresponding to a mean height of the individuals of about 5 ft. 4 in. to 5 ft. 5 in., the tallest being perhaps 5 ft. 6 in., and the shortest about 5 ft. 2 in., no doubt a woman. The mean perimetral index of the eight *femora* is ·186, which shows, in comparison with the usual thickness of well-formed male thigh-bones of the present day, a certain degree of slenderness. That this is not altogether owing to the circumstance that the bones include those of perhaps more than one female, is proved by the fact that in no instance does the perimetral index exceed ·192, and in one thigh-bone, 18″·2 long, it is not more, if the circumference is correctly given, than ·178, the normal perimetral index for the adult male *femur* in this country being taken as about ·194.

d. *Tibiæ*.—Of the leg-bones brought under my notice, five are entire, and five more or less defective. The principal dimensions and proportions of these bones, so far as they could be taken, are given in the subjoined Table.

Table II.—Dimensions &c. of Perthi-Chwareu Tibiæ.

No.	Length.	Transverse diameter, proximal end.	Least circumference.	Antero-posterior diameter and transverse diameter of shaft.	Perimetral index.	Latitudinal index.
1.	14·9	2·8	3·2	140×80	·214	·571
2.	13·7	2·7	2·9	120×75	·211	·625
3.	13·2	3·0	3·0	135×80	·227	·592
4.	12·9	2·5	2·5	125×70	·193	·541
5.	12·9	2·5	2·75	100×70	·211	·700
6.	...	...	...	135×90	...	·666
7.	...	...	...	140×90	...	·642
8.	...	...	...	130×70	...	·538
9.	...	...	...	135×85	...	·629
Mean.	13·5	2·7	2·86	129×79	·211	·611

In this Table the *length* means the extreme length of the bone as measured from the summit of the spinous process to the point of the internal malleolus; and the numbers in the fifth column represent the antero-posterior and the transverse diameter of the shaft at the point where the popliteal line terminates at the inner border of the bone, which is usually about an inch and a half below the nutritive foramen. The *latitudinal* index represents the relation that the transverse diameter bears to the antero-posterior, and it is employed to indicate, with some degree of precision, the actual amount of compression or flattening of

the shaft as compared with the normal form, which may, so far as my observations show, be taken for the ordinary English tibias as from ·700 to ·800, or in the mean at ·730, as will be seen in the subjoined Table, which contains the proportions of thirteen leg-bones taken indiscriminately from a drawer in the College of Surgeons.

Table III.—Proportions &c. of ordinary Tibiæ.

No.	Length.	Transverse diameter, proximal end.	Least circumference.	Antero-posterior diameter and transverse diameter of shaft.	Perimetral index.	Latitudinal index.
1.	16·7	3·15	3·4	130×100	·203	·769
2.	16·4	3·2	3·5	150×115	·213	·766
3.	15·8	2·95	3·0	120×90	·189	·750
4.	15·5	2·95	2·9	140×90	·122	·642
5.	15·3	2·9	2·8	130×90	·150	·692
6.	15·2	3·0	3·2	140×90	·213	·642
7.	15·0	2·8	2·8	140×90	·187	·642
8.	15·0	2·6	2·8	120×85	·187	·709
9.	15·0	2·6	2·8	120×90	·187	·782
10.	15·5	3 0	2·9	120×95	·193	·791
11.	13·5	2·8	2·9	120×90	·214	·750
12.	13·4	2·75	2·7	120×85	·201	·708
13.	12·8	2·5	2·4	100×85	·187	·850
Mean.	15·1	2·88	2·9	126×91	·188	·730

Comparison of the mean proportions given in the two tables shows :—

(1) That the Perthi-Chwareu leg-bones are, on the whole, shorter, and absolutely smaller in all dimensions but one, viz. in the antero-posterior diameter of the shaft, which, notwithstanding the smaller size generally of the bones, is rather greater (that is to say in the proportion of 129 to 126) than in the ordinary run of English *tibiæ*.

(2) That their perimetral index is greater, showing that, in proportion to their length, the Welsh bones are somewhat thicker, or in the proportion of 211 to 188.

(3) But the most marked difference is seen in the latitudinal index, which in the Perthi-Chwareu bones is ·611, and in those of the ordinary type ·730, varying in the former case from ·538 to ·700, and in the latter from ·642 to ·850; but the last is probably an exceptional case. In accordance with this, we find that the mean transverse diameter of the shaft at the point above indicated is greatly under the usual mark, viz. as 79 to 91.

It is clear, therefore, that the Perthi-Chwareu *tibiæ* are more compressed or flattened than the usual run of modern European *tibiæ*; in other words, they belong to the platycnemic type.

As this is, I believe, the first instance in which the occurrence of *tibiæ* of this peculiar conformation has been observed in this country, the circumstance is of some interest, especially with relation to the occurrence of priscan bones of the same type elsewhere.

This peculiar conformation of the *tibia*, to which we gave the name of "platycnemic," was, I believe, first noticed by Dr. Falconer and myself, in 1863, in the human remains procured by Captain Brome from the Genista Cave, on Windmill Hill, Gibraltar, of which an account will be found in the Transactions of the International Congress of Prehistoric Archæology for the year 1868 (p. 161); and about the same time, or in May 1864, M. Broca* independently observed the same condition in *tibiæ* procured from the dolmen of Chamant (Oise), and afterwards in bones from the dolmen of Maintenon (Eure-et-Loire). Similar bones have since been noticed in other localities on the Continent, as, for instance, in the diluvium of Montmartre, by M. Eugène Bertrand. But that the peculiarity in question is not common in all the varieties of priscan man belonging to the reindeer period is shown by the fact that it has not been observed in any of the *tibiæ* exhumed by M. Dupont in the Belgian caves.

M. Broca's almost exhaustive remarks upon the anatomical, physiological, and pathological relations of this form of *tibia* leave but little to be said under those heads. I would, however, venture to add a few words as to its ethnological significance. But before doing so I would remark that there appear to be two forms of platycnemism, apparently indicative of some difference in the cause or nature of this aberration from the more usual shape of the bone. To save many words, I subjoin outlines of several well-marked instances of platycnemic bones, all drawn of the natural size and in the same position, the letter (*a*) in each corresponding to the interosseous ridge, and (*b*) to the *crista* or shin.

The line *b c*, drawn through the *crista* and the middle of the posterior surface of the bone, is bisected by another (*a d*), drawn at right angles to it, at the level of the interosseous ridge.

In fig. 17, which represents what may be regarded as a normal *tibia*, the length of that portion of the antero-posterior line which is behind the transverse line is to that of the anterior as 274 to 1000, whilst in fig. 18, taken from Mr. Broca's outline of the Cro-magnon *tibia*, which would seem to represent the

* Mémoires sur les ossemens des Eyzies: Paris, 1868. "On the Human Skulls and bones found in the cave of Cro-magnon," Reliquiæ Aquitanicæ, p. 97.

extremest degree of platycnemism as yet observed, the propor-

Fig. 17.

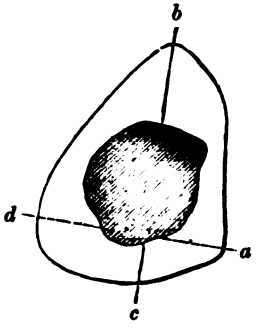
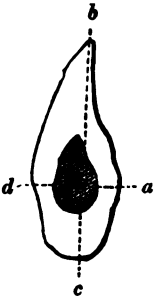


Fig. 18.



tion in question is as 623 to 1000. Figs. 19, 20, 21 are taken from as many of the Gibraltar *tibiæ* *, in which the proportion

Fig. 19.

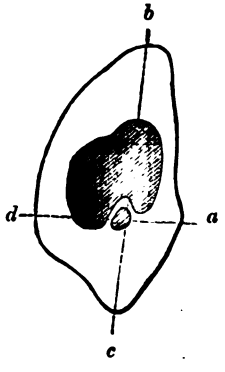


Fig. 20.

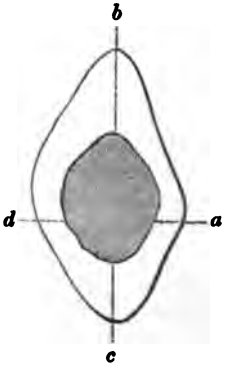
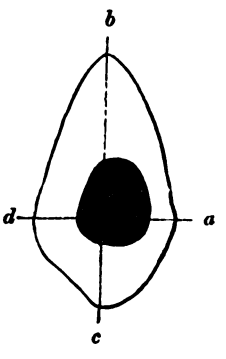


Fig. 21.



varies from 600 to 523, whilst it will be observed that in figs. 22, 23, 24, taken from the most platycnemic of the Perthi-Chwareu *tibiæ*, the proportion in one only differs in any considerable degree from the extreme normal proportion shown in fig. 17; and in this it is as 512 to 1000, whilst in fig. 23, which is nevertheless undoubtedly platycnemic, the proportion is exactly the same as in the most triangular form of bone.

It would seem, therefore, that platycnemism may arise from an unusual antero-posterior expansion of the bone, either in front or behind the level of the interosseous ridge. What this difference may indicate, or of what importance it may be in the

* But these are by no means extreme instances of the Gibraltar *tibiæ*.

consideration of questions relating to platycnemism, I am not prepared to discuss; but as in all probability it is connected with a difference in the cause of the deformation (if it be deformation), I have thought that the observation should be recorded,

Fig. 22.

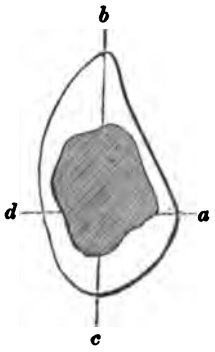


Fig. 23.

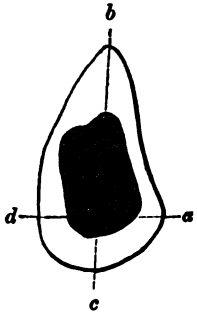
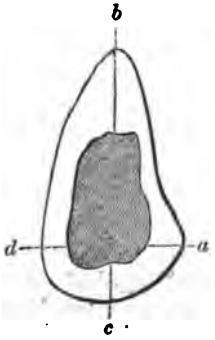


Fig. 24.



and would merely, in addition, remark that, so far as I have noticed, the occasional and not infrequent platycnemism observed in the shin-bones of negroes is what may be termed anterior.

With respect to the ethnological value of the platycnemic *tibia*, I conceive we are as yet very much in the dark. That it is a race-character would seem to me in the highest degree improbable, seeing that it would be difficult to find any other points of resemblance between the Cro-magnon platycnemic men and those whose remains were met with in the Gibraltar caves, although the platycnemism is of the same kind in each; and still less could the former gigantic race be identified with the occupants of the Perthi-Chwareu sepulchre, from whom they differ not only in stature but even more remarkably in cranial conformation.

If, then, platycnemism cannot be regarded as of any value as a race-character, it can *a fortiori* be still less looked upon as indicative of simian tendencies, a notion that M. Broca seems somewhat inclined to favour. It is quite true that the *tibiæ* of the gorilla and of the chimpanzee are, to a certain extent, platycnemic; but it is by no means so much so as the human platycnemic bone. The *tibia* of a male gorilla in the College of Surgeons has a latitudinal index of ·681, and that of a female of ·650, whilst that of the chimpanzee is ·611, or exactly the mean of the Perthi-Chwareu bones. It is needless to insist upon the other marked distinctions between the simian and the human *tibia*; but as regards platycnemism it will be obvious, if we

are disposed to trace it to any genetic descent, that the descendant has, in this respect, at one time far out-simianized the Simiæ.

But this comparison with the anthropoid apes may, perhaps, afford ground for a suggestion respecting some possible connexion between this peculiar form of the *tibia* and the habits of the people amongst whom it has been observed. One great distinction between the human and the simian foot consists in their respective adaptations to totally distinct functions. In the one case it is simply an organ of support and progression; in the other, for the most part, of prehension. This necessarily involves a considerable difference in the proportions, &c. of the muscles by which the greater mobility and adaptability of the foot, and more particularly of the digits, are ensured. Would it not, then, be admissible to inquire how far, at any rate posterior platycnemism may be connected with the greater freedom of motion and general adaptability of the toes enjoyed by those peoples whose feet have not been subjected to the confinement of shoes or other coverings, and who at the same time have been compelled to lead an active existence in a rude and rugged or mountainous and wooded country, where the exigencies of the chase would demand the utmost agility in climbing and otherwise?

Some common cause of this kind would seem to be not improbable; and it would not, perhaps, be difficult to ascertain whether it is a *vera causa* or not. But, with respect to this, observations are at present wanting.

From the foregoing data we may conclude:—

(1) That the Perthi-Chwareu bones belonged to a race characterized by the proportionally rather large dimensions of the cranium, whose form presents nothing very remarkable, and is pretty nearly conformable to several of those found by Mr. Laing in the ancient shell-mounds in Shetland *.

(2) That this form is distinctly different from that of the Mewslade skull, in which the vertical region is somewhat flattened, as is the case also with several Anglesea crania, which, however, appear to pass, by gradual transition, into the Keiss and Perthi-Chwareu shape, through such a form as that of the Towyn-y-

* As regards the absolute dimensions of the skulls, it would seem that the Welsh crania stand high in the scale—quite as high as any of the existing races of mankind. I have made the comparison in a rough way in the following manner:—

If the numbers representing the *length*, *breadth*, and *height* of the skull are added together, a number is obtained which will, of course, in some measure, indicate the gross dimensions of the skull. From the rather numerous data furnished by my own Tables of measurements I obtain the results stated in

capel skull figured by Professor Huxley*; and the whole of them consequently may be regarded as belonging to the so-called "River-bed skulls" of that author, excepting the Borris cranium, which appears to belong to a different type altogether.

(3) That the people whose remains were found in this locality were of low stature (the mean height, deduced from the lengths of the long bones, being little more than 5 feet), the tallest being 5 ft. 6 in., and the shortest adult not more than 4 ft. 10 in., the intermediate ones being 5 ft. 1 in. and 5 ft. 2 in.

(4) That the proportions of the long bones are rather thick, and the muscular impressions in all are very strongly marked.

(5) That the *tibiæ* are, for the most part, of a much more compressed form than those of the modern English, but that this platycnemism does not appear to be exactly of the same kind as that which is exhibited in the Gibraltar bones and in those from Cro-magnon (as figured by M. Broca), the difference consisting in the fact that in the two latter instances the bone is expanded backwards behind the transverse plane at the interosseous ridge as much as it is in front of that plane, whilst in the Welsh tibiæ it is the anterior portion of the shaft only which is expanded; or, in other words, the platycnemism in them is due simply to an absolute compression of the shaft.

§ 3. *Human Remains from the Cefn Tumulus.*—These remains, as submitted to my inspection, consist of:—

(1) Portions of three frontal bones, two of which are nearly complete, and one constituted of little more than the superciliary region.

(2) Two parietals and a left temporal, probably belonging to the same skull as the more mutilated frontal.

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the subjoined list, in which the gross mean dimensions of various sets of crania are contrasted.

1. Scandinavian priscan skulls of the Neolithic epoch	18·88
2. Esquimaux and Greenlanders	18·81
3. Perthi-Chwareu skulls	18·65
4. Modern European	18·58
5. Various ancient and priscan skulls	18·55
6. Burmese	18·55
7. Caffres and Zooloos (extratropical negroes)	18·45
8. Derbyshire tumuli	18·42
9. Tasmanian	17·95
10. Hottentot	17·80
11. Negroes (intertropical)	17·67
12. Australian	17·58
13. Bushmen	17·48
14. Veddahs	17·09
15. Andamanese	17·00

* Notes on the Human Remains from Keiss, p. 85.

(3) Portions of four thigh-bones, two left and two right, one of the latter wanting the proximal, the other both extremities.

We have thus the remains of three individuals from this interment.

1. *The Frontal Bones.*—No. 1. The least transverse diameter, immediately behind the external angular processes is 3″·6, and its greatest (at the coronal suture) about 4″·3. Longitudinal arc 4″·1. The profile outline of the forehead is slightly receding; the frontal sinuses moderately developed; and the supraorbital border thin and acute, whilst the glabellar eminence is large and prominent. The bone is a good deal compressed on the sides, so as to have almost the appearance of having formed part of a cymbecephalic skull. The bone itself is thin, and probably without any *diploë*.

No. 2 presents exactly the same characters, except that the longitudinal arc is greater, being 5″·3. The postorbital or least transverse diameter is 3″·4, and the coronal or greatest 4″·4. The frontal sinuses are well developed; the supraorbital ridge rather prominent, but thin and sharp; the external angular process prominent and thick. Glabellar eminence large and prominent. The nasals remain *in situ*, and project almost, if not quite, horizontally forwards, with a rapid curve at first, and then straight out. The general contour of the bone is exactly like that of No. 1, in which also, although the nasals are wanting, the position of the surface by which which they were attached shows that they must in all probability have resembled those of No. 2. The *crista galli* of the ethmoid, which is left *in situ*, is remarkably thick and high.

No. 3 is a portion of a larger and wider bone, the postorbital diameter being at least 4″·0. The frontal sinuses are very large, but distinctly defined, as the remainder of the supraorbital border is not thickened. Owing perhaps to the greater prominence of the sinuses, the glabella does not appear so protuberant as in the other instances. The nasal bones remain and project forwards in the same curious fashion as in No. 2. The frontal crest on the inner surface is remarkably developed, being at least half an inch high, though it is separated by a wide notch from the equally strongly developed *crista galli* of the ethmoid.

No. 4, when the three bones of which it is composed are put together, consists of the greater part of the parietal region of the skull, to which, as before said, the last-described frontal may have belonged. The left parietal is quite perfect; and a considerable portion of the right also remains, together with the entire left temporal; so that a very sufficient estimate of the proportions of the parietal region of the skull can be obtained.

As well as can be estimated, the parietal longitudinal arc, or

length of the sagittal suture, is 5″·2. The vertical transverse arc, or that drawn from one auditory foramen to the other, over the point of junction of the coronal and sagittal sutures, is 12″·2, the parietal 13″, and the occipital 12″·2. In the temporal bone, the external auditory foramen is large, the mastoid process of moderate size, but the digastric fossa is wide and deep. The channels for the middle meningeal artery and its branches are large and deep; and very deep depressions on the sides of the sagittal suture show that the *glandulæ Pacchioni* must have been greatly developed. The bone is very thin, and with scarcely a trace of *diploë* where its structure is visible. None of the sutures, however, which are strongly serrated, are in the slightest degree closed, although, as I should imagine, the skull must have been that of a man beyond the middle period of life.

2. *The Thigh-bones.*—Two of these bones, which, though much alike, differ sufficiently to show that they did not belong to the same individual, are decidedly carinate.

No. 1 wants the upper and lower ends. The least circumference of the shaft, which is at a point about 3½ inches below the *trochanter minor*, is 3″·2. That process, as well as all the other muscular impressions, is strongly developed; and that for the insertion of the *gluteus maximus* is peculiar in presenting the form of a deep elongated pit instead of a roughened elevation as usual. The antero-posterior and transverse diameters of the shaft, about 1½ inch below the *trochanter minor*, are ·85 × 1·4; and the shaft at this part, like that of the above-described from Perthi Chwareu, presents a rather acute or narrow external and internal border instead of the usual more rounded form. Lower down, the shaft becomes strongly carinate; and, owing to the flattened form of the anterior surface, its transverse section affords a subtriangular figure (fig. 25). The walls, or cortical

Fig. 25.

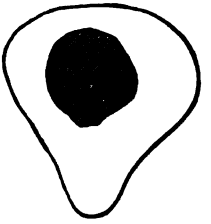
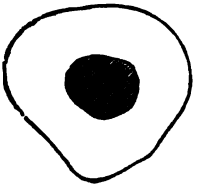


Fig. 26.



substance, are rather thicker than usual, and the substance of the bone is dense and hard.

No. 2 is very similar in character to the foregoing, but is not quite so much compressed in the upper part, measuring ·8 × 1·2. Nevertheless the inner border is very acute, and the outer more

so than in the common form of *femur*. The shaft lower down is not so strongly carinate as it is in the former instance, but is still so in some degree (fig. 26); and the walls (or cortical substance) were still thicker in proportion.

No. 3. A third specimen consists of the lower half, or rather more, of the right *femur*. The least circumference is 3″·2. The bone exhibits no special external characters, and is in no degree carinated. The shaft, at about the middle of its length, is somewhat angular in front; and the pit for the origin of the *popliteus* muscle is deeper and perhaps larger than in most bones of the same size. The texture of the cortical substance is quite eburneous; and it is extremely thick, so that the medullary canal is reduced to a calibre of little more than 0″·25 in its longest diameter. The shaft, however, is straight, and exhibits no other sign whatever of having been affected with *rachitis*. It is, however, a curious circumstance that many of the Gibraltar thigh-bones, most of which are carinate, present the same thickening of the cortical substance (fig. 27).

Fig. 27.

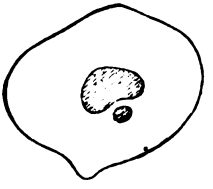


Fig. 28.

No. 4. A fourth specimen is constituted of merely a portion of the shaft, about 12 inches long, and without either extremity. Its least diameter is 3″·3, and its antero-posterior and transverse diameters, at the same point as in the other bones, 1 × 1·25, or pretty nearly in the usual proportions. Nevertheless the bone, throughout its whole remaining extent, is less rounded on the inner side of the shaft than is usual. The *trochanter minor* is of gigantic size; and the shaft of the bone, about and below the middle, exhibits a subtriangular aspect (fig. 28), though scarcely to be called carinate. The cortical substance is of the normal thickness.

3. *Tibiæ*.—No. 1 consists of the greater portion of the left tibia, wanting only the lower extremity. The proximal end measures 2·9 × 1·9; and the diameters of the shaft, about the middle, are 1·2 × ·75, giving a latitudinal index of ·620. The shin is remarkably sharp and prominent, and rather curved over to the outer side; and the apparent compression or tendency to

platycnemism may in some measure be referred more to the production in front of the anterior part of the bone than to actual narrowing of the posterior side of the triangle, which is nevertheless rather more rounded than in most cases. The axis of the shaft is quite straight; and the bone has not the least rickety appearance.

No. 2 is also a portion of the left tibia. Both extremities are wanting, and the bone offers nothing worthy of remark. Its least circumference is 2″·65; and the shaft, at the middle, measures 1″·1 × ·65; so that the latitudinal index is about ·640, showing a slight degree of compression. The entire length of the bone may be estimated as rather more than 13 inches, corresponding to a height of about 5 ft. 4 in. or 5 ft. 5 in., so that the subject may be supposed to have been a female.

These remains represent at least four individuals—one probably somewhat aged, another of strong and robust make, and one, in all probability, a woman—in fact, a family group. No correct idea can be formed of the cranial conformation of these persons. In general shape it would seem to correspond with that of the Perthi-Chwareu skulls; but two of them at any rate are of smaller size, if we may judge from the least frontal diameter. The forehead also is perhaps a little more reclined. The most striking feature in two of the specimens, and which appears also to have existed in a third, is the extraordinary projection forwards of the nasal bones. In the present case this may probably be regarded as a family peculiarity; but with reference to it, it should be remembered that M. Broca* has described a very similar condition in the skull of the "Old man" of Cro-magnon, in whom, he says, "the ridge of the nose, slightly depressed at its base, rises again almost immediately, and advances boldly forward, making a rapid curve, with the concavity directed rather forward and especially upward, so that the lower ends of the *ossa nasi* are placed 18 mm. (·7 inch) in front of a line dropped vertically from the fronto-nasal suture."

The condition of the bones from the Cefn tumulus differs very considerably from that of the remains from Perthi Chwareu. They all have an appearance of much greater antiquity. With the exception of the very dense *femur*, they adhere to the tongue; and they are all deeply stained with manganous oxide, by which the substance even of the hardest portions is stained to a depth of more than one-eighth of an in inch. That this discoloration, which for the most part does not assume the dendritic appearance, is due to manganese and not to any vegetable stain, is quite certain.

* *l. c.* p. 114.

The form of the skull, so far as it can be ascertained from such imperfect remains, and the rather platycnemic shape of the tibiæ, may perhaps justify our supposing that the Cefn bones belong to a cognate race to those whose remains were deposited at Perthi Chwareu, or to one which had lived under similar conditions. But the cranial data are hardly sufficient to allow of any satisfactory inference being drawn from them; and as regards the *tibiæ*, it has already been pointed out that platycnemism cannot, in the present state of our knowledge, be regarded as an important ethnological character amongst priscan peoples, though it may undoubtedly be considered a character betokening remote antiquity.

§ 4. *Skull from the Cefn Cave near St. Asaph.*—The only specimen of human remains from this locality is a nearly entire *calvaria*, wanting the whole of the face below the superciliary border.

In the middle of the left parietal bone is a small irregular opening, with short radiating lines of fracture proceeding from it; but this appears to have been recently caused, and from the inside.

The bone generally is of a brown colour, and, as regards firmness, in a natural condition; and it does not adhere to the tongue. Judging from its aspect alone, it would not appear to be of any very great antiquity; but as it has lain in a dry soil, and sheltered from rain or moisture, this appearance may be deceptive.

Its dimensions are given in Table I. (*suprà*), from which it will be seen that the cephalic or latitudinal index is ·770, and the altitudinal ·702. It belongs, therefore, to the category of subbrachycephalic skulls of Thurnam and Professor Huxley.

In the side view (*norma lateralis*) (Pl. XXXI. fig. 7), it so closely resembles, except in one respect, that described and figured by Professor Huxley (*l. c.* p. 125, figs. 60, 61) from the bed of the Nore, at Borris, in Ireland, that we can scarcely refuse to recognize a common character between them, which, since in the present case it cannot be looked upon as denoting a mere family relationship, may reasonably be regarded as indicative of some affinity of race. The chief difference observable in this view of the two skulls is the greater development of the frontal sinuses in the Borris *calvaria*. The occipital view (*norma occipitalis*, fig. 8) is also very similar, except that in the Borris skull the greatest width appears to be in the temporal, and in the other in the parietal region. In the Borris skull, also, there is a shallow groove in the course of the sagittal suture, which does not exist in that from St. Asaph.

The Borris skull is said to be of the extraordinary length of

8 inches; and this may account for the much lower cephalic index of the skull, whose absolute width in reality somewhat exceeds the Cefn specimen (5″·9 and 5″·7), whilst the altitudinal as compared with the latitudinal is but very little greater than it would be were the skulls reduced to the same breadth. They may both, therefore, be regarded as "low," or, as this class of skull might be termed, in the euphonious language of craniologists, "tapinocephalic." One great peculiarity of the Cefn *cranium* (which exists also, but apparently not to quite so great a degree, in the other) is the absolute horizontality of the plane of the subinial portion of the occipital bone. And it is to this flattening that the comparative lowness may perhaps be chiefly attributed.

The sutures, where visible, appear to be open. The mastoid processes and all other muscular impressions are strongly marked.

A third skull of very similar character, except that it is not so much depressed, has come under my observation. It was discovered in a submarine or, rather, subterranean peat-bed or ancient forest, 30 feet below the sea-level, at Sennen, near the Land's End, in Cornwall; and a brief notice and outline figure of it will be found in the 'Natural-History Review' for 1861*. The Sennen skull has the same elongated form; but it is higher than either the Cefn, St. Asaph, or Borris crania, having an altitudinal index of ·730.

On the whole, these three skulls (*i. e.* that from Borris, Sennen, and St. Asaph) would appear to have a common character, and to be of a different type from either the Perthi-Chwareu or the Newslade form.

As a rule it may, I think, be stated that in all brachycephalic skulls the breadth exceeds the height, whilst the reverse is the case in the dolichocephalic. Individual exceptions are of course not unfrequently met with, more especially among very mixed races, such as the modern English; but I am myself acquainted with only two dolichocephalic *races*, properly so termed, in which the rule does not hold good. These are the Tasmanian (not Australian) and the Bushman.

Any exceptions, therefore, to either rule among ancient and, consequently, less mixed races are worthy of being noted.

As regards modern brachycephalic skulls the law holds almost universally, the only marked exception, except in an individual here and there, being in two Karén skulls, in which, although both decidedly brachycephalic, the respective indices stand as ·848 to ·924, and as ·790 to ·842.

Among priscan brachycephalic skulls the most remarkable

* Vol. i. p. 174, pl. v.

and important exceptions I have met with occur among the neolithic crania in the Copenhagen Museum, more than half of which are brachycephalic, and most of the others nearly so, the mean cephalic index of 21 skulls being ·790, whilst the mean altitudinal is as high as ·810. In fact, out of 12 skulls whose indices vary from ·795 to ·838, no fewer than 10 have the latitudinal index less than the altitudinal.

The exceptions to the rule as applied to dolichocephalic skulls also appear to be far more common among the ancient than among the modern, excepting the two races I have above referred to.

In a long list of ancient and priscan skulls, I find the following having the tapinocephalic character:—

	L. ind.	Alt. ind.
1. From the Thames alluvium at Old Ford	·792	·753
2. From the same deposit at East Ham.....	·774	·690
3. From the same deposit at Battersea	·763	·743
4. From the same deposit at London Bridge.....	·762	·611
5. From tumulus at Stanshope.....	·763	·684
6. A Guanche skull	·775	·737
7. A Guanche skull	·763	·684
8. Cefn, St. Asaph's.....	·770	·702

The number is but small, it must be confessed, and perhaps hardly sufficient to do more than prove the rule; but still I think it will be found worth inquiry whether a departure from the rule in question was more frequent among the unmixed or little-mixed races of ancient times than it is amongst similarly unmixed races of the present day; and whether consequently its infraction in a considerable number of instances may or may not be indicative of a lower type, as which we are accustomed to regard the Tasmanian and Bushman races.

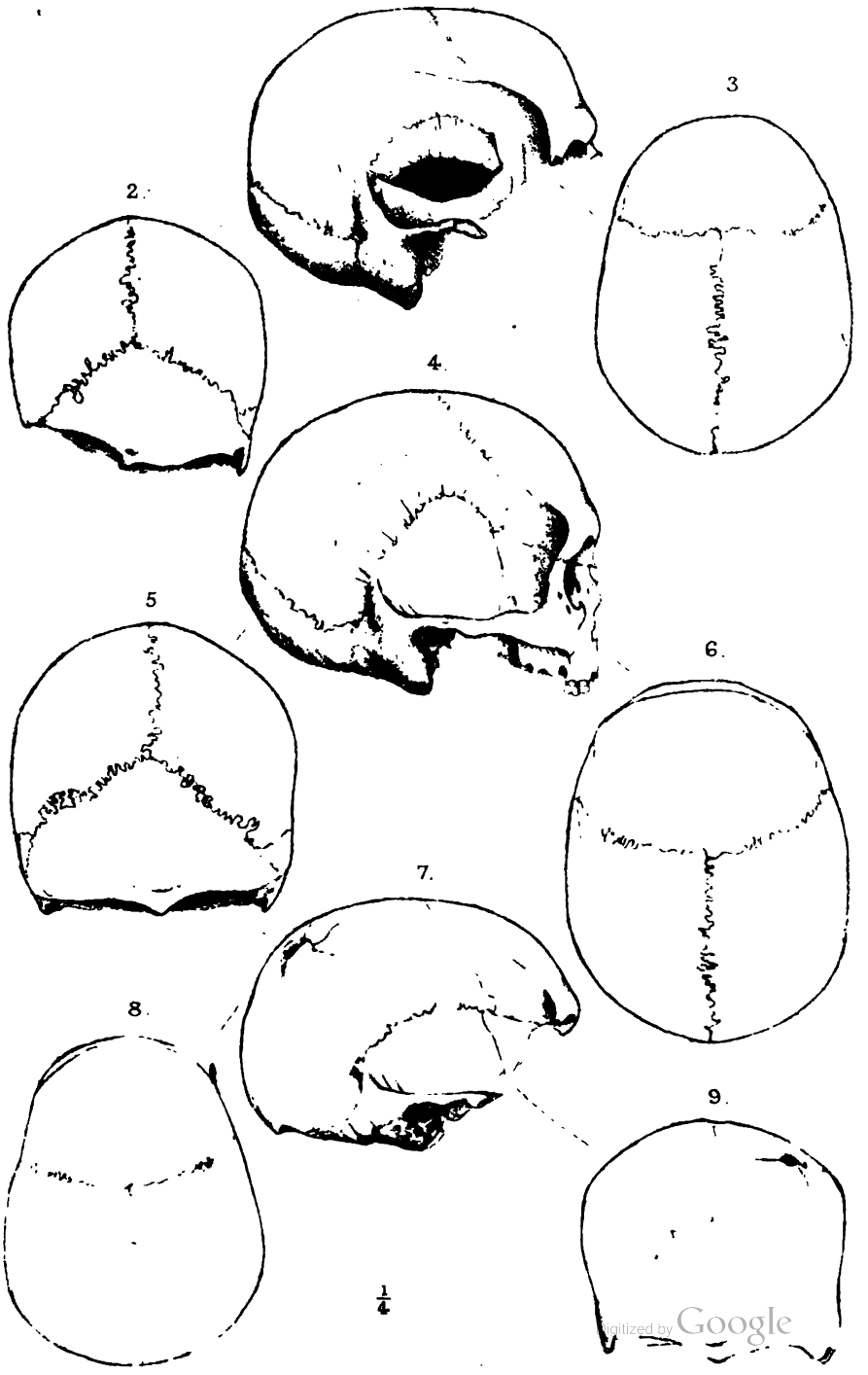
EXPLANATION OF PLATE XXXI.

Figs. 1, 2, 3. Skull (No. 1) from Perthi Chwareu, Denbighshire.
1. *Norma lateralis.*
2. —— *occipitalis.*
3. —— *verticalis.*

Figs. 4, 5, 6. Skull (No. 2) from Perthi Chwareu.
4. *Norma lateralis.*
5. —— *occipitalis.*
6. —— *verticalis.*

Figs. 7, 8, 9. Skull from the Cefn Cave, near St. Asaph.
7. *Norma lateralis.*
8. —— *occipitalis.*
9. —— *verticalis.*

Fig. 1.



XLI. *On the* WESTERLY DRIFTING *of* NOMADES, *from the Fifth to the Nineteenth Century.* By H. H. HOWORTH, Esq.—Part V. The Hungarians.

(Part IV. was published in this volume, pp. 182–192.)

THE ethnological position of the Hungarians is now too well fixed to admit of any new theories on the subject. M. Vambery has, indeed, made some vague announcements that the question is by no means settled, and has even thrown out hints that he expects to find his ancestors among the Ouigours of Bishbalik, the most cultured race of the Turks; and that it was with the object of making such a race-pedigree that he set out on his voyage to Turkestan, which has yielded so many picturesque chapters to our stores of adventurous travels. But such a theory is Quixotic in the extreme. The Turkish ingredient in the Hungarian population, consisting of the various hordes of Petchenegs and Comans which it has absorbed, may perhaps be traced to such a source; but these are the merest surface-washings of the race, the great bulk of which, as has long been known, is not Turk at all, but Ugrian. In tracing out its early history we may be able to fix rather more accurately its exact position among the Ugrian races.

We will commence, as usual, with an examination of the various synonyms by which the race is known. They have been collected by Zeuss in his 'Die Deutschen und die Nachbarstämme,' his chapter on the Ungri in that work being particularly full and interesting. The Ungri and Ungari of the western writers, and the Ouiggroi of the Byzantines, are both derived from the Slavic Ugri. Ugri is the form in Nestor; Uhry, Wegry, and Wengri in other authors. In Russian, Ugor or Ugr means an *eel*; thence Zeuss derives Ugra, the name of a river near Oka, the province Ugra (Yugra of Nestor), the Yugoria of later writers—a province reaching the Arctic Sea, east of Archangel, whose inhabitants are called Yu-griczi by the Russian Chroniclers, Ugri and Ugari by Sabinus.

The Hungarians are known to themselves as Magyars. Mogerii is the form the name takes in the pages of the notary Bela: he also gives the forms Deutumoger and Hetumoger. Some of the Byzantines give it as Magaroi, others as Mazaroi and Matzroi. The Arabs call them Madscher. This name is apparently identical with Megere, the most important of those Chazar tribes which, according to Constantine, broke off from their own people and joined the Turks (*i. e.*, with him, the Hungarians). By many of the Byzantines they are very loosely called Turks; by others, almost as loosely, Huns.

Let us follow the migration of the Hungarians. "The Scy-

thian region is divided into three parts—that is to say, Bostardia, Deutia, Magaria" (Thwrocz). Carpino says, "the Bastarque, that is great Hungary;" "Baschart or Pascatir, which is great Hungary." Rubruquis tells us, "the language of those of Pascatir and of the Hungarians is the same." "The country of Pascatir, whence formerly came the Huns, who were afterwards called Hungarians" (Berg). Such is the burden of the travellers' accounts of the thirteenth century. It is abundantly confirmed by the accounts of those more competent to speak, namely the various Arabian geographers. Yacout, Cazvin, as well as Maçoudi, speak of the Hungarians under the name Baschardes. Ibn Haoucal speaks of two nations of the Baschkhartes:—one at the extremity of the *east* (*vide* D'Ohsson 'Peuples du Caucase,' 257), near the Bulgarians, to whom they are subject; the other more numerous near the Batchenakes (Petchenegs). The historians of the Mongols, Alai-ed-din and Raschid-ed-din, in relating the conquest of Hungary by Batou Khan in 1241, call it Baschcardia. These authorities are sufficient to prove to us that the Hungarians came from the Baschkir country, namely the present government of Orenburg, and that they were the Baschkirs of the eighth century. The present Baschkirs, I need hardly say, show few traces of such an origin in their language; in the main this, as well as many of their characteristics, is Turk; but their *physique* betrays a cross at least of Ugrian blood, while, as Dr. Latham remarks, they are called Ishtaki (Ostiaks) by some of their neighbours—another link in such connexion.

I have already remarked in a previous paper on the Petchenegs, that I consider the present Baschkirs to be in a great measure their descendants. Before the arrival of the Petchenegs and the Thiukiu or Turks proper, the Baschkirs were not Turks. Relics and fragments of the previous layer of population are still found in the Orenburg country: they are known as Vogulitzi, or simply Voguls. The Voguls still are, almost exactly what the first Hungarians are described to have been, most expert hunters and fishermen.

Listen to the eloquent description of them by Dr. Latham. "They are at the same time hill-men and foresters; for they lie within the northern limit of the fir and birch . . . They are a comfortless, undersized, ill-developed population . . . From four to eight cabins constitute a Vogul village; and these lie from ten to fifteen miles apart, the uncleared forest lying between. They have adopted a little agriculture from the Bashkirs. The winter hut of the Vogul is small, close, and smoky; the summer cabin made of the boughs and rinds of the birch-tree. He hunts on foot: even the dog is a rare companion; the elk is the chief beast for sustenance, and the sable for trade. Obdorsk, at the

mouth of the Obi, is the trading town of the Voguls; their hair is black or brown, seldom yellow or red; the beard scanty; the skin glabrous and pale; the cheekbones project; the face broad and flat." Their traditions point to an emigration from the west, from the Yug, and the Dwina, which, as Dr. Latham says, probably only means that they formerly extended over a much larger area, and that their limits have been curtailed. Their language is the nearest of any known tongue to the Magyar. Oerdik, the Magyar Devil, is the Ostiak Ortik, an evil demon. Lastly, the Voguls were known to the Siranian merchants as Yograyess, which is equivalent to the Ughres of the Russian chroniclers. All these facts make it clear that the Voguls are the descendants of the old stock whence the Hungarians were derived, the inhabitants of Pascatir, whose language was declared to be like the Hungarians' by Ruysbrock. Vogul is a name they derive from the river on which they are settled; they are the western branch of the race known as Ostiaks (also from the name of a river, the Ob, which, according to Dr. Rönay, is known in their language as the Asz). They make no distinction between themselves and the Ostiaks, and call both by the same name, Mausi or Maucsi. This race, I hold, in common with most modern ethnologists, extended over all the present Baschkir area before the arrival of the Turks. It was known to some of the Russians as the Black Khozar race. It was bounded on the south by the Khozars or Khazars, more properly so called, the White Khazars of the Russians, who inhabited the border of the Caspian, and the Steppe of the Kuban; with these last it had relations of blood and language,—proved by the etymology of their capital Sarkel, which, as Klaproth has shown, is a Vogul and Ostiak gloss; proved also by the fact that they are said to have spoken the Hungarian (Turk of Constantine) language as well as their own, which among rude races means probably that the languages were cognate. West of the Hungarians, when in their seats on the Volga, were the White Bulgarians, identified by Carpino with the Mordvins and Bileres. The Arabs tell us the Khazars spoke the same language as the Bulgarians. We know the Mordvins and Voguls are only branches of one race. This reasoning would make the Circassians and Hungarians nearer relatives than they have been heretofore held to be, if, as I have tried to show in a previous paper, the Khazars are to be identified with the Circassians. In describing the Cabari, a tribe of the Khazars, Constantine mentions several facts which have been overlooked by ethnologists, and which would explain in a measure how a race of mere fishermen and hunters, such a race as the Voguls now are, were enabled to tramp over two-thirds of Europe, and to defeat its most renowned soldiers. Such an

event would seem to be impossible, unless these fishermen were led by a caste of warriors very superior to the Voguls and Ostiaks. Constantine tells us that a civil war arose among the Khazars, and that one portion of them was conquered. Of these, a section fled to the Turks in the Patzinacitan territory (*i. e.* to the Hungarians), and settled among them, and, having contracted a mutual friendship, were called Cabari. They taught the Turks the language of the Khazars, they also used the other language of the Turks. As they excelled the eight other tribes in strength &c., they held the first place, and one of the Cabari was prince of those tribes in his day. In another chapter he tells us that the tribes that broke off from the Khazars were the Cabari, the Nece, the *Megere*, the *Cuturgurmati*, the Tarcani, the Genach, the Care, and the Case. Apparently all these tribes are spoken of in other places under the general name Cabari. The Cabari, as we have elsewhere shown, were the ancestors of the Kabardi, in later times the most important division of the Circassians. It would appear, then, that the Ougres, Ogors, or Hungarians, were really led and governed by a caste of foreigners, whose warlike skill and talent we may assume, from their descendants' wars with Russia, to have been very considerable. We may well believe that this dominant caste was the source of the chief families in the country, just as the Norsemen were the ancestors of the best blood in Russia and Poland. One of its tribes, the *Megere*, seems to have given its name to the race; for I know of no other origin for the name Magyar. Every other etymology suggested by the latest writers appears to me unsatisfactory. About the same period the Scandinavian Russians were giving a name to the first power among the Slaves—a valuable parallel in many respects. Thus the Magyars were a dominant caste of foreigners, comparatively highly cultured, who effectually subdued the more numerous Ogors. Thus also, as in the case of the Russians, the culture remained, the chivalrous spirit remained, and so did many customs that carry us to the mountains of Circassia: but the language was absorbed as, in another parallel case, the Mandchou language has been absorbed by the Chinese. Perhaps (and I have very high authority for the statement, though I am not at liberty to mention it) the Hungarian language contains a very considerable element which may be correlated with Circassian; and thus my position is considerably strengthened. We will now trace out rapidly the earlier history of the Hungarians.

The Turks proper, the Thukiu of the Chinese writers, first came into contact with the Romans about the year 569. Having conquered the Avares and other nations of Central Asia, their Khan had acquired the rank of Grand Khan, and their race had

spread out in all directions over the Kirghiz steppes. They now sent an embassy to Rome to try and open a trade in silk and other Eastern produce with the West. This embassy was well received by Justin II., and an account of it is given by Menander. In reply to it, Zemarchus was sent as ambassador by Justin to the Turkish camp, on the Irtysch. He was entertained in a most imperial fashion, had a Kerkes slave presented to him, and returned home by the Kiptchak steppe and the northern shores of the Caspian, and, on crossing the river Volga, entered the country of the Ogours. These Ogours have been confounded by Zeuss with the Turkish Ouigour of Bishbalig; they were, in fact, the Ughres or Hungarians. They were subjects of the Khan of the Turks; and it was doubtless for this reason the Hungarians were called Turks by the Greeks at a later day. Constantine Porphyrogenitus tells us, the Hungarians (by him called Turks) formerly dwelt near the Chazars, in a place called Lebedias; then, he says, they were not called Turks but Sabartoiasphali. Zeuss ingeniously conjectures that the first syllables are equivalent to the German *swart, schwarz,* "black;" and that the whole word is a translation of the Slavic *Czernii Ugri,* Black Ugri, by which the Hungarians are known in later Russian writers. For details of what follows I must refer to the next papers in this series, on the Avares and Bulgarians. Here it will suffice to say that, when the power of the Turks in Western Asia was broken, the Khazars succeeded to their supremacy in the regions north of the Caspian Sea and the Caucasus, and the Hungarians became their subjects. White and black, as is well known, means, with Eastern writers, little more than dominant and dependent; thus the Black Khazars, or Hungarians, were the subjects of the White Khazars. The former seem to have spread westwards very considerably on the decay of the power of the Great Bulgarians in the seventh century, and to have occupied their seats east of the Don on their great migration to Bulgaria beyond the Danube. From these seats they were apparently driven by the Petchenegs—driven across the Don into the country called Lebedias, so called, says Constantine Porphyrogenitus, from their first voivode, who was named Lebedias. This country is watered, he says, by the river Chingylus. This river, Zeuss identifies with the Ingul, one of the tributaries of the Bug.

Zeuss has some pertinent remarks on this passage of Constantine. He says, this title of Voivode (Bœbodos, as Constantine has it) is a title unknown to the Hungarians, and is clearly Slavic. The Hungarians, again, are hardly likely to have named their country from any leader. "The land of Lebedias" is clearly a name given by his neighbours to the land of some renowned prince.

The Petchenegs still pressed on; and we are told by Constantine that, about fifty years before his day (that is, about 862; the date is fixed, perhaps, with greater accuracy by Rhegnion, a contemporary, at 889), the Turks retired under Lebedias to a country called Atelchousou, identified by D'Ohsson, with great probability, with Moldavia. It is identical with the Erdelen of the Hungarian legends. We are told that, having arrived there, the Khan of the Khazars (that is, of the White Khazars), whose supremacy the Hungarians acknowledged, wished them to elect Lebedias as king, and sent word by Chelandia, the first of the Hungarian voivodes, to solicit him to take it; but he declined, saying there was another voivode, Salmuts by name, who had a son Arpad; either of these was worthy of the honour. Arpad was chosen as the one deemed by the Hungarians (the Turks, as Constantine calls them) the most worthy; and we are told that, after the solemn manner of the Khazars, he was elevated on a buckler. He was the first king of the Hungarians, according to Constantine; and the first royal house of Hungary was descended from him. If the emperor is consistent in his account, he must also have been a Chazar of the tribe of the Cabari (*vide antè*). At this time Sviatopolk had formed his kingdom of Great Moravia, which included Bohemia, by the cession of Arnolf, the Emperor of Germany. So long as he lived the west was well protected from nomade invaders, the previous wave having been well broken by Charlemagne. On his death in 894, civil war broke out between his sons (see Bohucz), and the barrier was broken. The Hungarians having sustained a fresh defeat at the hands of the Petchenegs, marched into Morâvia under Arpad. This is one account; another, collected by Bohucz from Hungarian legends, is to this effect:—

After the destruction of the Avares, Pannonia became a huge desert. The Slaves, who were settled there by leave of the emperor, were employed in restoring it to cultivation when Cusid, son of Cund, an envoy of the Ougres, announced to Sviatopolk that his people intended to settle there; the latter, wishful rather of allies than of enemies, consented, and Cusid returned laden with the fruits of the country and a jar of water from the Danube; Arpad hereupon, having made an offering to the gods, sent a white horse as a present to Sviatopolk, which was accepted with too great complaisance. The Ougres now requested the great Moravian to evacuate a province which was worth only one white horse, and, on his refusal, defeated him severely. He escaped to the Danube, where some say he was drowned, others that he escaped to the forests beyond, and sought refuge among some anchorites, with whom he lived for six years and then died—making a parallel story to that of

Harold. Whichever of these accounts we accept (and I am bound to say the former one is, in every respect, the most credible), we are safe as to the main facts, which are the invasion of Pannonia by the Hungarians about the time of the death of Sviatopolk.

They were then divided into seven tribes, each governed by its separate chieftain, the seven forming the Hetumoger or seven Magyars of the Notary of King Bela. He gives their names as Almus, the father of Arpad, Cund, the father of Curzan, Ound, the father of Ete, Tosu, the father of Lelu, Huba, Tuhutun, father of Horca, who was the father of Gyula and Zombor, and Eleud, the father of Zobolsu. The last of these may be profitably compared with Ziebil, the Khazar ally of Heraclius. In another list the names are given as Arpad, Bolcher, Gyula, Cund, Leel, Verbulchir, and Urs. Three of these names occur in Zonaras; so they may be considered, on the whole, reliable. Each of the tribes is said, in the legends, to have numbered 30,857 men, and the number of clans or families is put at 108.

In occupying their new country, according to Constantine, the eight Turkish tribes (*i. e.* Hungarian) settled on its various rivers; they remained independent of one another, but had a mutual understanding that, in whichever direction war commenced, all should join against the enemy. They chose a common general of the race of Arpad to lead their armies, with whom were associated two officers to perform the office of judges; they were entitled *gylas* and *carchan* (compare this last with the later *Gourkhan* of Carakitai). Besides these, each tribe had its proper prince.

It may well be, and is in fact most probable, that only a small portion of the Khazars who broke away from the main body accompanied the Hungarians in their emigration; the rest remaining behind, near their kindred, occupied the Crimea, and became the ancestors of the Kabardi, as I have shown in my last paper.

The chronicler Rheginon describes the Hungarians as living by fishing and hunting, and as fighting with bows and arrows.

The notary of Bela tells us they had no cities nor fixed houses, nor did they live on the produce of agriculture, but on flesh and fish; their young men were continually hunting; and thus it happened that, even in his day, the Hungarians were the most renowned hunters. This tallies well with what we have said of the affinities of the Hungarians with the Voguls. Leo has furnished Gibbon with material for some sonorous phrases in his description of the Hungarians. "Their tents were of leather, their garments of fur; they shaved their hair, and scarified their

faces; in speech they were slow, in action prompt, in treaty perfidious," &c. &c.

In the infancy of Lewis the Pious they invaded Bavaria, they overran Swabia and Franconia; and Gibbon affirms that the origin of walled towns is ascribed to the necessities of this period. Almost at the same instant they laid in ashes the Helvetian monastery of St. Gall and the city of Bremen. Pavia was burnt, and Italy overrun to the mountains of Calabria. They overran the Eastern empire to the very walls of Byzantium; and all Europe seemed to be the camping-ground of the Normans, the Saracens, and the Hungarians.

Henry the Fowler and Otho the Great owe no little of their fame to the victories they gained over the Hungarians, whose power they effectually crushed. Their subsequent history is beyond the scope of this paper. When they arrived in Hungary their religion was no doubt that of the foresters of the Ural mountains; but this arrival synchronizes with the most energetic period of Mahometan propagandism, and we find accordingly that Yakut mentions having met at Aleppo certain Mahometan Bashkirs from Hungary, who told him that in the time of their forefathers seven pious men from Bulgaria had visited their land and taught them the true faith. Whatever progress these missionaries may have made, they have left little trace behind; nor had Rome a more faithful ally, or civilization many more prolific cradles than Hungary after the days of St. Stephen.

The subsequent history of Hungary is very easily accessible, and is beyond the limits of my subject, which deals only with the pedigrees of races. Its present ethnological condition has been well described by Mr. Paterson in his recently published travels, an able *résumé* of which was given by Dr. Hyde Clarke, in the 'Athenæum.' A subsequent paper will deal with the somewhat intricate subject of the Avares and their ethnology, in which the earlier history of the Hungarians will receive some further criticism.

NOTES AND QUERIES.

The Phœnix.—This is the name of a new monthly magazine published in London, and devoted to Chinese, Japanese, Tibetan, Manchoo, Mongol, and Indo-Chinese subjects. It is edited by the Rev. Professor Summers, and reckons among its contributors and correspondents some of the leading students of these branches of knowledge. Ethnology is included, and thus a new opening to most interesting sources of information is obtained.—H. C.

Dochester Dykes.—The Abbey Church is not the only thing which makes the Oxfordshire Dorchester a place of high interest to all who cherish the antiquities of our land, to whatever age or people they may belong. Large traces still remain of the yet earlier times, before Dorchester became a seat of abbots or of bishops, before it became a possession of Englishmen at all. Roman remains are still abundant: pavements are not uncommonly found in gardens and under the floors of houses; and the local phrase of "going a-Cæsaring" shows how rich was the harvest of coins bearing the image and superscription of the old masters of Britain. But the chief relic of Roman days lies outside the present village. A peninsula formed by one of the many windings of the Thames or Isis and its junction with its tributary the Thame, is cut off by a strong defence, a double dyke with a fosse between, which we can have no doubt as to attributing to the ancient conquerors. But it is equally plain that it was designed for some temporary purpose of warfare, and that it was not meant as the fortification of the town, which lies outside of it. The object of its formation is obvious. On the other, the right, bank of the river, on what was in later times the West-Saxon or Berkshire shore, rise two hills, which, crowned as each of them is by a clump of trees, form prominent objects in the view of the neighbourhood, and which seem to be called indifferently from Dorchester, from Wallingford, and from the nearer village of Wittenham. On one of these hills, which bears, among antiquaries at least, the traditional name of Sinodun, there still remains a perfect example of a British hill-fort well girded about by its ditch and rampart. There can be little doubt that the intrenchment by the river marks the position of the Roman besiegers while engaged in the reduction of this Celtic stronghold. As to the exact date of this warfare there may be some doubts. Mr. James Parker, in a paper read before the Oxford Architectural and Historical Society in 1868, tries to show that the Roman intrenchment was the work of Aulus Plautius in that campaign in the reign of Claudius which is recorded in the sixtieth book of Dion Cassius. It may, however, be doubted how far this theory can be reconciled with the views put forth by Dr. Guest in his memorable essay of the 'Origin of London.' But the exact date and author of the work is a matter of secondary interest. Whether the Dorchester dykes were made by Aulus Plautius or by any later Roman general, there can be no doubt that they are genuine Roman works, raised with an eye to the siege of the great British fortress on the other side of the river. As such, the fortress at Dorchester and the fortress on Sinodun are among the most speaking monuments of the earliest history of our island, and till lately they were among its most perfect monuments. But it is a grievous truth that while we are writing the dykes at Dorchester are being levelled. Hitherto the neighbouring ground has been grazed, and the harmless sheep is no foe to history; but it has lately occurred to the owner of the ground that a few shillings more of yearly profit might be gained by turning pasture land into arable; and to such a sordid motive as this these precious antiquities are at

this very moment being sacrificed. At least a third of the dyke has been already lowered, and will gradually be utterly levelled beneath the yearly passage of ruin's merciless ploughshare. Such wanton destruction naturally aroused the indignation of men of taste and knowledge, especially in the neighbouring University. A vigorous appeal to the owner to stay his hand was made by some of the most eminent Oxford residents, and an attempt was made to call public attention to the subject by describing the state of the case in various newspapers. Here comes the ludicrous part of the story, which revealed the curious fact that there are people who fancy themselves to know something of English history and antiquities, who yet did not know that England contained two Dorchesters, and who had never heard of the great Mid-English bishopric. The Oxford writers and memorialists certainly made it plain that they were speaking of the Dorchester in their own neighbourhood, a Dorchester whose existence they might fairly have assumed to be familiar to any educated person. Still editors and correspondents could not take in the fact that there were two Dorchesters, and they began to talk about Dorsetshire, Dorsetshire farmers, Maiden Castle, and what not. The 'Pall Mall Gazette' took the opportunity to give great prominence to an essay on the antiquities of the wrong Dorchester, while it gave much less prominence to a correction which seems for the first time to have revealed in that quarter the existence of the right one. Indignant inhabitants of Dorchester and Dorsetshire wrote to say that the whole thing was a mistake, and that none of the antiquities of Dorchester had been touched or threatened. This sudden revelation of popular ignorance was ridiculous enough, but it has done real damage. It has quenched the public interest in the subject which had begun to be awakened, and it has led some people to believe that the whole complaint was a complaint about nothing. Such is the disadvantage of there being two Simon Pures—two places each bearing the same name, and each famous for antiquities of the same class. As we before said, we know not whether there be or be not "two Wussesters;" but, at any rate, it was a gain when we had occasion to denounce the destruction of the Guesten Hall at the one "Wussester," that the people of the other did not rise up to say that nothing of the kind had happened among them.

Meanwhile the work of destruction is actually going on. The pickaxe and shovel were busily at work only a few days back; but meanwhile those who have the antiquities and the credit of the country at heart have been stirred up to more vigorous exertions. A memorial to the Home Office was a few days back in the course of signature at Oxford, and it had received the names of many of the most eminent members of the University. The memorial prayed that any available means might be taken both to stop the hand of destruction in this particular case, and to secure our national antiquities against such danger for the future. It is really frightful to think that so many of our most precious antiquities, both primeval and medieval, cromlechs, barrows, dykes, ruined castles, and ruined churches, lie absolutely at the mercy of individual owners, who may

happen to be liberal and intelligent, but who may also happen to be sordid and ignorant. The rights of property must have some limit. The law in many cases hinders a man from doing to his neighbours not only substantial, but even what might be called sentimental damage. He ought surely to be hindered in the same way from doing a damage to the whole nation by wiping out a portion of its history. A man may do as he wills with his own; but he should not be allowed so to do with his own as to destroy the right which every man has in the history and monuments of his country. We believe that the present Government is not unwilling to take some steps in the matter; and the part of the Dorchester dykes which has already fallen will not have fallen in vain if it leads to some measure for the permanent security of the daily threatened antiquities of our land.—*Extract from an article in the Saturday Review of July* 2, 1870.

*Dorchester Dykes**. Sir,—An article in a late Number of the 'Saturday Review,' written with the worthy object of arresting the destruction of an important national monument, would ill deserve to be received by the public in a spirit of hypercriticism. Few persons can have heard without regret the contemplated destruction of the dykes at Dorchester. We should have double reason, however, to regret the attention which has unhappily been drawn to this place if a bold and, as I venture to think, erroneous assertion as to the origin and object of these intrenchments were permitted to pass unchallenged. To those who have studied, as the writer of the article in question doubtless has done, the campaigns of Cæsar and Aulus Plautius, and have built upon the scanty materials afforded by history plausible theories of the operations of the Roman armies in their invasions of Britain, the temptation to see evidence of the Romans in every defensive work which can be brought within the probable line of march of those Generals must no doubt be irresistible. But we have ample testimony to show that the prehistoric inhabitants of these isles were no strangers to the art of war. The numerous fortifications which occupy commanding eminences throughout the country, some of which have been shown by their relics to belong to the stone age, or at any rate to the age in which stone implements were still in common use by the people, prove beyond doubt that there were Vaubans and Cormontaignes of no mean skill in those days. The fair and the dark races must have had life-long struggles for the mastery; the flint and the bronze folk must have had bones to pick with each other; and every inch of ground must have been fought over again and again ages before the Romans pushed their legions towards Britain. While, therefore, thanking the writer and those before him who have drawn public attention to this act of vandalism, I beg permission to join issue with him through your columns upon one paragraph of his article which appears to me to contain the pith of his errors in respect to the Dorchester intrenchment. "Whether the Dorchester dykes," he says, "were made by

* A letter to the Editor of the 'Pall Mall Gazette,' July 11, 1870.

Aulus Plautius or by any later Roman General, there can be no doubt that they are genuine Roman works, raised with an eye to the siege of the great British fortress (Sinodun) on the other side of the river. As such, the fortress at Dorchester and the fortress on Sinodun are among the most speaking monuments of the earliest history of our island." Without doubt ancient fortifications, to those who understand their language, are among the most speaking monuments that we possess. The skill with which their defences are often adapted to the features of the ground, and the relief of their ramparts to the natural strength of the positions, are points which render these works objects of surpassing interest to the officer who studies them with a military eye. The rules of war, as we understand them now, were well applied by the Ancient Britons, and often enable us to determine without much difficulty the object of the defenders and the relative positions of the contending forces. Having twice examined the camp at Dorchester (and I may observe, *en passant*, that I know of no place that will so well repay the military officer who has an archæological turn of mind for the trouble of visiting it), I have arrived at a totally different conclusion from the writer of the article. First, the camp is not Roman; and, second, it was not thrown up with any view to the reduction of Sinodun. As regards the first point, it must be understood that, although the camp is within half a mile of Dorchester, it does not contain any portion of the Roman station of Dorchester, Dorocina, within its lines. The position of Dorchester therefore is of no more value than the position of Jericho in determining the origin of the camp; and, further, notwithstanding the vicinity of Dorchester, and the numerous relics of the Roman period discovered there, I have been unable to ascertain that any thing Roman has been found within the area of the camp. I examined carefully, by pacing backwards and forwards, the whole of the interior of the camp at a time when the crops were off the ground; but I failed to discover a single fragment of Roman tile or pottery, which, considering the relief of the dykes, denoting permanence of occupation, could hardly have been absent if the camp had been the work of the Romans. On the other hand, evidence of British occupation was abundant: I found several fragments of undoubted British pottery in the materials excavated from the dykes, a fragment of a flint spear-head; and *débris* of the fabrication of flint implements, flakes and chips, covered the ground. These, considering that the flint is foreign to the soil, and must have been imported, are sufficient evidence of pre-Roman industry. In Sinodun the same class of objects met the eye. Although the traces of the fabrication of flint implements were less abundant than in the camp below, I found a fragment of a polished celt and a rubbing-stone of the kind that is not unfrequently found in the tumuli of the bronze age. In the rivers between the camps, the discovery of a British shield of bronze and a bronze sheath tells the same tale, and affords additional evidence in support of the theory of the British as opposed to the Roman origin of these works. There is nothing in the construction of the dykes themselves to lead to the supposition that they were

Roman. The double dyke and double fosse (for there are traces of two ditches) were common to both British and Roman fortifications; indeed the double dyke is the rule rather than the exception in British earthworks. Sinodun itself, which the writer of the article admits to be British, has a rampart outside the ditch, the inner rampart having been dispensed with on account of the natural command afforded by the rise of the ground on the inside. This is in accordance with the rule of defence so frequently to be noticed in British earthworks.

With respect to the second point, viz. the object of the work, here the rules of war come in to help us. Dorchester Camp occupies a position which no enemy at any period of warfare could have taken up for the attack of Sinodun—situated upon low ground, commanded on two sides by the high ground, on which the defenders had strongly intrenched themselves, and separated from the object of attack by a broad river, where every movement in preparation for attack would have been seen by the defenders, and every sortie of the defenders must have taken the besiegers by surprise; where every assault upon the place must have been preceded by the passage of the river at the point most disadvantageous for the attacking party, it is impossible to conceive the Roman General so ignorant of war as to have thus thrown himself wittingly into a *cul-de-sac*.

The River Thames, or, more properly, the Isis as it is here called, runs from Abingdon in the direction of Dorchester, through a comparatively flat country. Here it turns to the south, and running straight to Sinodun hill, it is there turned sharply to the eastward by the high ground on the south. The command of ground is here everywhere on the south side of the river; the ground to the north of the river is a dead flat, and the Dorchester dykes cut off a promontory of this flat ground formed by the abrupt turn of the river. Sinodun Camp occupies the high ground to the south of the river, and overlooks the Dorchester Camp at the distance of about a quarter to half a mile, and at a height of about 250 feet above it. In ancient times a ford existed at the bend of the river between the two camps. It is evident that to select this spot for the passage of an army from the north to the south side of the river would be to select the very spot on the whole line of the river which would be least favourable for the purpose; and for the same reason that it would be unfavourable in passing from north to south, it would be favourable for a passage in the opposite direction, that is to say, in going from, not in advancing towards Sinodun. Supposing Aulus Plautius to have come from the north-west, as assumed by Mr. Parker in his communication to the Oxford Architectural and Historical Society, he would no doubt have crossed the river, preceded by his special corps of swimmers, at Clifton Hampden, where the ground is favourable, or at least not absolutely disadvantageous. From thence he would have advanced to the attack of Sinodun by Little Wittenham, and he would have occupied the high clump which commands Sinodun, within 150 yards to the westward of it. In this

position he would also have commanded the fort above mentioned, by means of which he would have brought over his supplies, and the reduction of the British fortress would probably then have been the work of a few days. But it does not appear to me there is a particle of evidence for supposing that the Romans had any thing to do with either camp. The features of the ground point clearly enough to the intention of both camps, and, as I mentioned before, they mark this spot for the passage of an army from south to north. Both camps were probably the work of the same people, and were connected in the defence of this important strategical position. Dorchester Camp could never have been occupied so permanently, as its large dykes show that it was occupied, at the same time that Sinodun and the commanding position around it were in the hands of an enemy. We must attribute both to the intestine wars of the Britons.

It is reasonable to suppose that the river formed the boundary between tribes. The Southerners (for such we must call them in the absence of any possible clue to identify the people of this remote age) selected Sinodun as the best position for dominating the north bank. The ford at this place offered them the means of communication which they desired, and the Dorchester dykes were thrown up by the same people on the opposite side of the river as a kind of *tête-de-pont* to cover the passage of the river, and keep open the communication with the enemy's country. Hence it is that we find the soil in both camps teeming with evidence of the same people, viz. the Ancient Britons, whether prehistoric or merely non-historic it may be difficult to determine, but certainly non-Roman. It may, perhaps, be thought by some that by divesting these dykes of their historical associations we deprive them in a great measure of the interest which attaches to them, but their value as evidence of the social condition of our ancestors or our predecessors, as the case may be, is greatly increased. The historic monument is interesting as a means of realizing the information which history conveys to us; but the prehistoric monument assumes double importance from its affording the only available evidence of the period to which it belongs. Judging by the rapid progress which prehistoric archæology has made during the last ten years, there can be little doubt that the knowledge we now possess is as nothing compared to what is stored up in these primeval monuments for the benefit of future generations, and the duty of handing them down intact for the more enlightened judgment of posterity is one which the Government of a civilized country would do ill to neglect.

I have the honour to remain, Sir, yours obediently,

A LATE ASSISTANT-QUARTERMASTER-GENERAL.

INDEX.

THE END OF THE SECOND VOLUME.

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