

males to 102 females. We find that these proportions are more than borne out by the actual number of births registered during the years 1839, 1840, and 1841; viz.—684 males and 707 females, or 100 males to 103 females. In Great Britain the number of male births registered is to those of females as 100 to 95. In New South Wales the number of male births registered for the three years ending with 1840, to that of female births, is 100 to 97. The districts of Launceston and Hamilton differ, however, in this respect from all the other districts; as in them the male births registered greatly exceed those of female births.

The number of marriages in 1839 was 423; in 1840, when every thing was seemingly prosperous, 457; but in the following year of depression it was only 407. This fact alone would be a sufficient standard by which to measure the flood and ebb of our Colonial prosperity. Of these 1287 marriages, 1095 were solemnized according to the rites of the Church of England, 72 according to the rites of the Church of Scotland, 60 according to those of other Protestant denominations, 52 according to those of the Church of Rome, 6 by the Jews, and 2 only in the Register Office, both of which were solemnized in 1839.

No accurate proportions can be come to by comparing the number of births and deaths registered, as the latter embraces those only of free individuals; but it will afford gratification to observe the decreasing number of persons whose deaths have been occasioned either directly or indirectly from drunkenness. The numbers for the three years were 40, 34, and 29, respectively; and it is fervently to be hoped that this diminution will still continue.

The deaths by fever in 1840, in proportion to the number of cases treated, were  $9\frac{1}{2}$  per cent.; whereas in the

following year they were only in the proportion of 4½ per cent. The fever appears from the table to have raged with greater violence in Hobart than in any of the other districts.

A comparative account of the rate of wages during the last three years was furnished to me by one possessing more accurate information on this point than, perhaps, any other person in the Colony; though these rates exhibit a slight decrease from 1839 to 1841: yet I would observe that many of them have still further fallen during the last year, owing to the increased number of mechanics now resident in this Island.

\* \* \* \* \*

*Abstract of Tables kept by W. WYATT, Esq., showing the Highest, Lowest, and Mean Temperature, &c., &c., in Adelaide, South Australia, for the Year ending 31st October, 1842.*

MONTHS.	Highest Temp.			Lowest Temp.			Mean Temp. Noon.	WINDS.		
								Hot.	Warm.	Cool.
November ..	85	99	82	58	65	59	78	..	15	25
December ..	90	102	89	66	68	65	85	3	15	23
January .....	80	97	78	67	75	69	84	..	8	27
February ...	82	100	87	75	72	55	87	2	8	27
March .....	84	99	82	61	64	62	81	..	12	29
April .....	70	80	66	62	63	56	70	..	12	15
May .....	67	81	68	54	60	53	66	..	14	17
June .....	59	73	58	54	54	54	63	..	24	8
July .....	59	76	62	54	58	50	61	..	23	13
August .....	68	77	67	45	51	43	61	..	18	21
September ..	69	84	71	50	52	51	66	..	22	15
October ....	85	90	82	95	61	57	73	..	14	22

### Miscellanea.

#### MASTODONTOID PACHYDERM OF AUSTRALIA.

On the Discovery of the Remains of a Mastodontoid Pachyderm in Australia; by Professor OWEN, F.R.S.

[From a Letter to the Editors of the Annals of Natural History.]

GENTLEMEN,

I HAVE lately received a letter, dated April 6, 1842, from Sir Thomas Livingstone Mitchell, Surveyor-General of Australia, in which he announces the interesting discovery of large fossil mammalian remains in that continent. The specimens from the bone-caves in Wellington Valley, described in the second volume of Sir Thomas's work on Australia, were, it may be remembered, remains of extinct species of marsupial genera now existing in that continent, and of a genus very nearly allied to the existing ones; the largest fossil, which had been supposed to belong to a Hippopotamus or Dugong, indicating rather an extinct gigantic Phascolome; and there was not any conclusive evidence of a genus of placental mammal in that collection.\*

The fossils, which my friend has now transmitted, incontestably establish the former existence of a huge proboscidian Pachyderm in the Australian continent, referable to either the genus *Mastodon* or *Dinotherium*. These fossils consist of a portion of a molar tooth, and of the shaft of a femur with part of the spine of a scapula, and some smaller fragments of a long bone. Sir Thomas states, "These are not satisfactory specimens such as I hope soon to send you, but being the first from the locality, I am anxious you should first hear of them. I can tell you but little of the manner in which they occur; but such bones are found on the Darling Downs—those extensive plains which you will see marked to the S.W. of Moreton Bay on most maps of this country. They are at the sources of the Darling River, and at a great height above the level of the sea, upwards of 4000 feet. I am informed that these huge bones, of which I send you but fragments, are found in some abundance."

These fragments, when their broken surfaces were re-adjusted, composed the very considerable part of the right femur; the contour of the circumference illustrating the principal characteristic of the bone, viz. its being flattened from before backwards.

Among the larger quadrupeds the femur presents a simi-

\* Mr. Pentland informs me that a bone of a large quadruped, apparently a pachyderm, from the Wellington Valley, is, he believes, in the Museum at Paris.

lar antero-posterior compression in the elephant, *Mastodon*, and rhinoceros; but the latter animal is distinguished by a second external trochanter, situated below the great trochanter, which is not present in the Australian fossil. In the *Megatherium* and its congeners the flattening of the femur and its transverse breadth greatly surpass the proportions exhibited by the fossil under consideration, or those of the femora of the proboscidian Pachyderms.

The femur of the *Mastodon* is that which the fossil from the Darling Range most resembles, in being flatter on the posterior than on the anterior surface. Compared with the femur of the *Mastodon giganteus*, the fossil presents the following differences: it is broader in proportion to its length; as, for example,

	Australian femur. in. lines.	Mastodon. in. lines.
From the lower part of the post-trochanterian depression to the prominence above the outer condyle . . . . .	18 0	24 0
Breadth of middle of shaft of femur . . . . .	5 0	5 9
Circumference of do. do. . . . .	13 6	14 6

The surface of the bone below the post-trochanterian depression is more convex in the Australian fossil, and the prominence above the back part of the outer condyle is more developed; the small trochanter is narrower and longer, and is defined by a groove along its anterior part. The femur in the *Mastodon giganteus* thins off almost to an edge at the outside of the distal half of the shaft: in the Australian fossil the corresponding part is broad and convex. The anterior part of the great trochanter rises higher above the level of that part of the femur in the Australian fossil than in the *Mastodon*. The orifice of the medullary artery is conspicuous in the Australian fossil at the back part a little above the middle of the shaft, and towards the inner side; the canal sloping upwards. I cannot detect the corresponding orifice in the *Mastodon's* femur compared. The Australian fossil exhibits a large medullary cavity along the middle of the shaft, with dense parietes an inch thick. The total length of the fossil is twenty-two inches; its greatest breadth across the upper or proximal end, where the neck begins to bend inwards, is ten inches.

Traces of the smooth pitted surface at the broken distal end indicate the place of junction of the articular epiphysis, and prove that the entire shaft of the femur is here preserved; a part of the epiphysis is ankylosed to the shaft.

The portion of the molar tooth was obtained from the same locality as the femur; and if it belong, as is most probable, to the same animal, proves it to be most nearly allied to those Pachyderms, as the *Dinotherium* and *Mastodon giganteus*, in which the grinding surface of the teeth is raised into broad transverse ridges. Parts of two of the anterior ridges, and a

smaller or lower one which runs across the base of the first, at the anterior part of the crown of the tooth, are here preserved. The apex of both the higher ridges has been worn by mastication, but not to such an extent as is usually seen in the small deciduous molars of the Mastodons: there is less trace of a division of the summit of the ridge into mammillæ than would be presented by a similar-sized molar, equally worn down, of the *Mastodon giganteus*, in which the two mammillæ would be indicated by a median constriction. The transverse ridges are still more subdivided in the other known species, as *M. longirostris*, *M. latidens*, *M. angustidens*, or *M. elephantoïdes*: the Australian tooth more resembles that of the *Dinotherium* in the simplicity of the transverse eminences, but there is a deposit of cement or *crusta petrosa* at the bottom of the intervening valleys, which I have not observed in any molar of *Dinotherium*. As the bones of the extremities of this most remarkable genus, the *Dinotherium*, have not yet been discovered, the affinities of the Australian Pachyderm to that genus do not at present derive further elucidation from the femur above described.

The close relationship of the *Mastodon* to the *Dinotherium* has received additional proof by the discovery of the two tusks of the lower jaw in the young individuals of the *Mastodon*, and by the retention of one of these as a sexual distinction of the male, in *Mastodon giganteus*: and the highly interesting member of the ancient fauna of Australia, revealed by the remains above described, must be referred, on their evidence, to the same natural family of gigantic Pachyderms as that which includes the Mastodons and Dinotheres, and to a species distinct from any yet determined. The interests of science will, perhaps, be best consulted by refraining from the imposition of any generic or specific name until the requisite characters are obtained; and of this most desirable acquisition reasonable hopes may be entertained, since the zealous and distinguished officer to whom we are indebted for all the interesting fossils yet met with in Australia promises a continuance of his valuable aid. At the conclusion of his letter Sir T. L. Mitchell states, "I am promised part of a rib and other bones by the gentleman who gave the tooth, and I have some hopes of obtaining a jaw-bone; when I do, it shall be sent to you forthwith."

The fossils above described will be presented, in the name of Sir T. L. Mitchell, to the Museum of the Royal College of Surgeons, London. They cannot be contemplated without suggesting many interesting reflections. They tell us plainly that the time was when Australia's arid plains were trodden by the hoofs of heavy Pachyderms; but could the land then have been, as now, parched by long-continued droughts, with dry river-courses containing here and there a pond of water? All the facts and analogies which throw light on the

habits of the extinct Mastodons and Dinotheres, indicate these creatures to have been frequenters of marshes, swamps, or lakes. Other relations of land and sea than now characterize the southern hemisphere, a different condition of the surface of the land, and of the meteoric influences governing the proportion and distribution of fresh water on that surface, may, therefore, be conjectured to have prevailed, when huge Mastodontoid Pachyderms constituted part of the quadruped-population of Australia. May not the change from a more humid climate to the present peculiarly dry one have been the cause, or chief cause, of the extinction of such Pachyderms? Was not the ancient *Terra Australis*, when so populated, of greater extent than the present insular continent?

The mutual dependencies between large mammalian quadrupeds, and other members of the animal kingdom, suggest other reflections in connexion with the present fossil. If the extinct species ever so abounded as to require its redundancy to be suppressed by a carnivorous enemy, then some destructive species of this kind must have coexisted, of larger dimensions than the extinct *Dasyurus lanarius*,—the ancient destroyer of the now equally extinct gigantic kangaroos, *Macropus Titan*, &c., whose remains were discovered in the bone-caves of Wellington Valley. Extremely few coprophagous beetles have hitherto, I believe, been found in Australia, and the scarcity of such is readily explained by the absence of native species of large herbivorous mammals; but the dung of the Mastodontoid quadrupeds which formerly existed in Australia must then have afforded the requisite conditions for a greater abundance of such *Coleoptera*. These and other speculations are naturally suggested by the highly interesting fossils here described. The great importance of such organic remains will be obvious from the few inferences which have been here briefly noted: our obligations to the enlightened collector and transmitter of the Mastodontoid fossils are great, and the arrival of additional facts and specimens will be most earnestly welcomed.

I have the honour to be, Gentlemen,

Your most obedient servant,

RICHARD OWEN:

London, Nov. 1, 1842.

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#### NETTLES.

THERE can be little doubt but that the nettle, which is so common about the stockyards of the Colony, is an imported species—the *Urtica dioica*—which is stated by botanists to be indigenous to Europe, Asia, and America; but it does not appear that any of the early visitants of these Colonies observed it in any part of Australia.



COMET OF MARCH 1843.

*Seen from Aldridge Lodge V.D. Larna*

Scarcely any beast will touch the *Urtica dioica*: so that we may infer that it ripens its seeds in large quantities, which, after the plant has been once introduced, will be rapidly spread over the country, by adhering to the coats of cattle, sheep, and other animals. Another British species of nettle, the *Urtica urens*, has also been naturalized in the Colony: both are, however, distinct from our Tasmanian species, which grows usually in the scrubs and thickets where the soil is rich, and attains to the height of six to ten feet.

I may here quote a passage from Lyell's Principles of Geology, vol. iii., p. 105, 6th ed., *On the Agency of Man in the Dispersion of Plants*. "But, besides the plants used in agriculture, the number which have been naturalized by accident, or which man has spread unintentionally, is considerable. One of our old authors, Josselyn, gives a catalogue of such plants as had, in his time, sprung up in the Colony since the English planted and kept cattle in New England. They were two-and-twenty in number. The *common nettle* was the first which the settlers noticed; and the plantain was called by the Indians 'Englishman's foot,' as if it sprung from their footsteps." B.

#### THE COMET.

THIS splendid stranger was first seen in Tasmania, on the evening of the 1st of March, by a gentleman, whose attention was arrested by a luminous streak in the sky to the W.S.W.; but as, from its proximity to the sun, only a very small portion of the tail could then be possibly visible, he was ignorant of its nature, and took no further notice of it.

A clear cloudless evening on the 4th of March rendered it distinctly visible; and, as night drew on, it was seen culminating in great splendour behind Mount Wellington.

Ere the sun had touched the horizon on the evening of the 6th, its whole extent became visible to the naked eye: and such was the wonderful tenuity of the tail, that stars which would have been entirely concealed by the slightest fog, or mist, were seen shining through it in all parts without the smallest refraction. The lateral edges of the tail reflected more light than the central part, producing an effect somewhat similar to two streams of the Aurora; and the head, or nucleus, consisted of a concentrated mass of light, surrounded by a very transparent atmosphere, which baffled all attempts to reduce it to a luminous point with a telescope of ordinary power. The streams of light which formed the edges of the tail united about midway between the nucleus and extreme end of the tail; and, to the naked eye, the nucleus occasionally assumed the appearance of a stellar point situated in the middle of the nebulous matter.



When first seen it was near the star *beta* in the constellation Cete, and was approximately ascertained to be in R.A. 0<sup>h</sup> 16<sup>m</sup>, and dec. 13° south, with a diurnal motion in R.A. of about 0<sup>h</sup> 12<sup>m</sup>. It was in conjunction with the sun early on the morning of the 28th of February; and as the stream of light forming the tail is the continuation of a right line joining the sun and the nucleus, it must then have been projected on the horizon, which would at that time render it invisible, and will readily account for its bursting so suddenly upon us immediately after leaving the sun. Its motion was retrograde, that is, from east to west, or contrary to the order of the planets; and the inclination of its orbit was on the south side of the plane of the ecliptic, at an angle of 35½°. To spectators on the earth it appeared to pass nearly centrally through the brilliant constellation Orionis; which, from its equatorial position, is most favourably situated for observation from all parts of the globe.

The greatest angle subtended by the tail was 46°, and greatest breadth 1° 16', which was on the 11th March, about which time it appeared to have attained to its greatest dimensions and brilliancy. After that it slowly diminished in size, and became fainter in appearance, until it finally disappeared on the 7th of April.

J. H. K.

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#### MINUTES OF THE TASMANIAN SOCIETY.

Government House, 5th July, 1843.

PRESENT—Sir John Franklin; Messrs. Barnard, Belcher, Bicheno, Bradbury, Gell, Henslowe, J. H. Kay, Milligan, Turnbull, Verreaux.

After the minutes of the last meeting had been read, the Society elected as one of its members—

	Proposed by	Seconded by
W. H. Baylie, Esq. . . . .	Mr. Gell	Mr. Milligan.

Communications were laid before the Society from Captain Stokes of the *Beagle*, dated Swan River, 30th April, regretting that unfavourable weather had forbidden his touching at Port Lincoln; "where," he adds, "Sir John Franklin was very anxious we should get up the monument he had sent to be erected on a hill near, (Stamford Hill, called by the natives Kaityaba,) to the memory of poor Flinders. This spot was chosen by Lady Franklin, from its being near the centre of his most important discoveries on the south coast of Australia. It is not easy to imagine anything which could have afforded us such lasting pleasure, or would have made such an interesting finish to the *Beagle's* labours on the coasts of Australia."—Also from Captain Frome, dated Adelaide, 30th May, 1843, with a report upon the progress of the monument above referred to.—From Mr. Lempriere, of Port Arthur, respecting a self-registering tide gauge to be set up there.—From Lieut.

Friend, promising to send a contribution at an early opportunity, and to undertake a series of meteorological observations agreeably to the request of the Society.—From Mr. Bland, dated York, W. Australia, 11th May, in acknowledgment of his election as a member of the Tasmanian Society.

A curious notice of the antiquity of the Boomerang, and its connexion with the *amentum* or sling-spear of the ancients, as illustrated by an old British coin, was read from the Transactions of the Royal Irish Academy, 12th February, 1838.

Also an article by Professor Owen, published in the Annals of Natural History, No. 67, on the bones of a fossil Mastodontoid Pachyderm of Australia, sent to him by Sir Thomas Mitchell; and an article in the same periodical, by Dr. Richardson, member of this Society, upon Australian Fish.—Also a printed copy of the Statistics of Tasmania, from 1838 to 1841, with Mr. Ewing's Introductory Letter to His Excellency.

A paper contributed by Mr. Breton was then read, containing an account of his late excursions into the western districts of Tasmania. In reference to his description of the caves in the limestone formation west of Quamby's Bluff, Captain Rossi informed the Society that on the confines of Westmoreland and Argyle, New South Wales, vast caves exist of a similar description.

Government House, 2nd August.

Present—Sir John Franklin; Messrs. Bagot, Barnard, Bedford, Bradbury, Ewing, Fraser, Gell, Gregson, Henslowe, W. Kay, H. Kay, Lewis, Lillie, Pugh.

The minutes of the last meeting having been read, the Society elected as one of its members—

Major Cotton..... Lt. Kay .. Mr. Henslowe.

Proposed by

Seconded by

Dr. Turnbull's resignation was laid before the Society.—A communication was read from Mrs. Allport, proposing to furnish a lithographic engraving of the comet of March last for the Journal, which was gratefully accepted by the Society.—From Professor Buckland on the Moa, or *Deinornis Novæ Zelandiæ*, enclosing extracts of letters from Mr. Broderip on the same subject.—The Secretary communicated to the Society certain additional remarks from Mr. Agnew connected with his article on the Snakes of Tasmania, lately read before the Society; also an extract on the ocellated *Leipoa*, from the *South Australian*; and a list of the articles proposed for insertion in the 7th number of the Journal.

Government House, 11th August.

Present—Messrs. Bagot, Barnard, Bedford, Belcher, Ewing, Gell, Henslowe, H. Kay, Verreaux.

Moved by Mr. Gell, and seconded by Mr. Barnard—"That Mr. Henslowe be requested to take the chair."

Moved by Mr. Bedford, and seconded by Mr. Barnard—"That a deputation from this Society be appointed to wait upon